# PONDICHERRY UNIVERSITY

(A Central University)

## DIRECTORATE OF DISTANCE EDUCATION

# Customer Relationship Management

**Paper Code: MBMM 4004**
**Paper Code: MBRM 4004**

## MBA - MARKETING

## MBA - RETAIL MANAGEMENT

### IV - Semester

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## Customer Relationship Management

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- To appreciate the role and changing face of CRM as an IT enabled function, and
- To enable managing Customer Relationship.

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## UNIT - 1

### Learning Objectives

*After going through this Unit you will be able to:*

- Appreciate and evaluate Customer Relationship
- Understand Customer Loyalty
- Analyze the Success factor of CRM
- Understand levels of Services
- Understand Service- Level Agreement

### Unit Structure



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## Lesson 1.1 - Evaluation of Customer Relationship Management

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Customer Relationship Management (CRM) is to create a competitive advantage by being the best at understanding, communicating, delivering, and developing existing customer relationships, in addition to creating and keeping new customers. It has emerged as one of the largest management buzzword. Popularised by the business press and marketed by the aggressive CRM vendors as a panacea for all the ills facing the firms and managers, it means different things to different people. CRM, for some, means one to one marketing while for others a call centre. Some call database marketing as CRM. There are many others who refer to technology solutions as CRM. If so, what is CRM?

Merchants and traders have been practicing customer relationship for centuries. Their business was built on trust. They could customize the products and all aspects of

delivery and payment to suit the requirements of their customers. They paid personal attention to their customers, knew details regarding their customers tastes and preferences, and had a personal rapport with most of them.

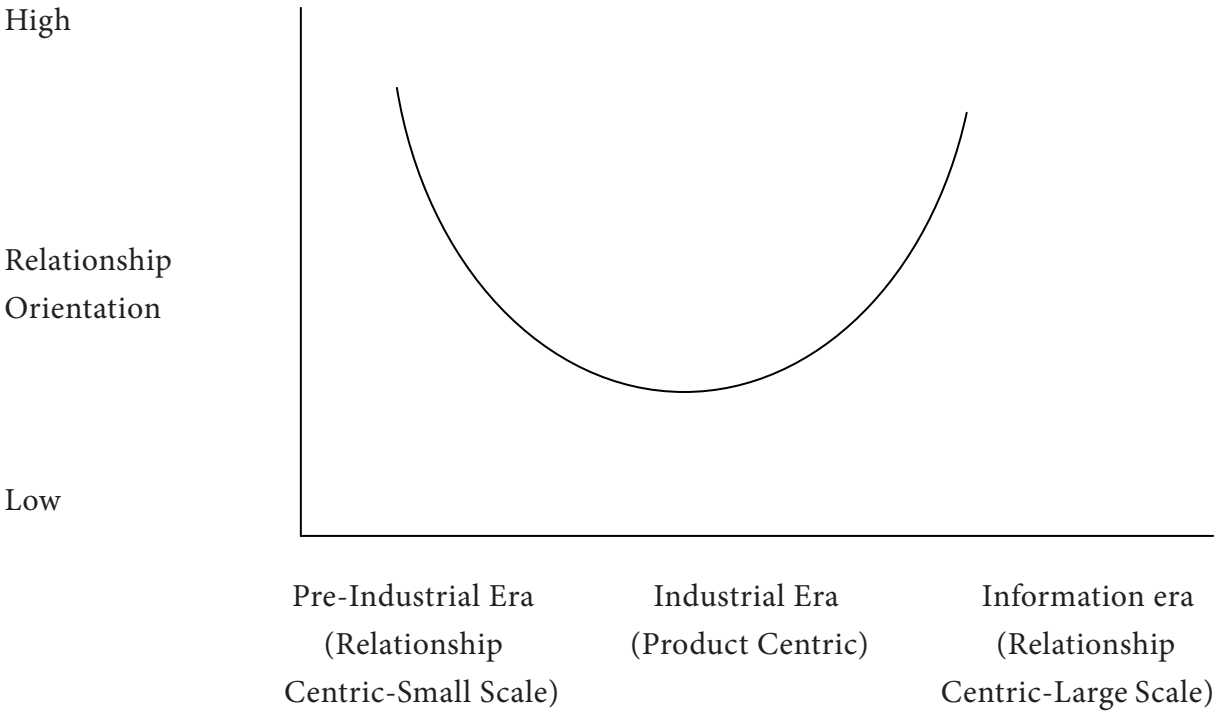
In many cases, the interaction transcended the commercial transaction and involved social interactions. Even today, this kind of a relationship exists between customers and retailers, craftsmen, artisans – essentially in markets that are traditional, small and classified as pre-industries markets.

These relationship oriented practices have changed due to industrial revolution.. Businesses adopted mass production, mass communication and mass distribution to achieve economics of scale. Manufactures started focusing on manufacturing and efficient operations to cut costs. Intermediaries like distributors, wholesalers and retailers took on the responsibilities of warehousing, transportation, distribution and sale to final customers. This resulted in greater efficiencies and lower costs to manufacturers but brought in many layers between them and the customers. The resulting gap reduced direct contacts and had a negative impact on their relationships.

The post-industrial era saw the re-emergence of relationship practices.

(a) Rapid advances in technology,

(b) Intensive competition in most markets,




**The Evolution of Relationship Orientation**

(c) Growing importance of the service sector, and

(d) Adoption of total quality management programs

**Technological Advancement**

More information, communication and production technologies have helped marketers come closer to their customers. Firms operating in diverse sectors ranging from packaged goods to services started using these technologies to know their customers, learn more about them, and then build stronger bonds with them through frequent interactions. Marketers could gain knowledge about customers, which helped them respond to their needs through manufacturing, delivery, and customer service. Technology also enabled ordering and product-use related services.

Though the emergence of CRM in recent times coincided with the information age, one must remember that technology is just an enabler. Technology enabled marketers overcome several long felt shortcomings of mass marketing. Some of these included:

- Inefficiencies of mass marketing: 1980s and early 1990s witnessed some of the most radical business transformations that resulted in cost reductions in almost all functional departments except marketing. Manufacturing and related operations costs were reduced through business process reengineering, human resource costs were reduced through outsourcing, restructuring and layoffs, financial costs were reduced through financial reengineering but marketing costs kept increasing due to increased competition and product parity in virtually every industry.
- Lack of fast, effective and interactive models of customer contact, feedback and information.
- Lack of consolidated information about customer interactions, purchase behavior and future potential.

**Intensive Competition**

In competitive markets, specially the ones that were maturing and witnessing slow or no growth, marketers found it more profitable to focus on their existing customers. Studies have shown that it costs up to 10-12 times more to attract a new customer than to retain an existing customer. Marketers have now started focusing on the lifetime value of customers. They are moving away from just trying to sell their products to understanding, customers needs and wants and then satisfying their needs. This has led to a relationship orientation which creates opportunities to cross sell products and services over the lifetime of the customer.

**Growing Importance of the Service Sector**

The service sector contributes to over two-third of the GDP of most advanced economies. In India, the services sector contributes to over 50 per cent of the economy. One of the characteristics of the service industries is the direct interaction between the marketer and the buyer. In services, the provider is usually involved in the production as well as delivery directly.

For example, professional service providers like a doctor or consultant are directly involved in production as well as delivery of their services. Similarly, the customers are directly involved in production in the purchase and consumption of these services.

These direct contacts create opportunities for better understanding, a better appreciation of needs as well as constraints and emotional bonding all of which facilitate relationship building.

Therefore it should come as no surprise when you see the service firms pioneering many of the customer relationship initiatives. Firms operating in the financial services, hospitality business, telecom, and airlines are the early adopters and extensive users of CRM practices.

**Adoption of Total Quality Management (TQM) Programmes**

Total quality management programmes help companies offer quality products and services to customers at the lowest prices. To enable this value proposition, organizations needed to work closely with their customers, intermediaries as well as suppliers thus fostering close working relationships with members of the marketing system.

Companies such as Intel, Xerox, and Toyota formed partnering relationships with suppliers and customers to practice TQM.

Other developments such as an increase in the number of demanding customers, increased fragmentation of markets, and generally high level of product quality forced business to seek sustainable competitive advantages.

A competitive advantage is sustainable only when it is not easily replicated. One such sustainable competitive advantage is the relationship that a firm develops with its customers.

## Schools of Thought on CRM

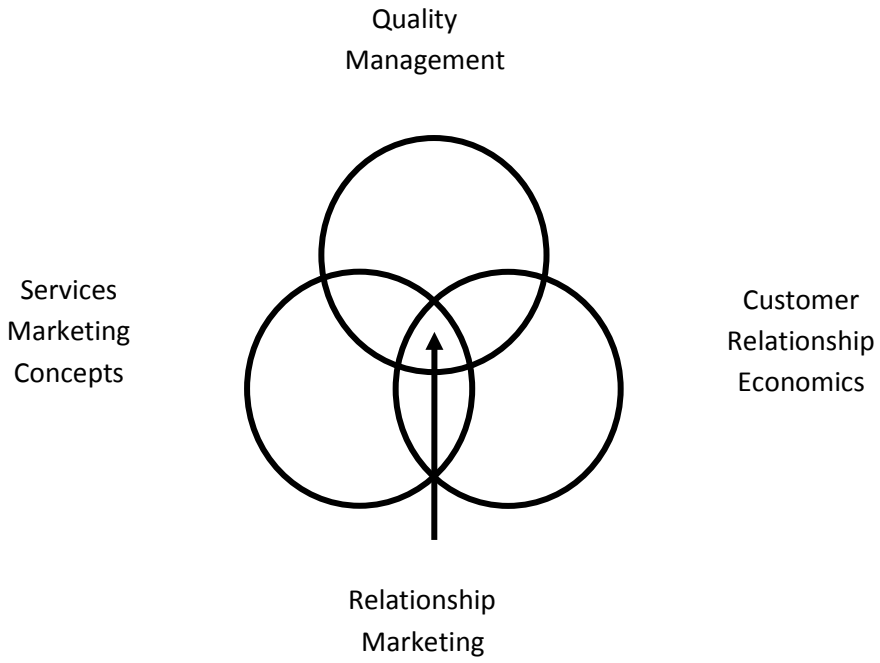
The relationship marketing is supported by the growing research interest in different facets of this concept. Researchers in different countries observed this shift in marketer's orientation towards customer relationship and started exploring the phenomenon.

The initial approaches to CRM can be broadly classified as:

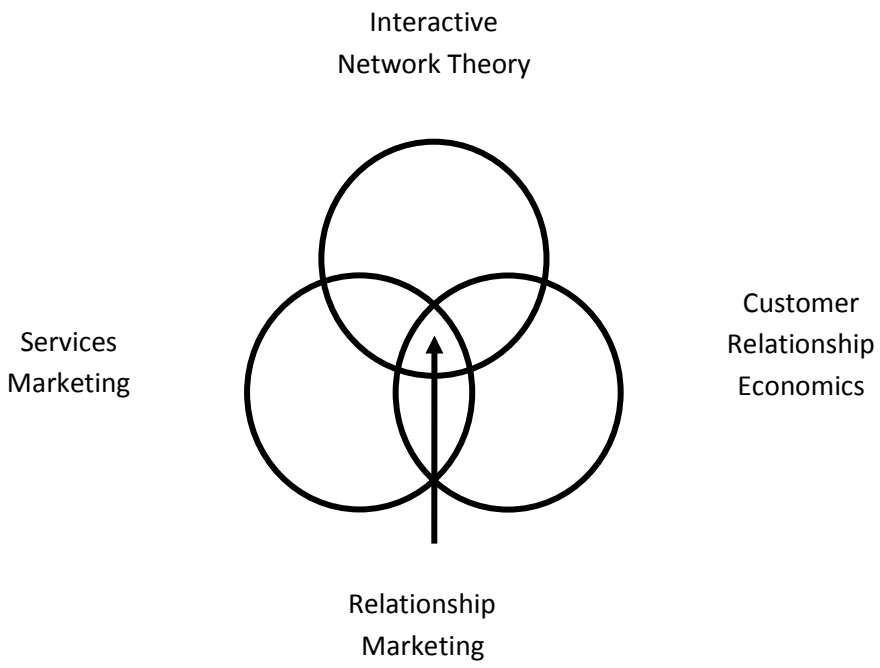
1. The Anglo-Australia Approach,
2. The Nordic Approach, and
3. The North American Approach.

The Anglo-Australian approach integrated the contemporary theories of quality management services marketing and customer relationship economics to explain the emergence of relationship marketing

The Nordic approach views relationship marketing as the confluence of interactive network theory, services marketing and customer relationship economics. The interactive network theory of industrial marketing views marketing as an interactive process in a context where relationship building is an area of primary concern for marketers.

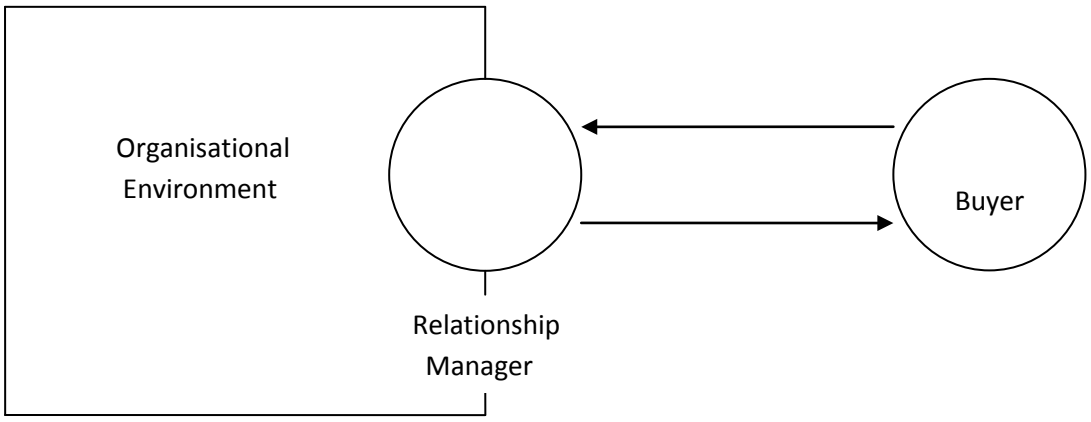



**Anglo-Australian Approach of Relationship Marketing**




**Nordic Approach to Relationship Marketing**

In contrast, the initial focus of the North American scholars was on the relationship between the buyer and seller operating within the context of the organizational environment which facilitated the buyer seller relationship.



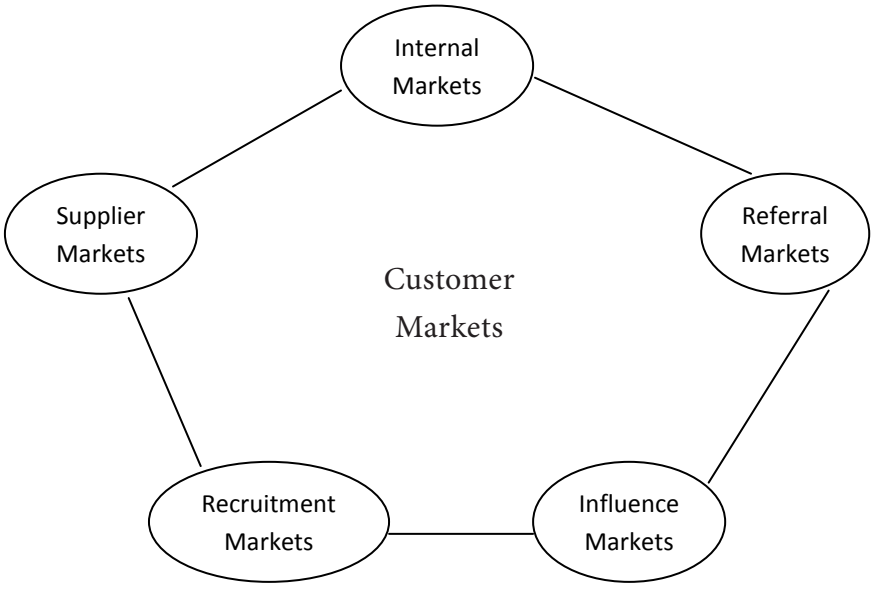

**North American Approach to Relationship Marketing**

One of the broader approaches to CRM emerged from the research conducted by academics at the Centre for Relationship Marketing and Service Management at the Cranfield University, U.K. The broadened view of relationship marketing addresses a total of six key market domains, not just the traditional customer market.

It also advocated for a transition for marketing from a limited functional role to a cross-functional role and a shift towards marketing activities for customer retention in addition to the conventional customer retention in addition to the conventional customer acquisition.

The six markets are as follows

1. Customer markets – existing and prospective customers as well as intermediaries.
2. Referral markets – existing customers who recommend to other prospects, and referral sources or 'multipliers' such as doctors who refer patients to a hospital or a consultant who recommends a specific IT solution,
3. Influence markets – government, consumer groups, business press and financial analysts.
4. Recruitment markets – for attracting the right employees to the organization,
5. Supplier markets – suppliers of raw materials, components, services, etc., and
6. Internal markets - the organization including internal departments and staff.




**The Six Markets Framework**

## Defining CRM

The preceding discussions highlight the range of perspectives adopted by researchers in understanding and explaining relationships. Similarly in marketing literature, the terms customer relationship management and relationship marketing have been used interchangeable to reflect a variety of themes and perspectives.

Some of these themes offer a narrow functional marketing perspectives while others offer a perspective that is broad and somewhat paradigmatic in approach and orientation. A narrow perspective of customer relationship management is database marketing emphasizing the promotional aspects of marketing linked to database efforts, Another view point is to consider CRM only as customer retention in which a variety of after marketing tactics are used for customer bonding or staying in touch after the sale is done.

A more popular approach with recent application of information technology is to focus on individual or one to one relationship with customer that integrates database knowledge with a long-term customer retention and growth strategy.

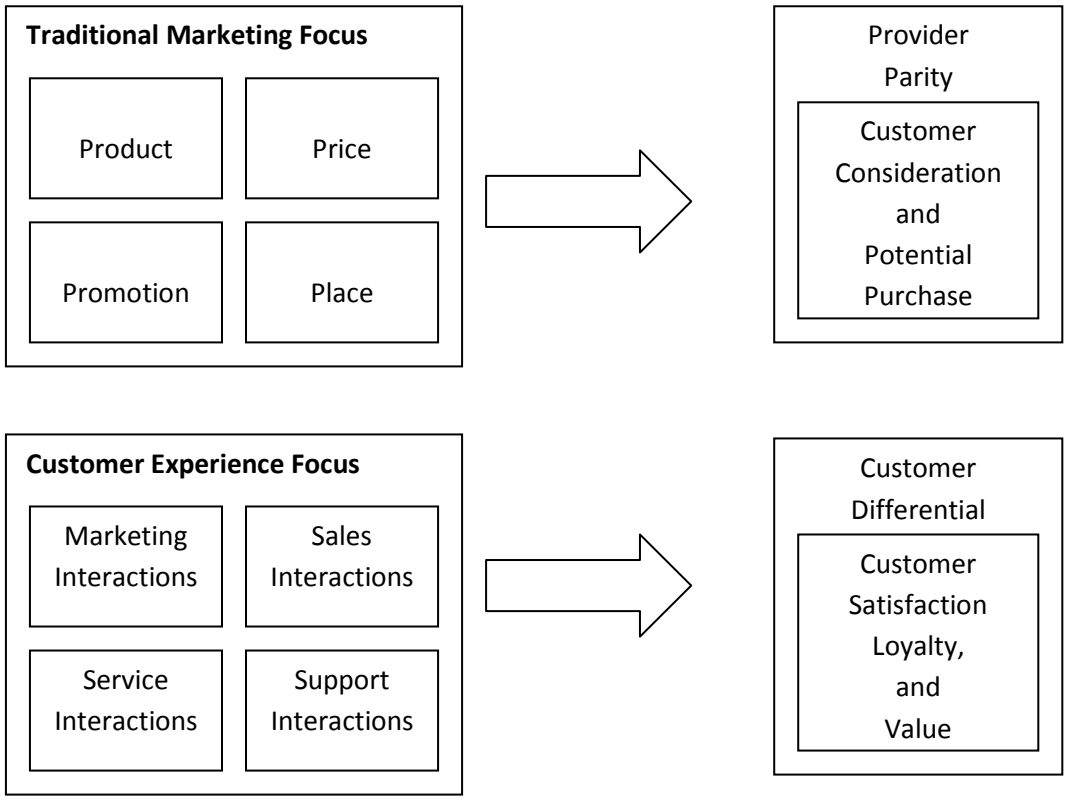
Jackson applied the individual account concept in industrial market to suggest markets CRM to mean, marketing oriented toward strong, lasting relationship with individual accounts

McKenna offered a more strategic view by putting the customer first and shifting the role of marketing from manipulating the customer (telling & selling) to genuine customer involvement (communicating & sharing the knowledge).

Berry, in a broader term stressed that attracting new customers should be viewed only as intermediate step in the marketing process. Developing closer relationships with this customers and turning them into loyal is an equally important aspect of marketing. Thus, he defined relationship marketing as attracting, maintaining, and, enhancing customer relationships.

By focusing on the value of interaction in marketing and its consequent impact on a customer relationships, a broader perspective espouses that customer relationship should be the dominant paradigm of marketing. As Gronroos stated: Marketing is to establish, maintain and enhance relationship with customers and other partners, at a profit, so that the objectives of the parties involved are met. This is achieved by a mutual exchange and fulfillment of promises. The implication of Gronroos definition is that customer relationships is should be devoted to building and enhancing such relationship.

Similarly, Morgan and Hunt suggested that relationship marketing refers to all marketing activities directed towards establishing, developing and maintaining successful relationships.




**Shift in focus**

## Benefits of CRM

### Customers are Profitable over a period of time

Studies by the US-based Bain and Company have shown that a customer becomes more profitable with time because the initial acquisition cost exceeds gross margin while the retention costs are much lower. When an organization retains the customer, it gets a larger share of the customers wallet at a higher profit-one percent increase in sale to existing customer increase profits by 17 per cent while the same amount of sale to new customer increased profit by only 3 per cent. This huge different is explained by the fact that for most companies the cost of acquiring the customer is very high. It costs six to eight times more to sell to a new customer than to sell to an existing one. The same study also highlighted that a company can boost its profit up 85 per cent by increasing its annual customer retention by only 5 per cent.

Similarly, studies have shown that the probability of selling a product to a prospect is 15 per cent while it is 50 per cent to a existing customer. Thus, the time, the effort and the costs of selling are much lower for an existing customer.

**Customer Probability is Skewed**

An analysis of the revenue and profit contribution of customer base of banks in the US, Europe and Australia showed the following:

- The top 20 per cent of the customers contribute to 150 per cent of the profits while the bottom 20 per cent drain 50 per cent of the profits and the rest 60 per cent just break even.

Experiences of Indian organizations are on similar lines. In a large public sector Banks, the top 23 per cent of the customers contribute to 77 per cent of the revenues. Similarly, the top 27 per cent customers of a leading cellular phone service provider contributes to 75 per cent of the revenues.

The implication of such a skew in customer profitability and revenue contribution are startling for organizations, which use to conventionally treat 'all customers are equal'. Competitors have to just lure these top customers and the organization would face serious problems. It also highlights the fact that one has to adopt different strategies for different customer groups:

- Programmes have to be developed to retain and build stronger bonds with the top 'gold standard' customers so that they do not get 'poached'
- Activity-Based Costing analysis has to be done with the middle group of 'potentials' so that the cost of serving this customers are reduced. In addition, cross-selling and up selling should be done to increase the profitability of these customers.
- An analysis of the bottom growth has to be done to identify those customers who can be shifted to the 'potential' group. For the remaining, the cost of service has to reduce by encouraging them to use lower cost channels. In extreme cases, some of these customers will be encouraged to defect to competitors. Outsourcing of loss making customers to specialized low overhead agencies is an emerging trend.

**Marketing Benefits of CRM**

CRM will gradually reduce organization's dependence on periodic surveys to gather data. Collection of data related to buying and consumption behavior will be an ongoing process. In many cases, the transaction data is automatically collected some times real time as in the e-commerce transaction. This rich repository of customer information and knowledge updated through regular interactions and actual customer transactions and

purchase behavior will help marketers to develop and market customer centric products successfully.

Customized promotions-based customer preferences and purchase patterns will substantially reduce the wasteful expenditure of mass communication and even direct mailing. As a customized promotion are more focused and are based on a deeper insight of existing customers, they have a greater chance of conversion to sales.

**Service Benefits of CRM**

Research findings conducted across industries as a part of a Technical Assistance Research Project (TARP) indicate that:

- 95 per cent of the customers do not bother to complain, the just take their business else where.
- Most loyal customers take time to complain. This enables the product / service provider to improve and ensure that such mistake do not recur.
- A typical dissatisfied customer will tell an average of 14 others about a bad experience while she will tell only six about a satisfying experience with an organization.
- 70 per cent of customers who complain will do business with a company again if it quickly takes care of a service problem.

## Enables for the Growth of CRM

The tremendous growth of interest and investment in CRM across the globe can be attributed to the following macro – environmental factors:

(a) Emergence to service economy,
(b) Emergence of market economy
(c) Global orientation of businesses, and
(d) Aging population of the economically advanced economies.

**Emergence of Service Economy**

The emergence of service economy is a global phenomenon. In the US, the service sector accounts for over 75 per cent of GNP and employees 80 per cent of the work force. The service sector contribute to 60 – 70 per cent of the GDP of economically advanced

nations of Western Europe, Canada and Japan. The increasing contribution of service sector is not limited to develop countries.

Developing economies like China, Indonesia and Thailand employ about 40 per cent of the work force in the service sector. In the year 2001, the service sector contributed to 48 per cent of GDP in India, 54 per cent in Philippines and 33 per cent in China. The average annual growth rate of the services during the decade of 1990s was 8 per cent in India, 9 per cent in China and 4.1 per cent in Philippines (Statistical Outline of India, 2002 – 2003).

Advanced countries progressed from agriculture to industrial and then to post – industrial economies. The shift from manufacturing to services was spread over a few decades of the last century. However, in developing countries, the growth is lead by all three sectors of the economy in varying proportions.

The growing importance of services resulted in greater customer orientation as services are characterized by simultaneity / inseparability. It implies that the production and consumption of services are inseparable. In services, one needs to be closed to customers to deliver the service offering. The factory is where the customer is and services offered in real time. The customer perceives the production process as part of service consumption, not just the outcome of production process as in traditional marketing of physical goods. Therefore, it is not surprising that service businesses like hotels, airlines, banking, financial services, telecom and retailing where the early adopters of CRM.

**Emergence of Market Economy**

In addition to the shift towards service, there is a global emergence of the market economy. The power is more to the market as compare to the controlled economy. Market regulation was in place all over the world including the US, Europe, USSR, China and India. The 1990s witnessed acceleration in the deregulation of many large industries including banking, telecommunications, broadcasting and airlines across the world. As a result, market – orientation firms operating intensely competitive market now takes decision that was once controlled by the government. The focus have shifted from capacity creation under control to the markets. Market – oriented economy necessitated a customer focus and boosted the importance of CRM.

**Global Orientation of Businesses**

National boundaries are giving way to either a borderless world or atleast a regional world resulting in the emergence of trading blocks like North American Free Trade

Agreement (NAFTA), European Union and the Association of South – East Asian Nations (ASEAN). The abolishment of the General Agreement on Tariffs and Trade (GATT). And the emergence of World Trade Organization (WTO) helped create a global orientation for business establishment. Increasing international trade became the growth engine for the global economy. Liberalisation of markets and trade proved to be a far stronger growth engine. It has eased the entry into foreign markets. Firms need stronger customer – orientation to be able to tab opportunities in new markets while defending themselves in their home markets.

**Aging Population in Economically Developed Countries**

The economically advanced nations are witnessing an aging of their population. In 2000, 12.6 per cent of the US population was 65 years of age or older. The comparative figures for Sweden and Japan were 17.2 per cent and 17 per cent of their respective population (Sheth and Mittal, 2004). This trend is visible in most part of Europe, except in Ireland (Leeflang and Raij, 1995). Aging of population has been attributed to the combined effects of a slow down in birth rate and an increased in life expectancy. While an aging population creates new opportunities for wellness, financial wellbeing, safety and security and recreation (Sheth and Mittal**,** 2004), it has also slowed the markets for traditional goods and services designed for a younger population. Therefore, in these markets, growth is being achieved by increasing the 'share of wallet' and not through 'growth of markets' driven by a growing population. Marketers are now forced to develop a deep understanding of their existing customers and meet their ever changing needs through suitable products and services. Indeed, most large companies, especially the services sector, wants to become One-Stop-Shop for the customers.

After identifying and discussing the factors responsible for the growth of CRM across the globe, we now evaluate the reasons as to why managing customer relationship has become critical for business.

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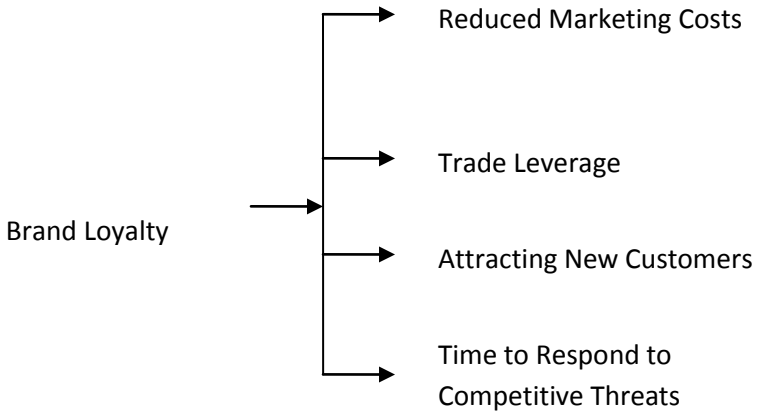
## Lesson 1.2 - Cutomer Loyalty

Loyalty is at the heart of equity and is one of important brand assets. Brand loyalty is a conscious or unconscious decision expressed through intention or behavior to repurchase a brand continually. When the consumer buys with respect to product features, price and convenience, with little concern to the brand there is likely little equity.

But, if the consumers prefer the brand even at the face of competitors with superior features and offers, then brand is said to have high brand equity. Loylaty reflects the consumers attitude towards the brand, especially when there is a change, either in price or product features. As the brand loyalty increases, the vulnerability of the customer base to competitive action gets reduced.

### The Strategic Value of Brand Loyalty




As per Aaker's point of view the above factors produce a strategic value to the organization by brand loyalty of customers.

**Reduced Marketing Cost**

Loyal customers minimize the cost of running business because the amount spent on getting new customers is far more than retaining present customers. The higher the loyalty, the easier it is to keep customers happy. Loyal customer becomes an advocate for the brand, without any incentive. Loyalty base of customers, act as a strong entry barrier for potential entrants by which an organization can minimize the risk.

### Trade Leverage

A brand having strong loyalty base force retailers to maintain adequate stock and allot enough shelf space to accommodate the brand. At the extreme, customer's shop choice depends on where their preferred brand is available. So, at the retail brands enjoy special recognition and treatment.

### Attracting New Customers

Existing loyal customers help marketers to get more business through prospective customers. They create awareness of the brand among friends and colleagues, who develop positive attitude towards the brand by actually seeing the brand in action. Brand image is projected by these customers especially when the product requires after sales service or, prospective customers require assurance of product performance.

### Time to Respond to the Competitive Threats

Loyalty base also supports marketers against competitor's innovation by providing sufficient time for them to retaliate.

## Strategies to Build and Maintain Loyalty

Retaining the customers, keeping them happy, enhancing their satisfaction level is the continuous endeavor of any organization as it cannot afford to miss any of the loyal customers. Ever changing Indian consumer, cut throat competition and emerging new technologies are the thrown challenges to develop loyalty programmes. Some of the strategies that suit the Indian context are discussed below.

### Customer Relationship Management (CRM)

In simple words, CRM is the process of acquiring, retaining and growing profitable customers. It is not a mere technique, but a management culture to build and sustain an effective customer relationship. Organizations must significantly revamp their traditional learning and knowledge management programs. The customer relationship management model, with its customer-centric focus, places the customers needs first.

IT involves three fundamental steps:

1. Understanding customer completely

2. Aligning organizational capability in order to better deliver what its customers may perceive as high value.
3. Facilitating the information available both inside and outside the organization.

The result of successful implementation of CRM creates great value of marketers and customers which leads to mutual trust and loyalty.

Following are the advantages of it over traditional loyalty building methods:

- Reduce advertising cost
- Makes it easier to target specific customers by focusing on their needs
- Allows organizations to complete for customers based on service, but not on price
- Prevents over spending on low-value clients or under spending on high-values ones.

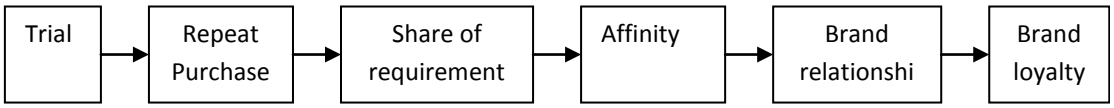
In India the CRM model is widely used in manufacturing and service organizations as a brand loyalty tool.

**Brand Relationship Management (BRM)**

BRM is newly developed holistic approach to retain customers and create brand loyalty. It stands for all activities linked with 'relational exchanges' and 'transactional exchanges'.

It helps to establish, maintain, and develop the relationship between a brand and its consumers. Its integrated effort continuously strengthens the relationship through interactive, individualized, and value added contacts. This leads to a mutual exchange and fulfillment of promises in future. The BRM process is explained diagrammatically below.

**BRM Process**




BRM focuses on generating trials and repeat purchases, builds high share of requirement (i.e. product's market share for a specific consumer). This result in customer's affinity towards the brand and builds brand relationship. The bond between brand and customer becomes strong and thereby leads to mutual trust which eventually results in brand loyalty.

**Key Steps to manage BRM**

- Identifying the key driving force of brand preference
- Estimating expected brand utility of consumers
- Analysing the customer response for each market stimuli
- Grouping target customers into actionable segments based on profitability, usage and characteristics
- Defining offers and corresponding value proposition that meets the identified need

**Impact of Brand Relationship Program on a Brand Perception**

Brand relationship program has a great impact on a brand's perception in various ways:

- Improves customer perception of the brand
- Gives an opportunity to better know the brand
- Provides a chance to learn new things about the product category
- Aids to select among brands in that category
- Helps to discover new ways of consuming the product category

All these perceptional changes leads the customer towards brand loyalty.

**Integrating BRM with CRM**

The effectiveness of BRM depends on proper integration of BRM with CRM strategies. This leads to effective collection and utilization of customer information resulting in maximum brand utility to consumers.

**Brand Loyalty Programs**

Loyalty programs are designed to optimize every customer contact by offering an incentive to his buying behavior. Though it varies from category to category, today's programs are mainly focused on this area. The main objective of these programs is aimed at the highest end customer's retention. Some loyalty programs are intended to achieve new customers and maximize the use of the brand. Following are some of the popular loyalty programs designed for Indian consumers by different companies.

**A.** ***Indian Club (From Tata Indica)***

Loyalty program includes 30,000-odd Indica customers from a client base of more than 1.35lakhs. These club members are provided with several benefits such as preferential treatment and discount at retail showrooms of *Titan*, *Tanishq*, hotels attached to the *Taj* Group and some restaurants.

**B.** ***First Citizen Club (From Shopper's Stop)***

Shopper's stop is one of the first major chains that has been working on ways to manage its customer information for competitive advantage. It started 'First Citizen Club' for regular visiting customers. Its major functions include customer information capture, intelligent warehousing and mining of transaction behavior. It emerged successfully by generating sales and continuously adding more people to it.

**C.** ***Book Reward Programs (From Crossword)***

Mumbai based chain of book stores runs this programs to increase the frequency of regular customers. Crossword has developed a benefit system quite differently based on the points that members earn, which can be redeemed against purchases. Members get benefit every month. The benefit could be a free gift, a discount or an every month. The benefit could be a free gift, a discount or an event. The idea is that the customers have to come to the store to pick up the gift.

**D.** ***Taj Inner Circle Card (From Taj Hotels)***

Taj hotels provide both tangible and intangible benefits to their regular customers in the form of discounts and image building.

**E.** ***Jet Privilege Program (From Jet Airways)***

This program is to recognize the most loyal customers and also to focus on customers who are not so frequent, but who at some point will be made most loyal. This program awards points to the customers for special discounts and packages.

**F.** ***Mobile Industry (From BPL & Orange)***

Unique features of this industry is built-in barriers to switching brands as changing the brand gives the inconvenience of changing the number. In this industry, loyalty programs

are designed more towards increasing a customers usage and their tenure by offering more discounts in shops and restaurants.

**G. *Other Programs:***

a) **Rebate Program:** Awards gift certificates on reaching a spending threshold. The reward can motivate incremental purchases or increase in store traffic.

b) **Partnership Program:** Rewards are given to partner company's customers with an expectation that they may likely become customer in future.

c) **Affinity Program:** It offers additional information, value added benefits to suit specific customer life styles. This helps customer to know more about the latest products and to build long lasting relationships.

## Measurement of Brand Loyalty

The criteria and factors considered for loyalty measurements is different at each level of loyalty as the degree of loyalty and nature of relationship changes. In the bottom levels loyalty is not recognizable. Loyalty measurement at this level is in terms of sales turnover, product's profit margins, price attractiveness and price sensitivity. These are the major factors for purchase and repurchase behavior of customers at these levels.

At the middle level, loyalty is measured through satisfaction level. Total spending on brand, liking – which is scaled in variety of ways like respect, friendship, trust etc, and the reasons attributed. Another important measurement for customers commitment is their involvement in spreading good word of mouth and number of people to whom they refer the brand. Measurement tools include structured questionnaire (both closed-end, open – end), likert scale, semantic differential scale, attitude rating scales, projective techniques and indepth interviews.

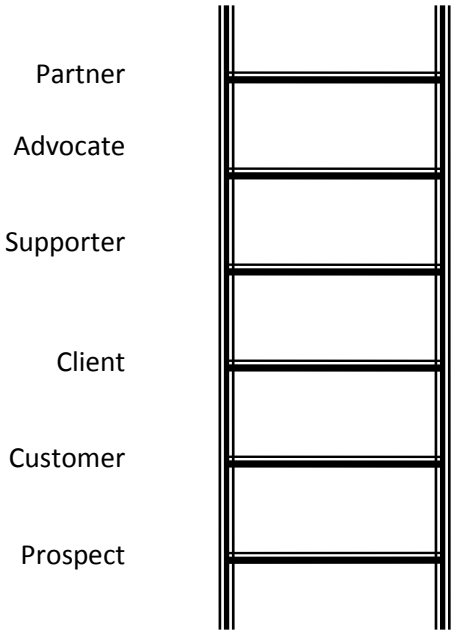
## The Ladder of Loyalty

The ladder of loyalty shows the different stages through which a prospect becomes a customer, a client and finally a partner.

***Prospect***

The prospect is an individual in a retail market or an organization in the business market, which fulfils the requirement of the marketer's definition of target. For example,

a cellular service provider may segment the market and target executives in blue chip companies with a special offer.




***Customer***

The prospect becomes a customer when s/he gets attracted by the offering of the marketer and buys the product / service.

***Client***

A customer becomes a client when s/he purchases the product or service more than once. While a customer may make the initial purchase as a trial or test, the client is one who does a repeat purchase. It is likely that the trial was a satisfactory experience for the client.

In several buying situation, customers becomes client due to the nature of the product or service. For example, the purchase of a durable product like a PC, TV or Car result in the customer becoming a client of the associated services like servicing. Some services like banking, insurance, club, fixed line telephone services etc., are 'membership' services which makes it difficult, if not impossible, for customers to switch. Prospects may spend a lot of time and efforts in searching for information, making comparisons and then making the selection. After all the efforts, once we open an account, take an insurance policy / a club membership / a telecom service is brought, the customer continues patronizing the service provider. It does not mean that this customer is a long term loyal client. Many a time it is the sheer inertia that makes customer continue in a relationship. Therefore in this categories, the customer and the organization are likely to have an association of a longer duration.

However, in many buying situation like retailing, hospitality, airlines or fast moving consumer goods, customer can switch after trial, i.e. testing it and then decide to use a competitor's offering. The nature of the product or service does not ensure repeat purchase. It is a customer's satisfaction with the first purchase and consumption that determine repurchase.

Customers can also become client when organization cross – sell multiple products to an existing customer. A good example of such a firm is Wells Fargo, a leading financial services firm in the US. On an average this firm sells more than four of its services to each customer (more than twice the industry average). This has ensured that customers do not switch as frequently from this firm, increasing its profitability as whole.

***Supporter***

A client becomes a supporter when he satisfies with the offering and recommends it to his friend, relatives and acquaintances. This positive Word – Of – Mouth (WOM) has tremendous positive impact as it helps the company get new customer. WOM is a most influential source of information in converting prospects into customer.

***Advocate***

An advocate is a supporter who, in addition to referrals that gives increases sales, proactively works with the company to improve its product and services. While developing new products software companies regularly depend on the feedback from the lead users of their clients during the Beta test phase. So is a case in new product development situation in several industrial firms, who set up the prototype in their client's premises for usage and feedback, which helps in improvement. In these situation, the level of interaction between the customer and the company is at a much higher plane. There is sharing of vital information and the comfort level as well as the confidence between the parties is high.

***Partner***

An advocate becomes a partner when they become actively involve in the decisions of the company. Any relationship that attempts to develop customer value through partnering activities is likely to create greater bonding between customers and marketers. In many cases, there are joint investments resulting in a structural bonding. Examples include the kind of relationship that exist between Procter and Gamble and Wal Mart, the worlds largest retailers. This relationship is characterized by genuine partnership. Wal Mart shares the scanner data from its check out counters in its over 4,500 stores through satellite. This

information gives the movement of P & G's products, the status of stocks in its outlets and helps the joint teams comprising of P&G and Wal Mart executives to plan replenishments. It helps P&G plan its production, better management of its production runs and keep its inventories low as it no longer depends on sales forecasts but actual sales data. Overall, it reduces the selling costs to P&G. Wal Mart gains as it does not have to keep inventories, gets faster replenishments, incurs low cost and is able to pass on the saving to the customers, thus, reinforcing its image of 'Everyday Low Prices' among its customers.

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## Lesson 1.3 - CRM Success Factors and Levels of Services

### CRM Success Factors

While clear intention fuels the power of CRM, there are several other success factors to consider. We will focus on five of the most important here. Organizations that implements CRM with a strong return on investment share these characteristics.

1. **Strong internal partnership around the CRM strategy.** We said earlier that CRM is a way of doing business that touches all areas of your organization. This means that you and your management peers need to firm strong internal partnerships around CRM. If you and your organization are early on the road to CRM implementation, now is the time to bring your CRM needs to the table, and to be open to listening to the CRM needs of the other areas. You may find that you have requirements that are, atleast potentially, in conflict. Resist the temptation to go to the war for what you need.

If your organization has gone off the partnership road with CRM, then now is the time to come back together and rebuild partnership with the area that is currently championing CRM. Let them know that you appreciate what they have done. Let them know what data you have to offer and help them understand how you plan to use the data you request from them.

2. **Employees at all levels and all areas accurately collect information for the CRM system.** Employees are most likely to comply appropriately with your CRM system when they understand what information is to be capture and why it is important, they are also more likely to trust and use CRM data when they know how and why it was collected.
3. **CRM tools are customer – and employee – friendly.** CRM tools should be integrated into your systems as seamlessly as possible, making them a natural part of the customer service interaction. A major manufacturer of speciality pet foods redesigned the pop – up screens for its toll – free consumer phone line. In the original design, the final pop-up screen prompted the representative to ask the caller's name and address. Yet, representatives had found that it was easier and felt more natural to

ask, "What's your name?" and "Where are you calling from?" and "What's your pet's name?" at the start of the call.

4. **Report out only the data you use, and use a data you report.** Just because your CRM tool can run a report doesn't mean it should. Refer back to your CRM strategy, and then run the data you will actually use. And share that data with your team.

5. **Don't go high – tech when low – tech will do.** At Harley – Davidson outside of Milwaukee, WI during the summer they often leave open the big metal doors to the manufacturing facility to let in any breeze and the cooler evening air. Unfortunately, open doors occasionally let in other things, including skunks. A team met to consider the problem and possible solutions. After discussing the pros and cons of screens, half-doors, or keeping the doors shut, they came upon ideal solution. When a skunk wanders in, just leave it alone and wait till it wanders back out. Skunks may be Harley fans, but they never stay long.

Organizations that successfully implement their CRM look for the simplest solution when implementing their CRM strategy.

### The Customer Service / Sales Profile

Now you understand that the power of CRM lies in its ability to help you create, maintain, and expand customer relationship. You're excited and ready to begin delving into the process of creating your own CRM strategy, whether at the organization level or as it applies to your specific area or department. Before you do that, we'd like you to take a more in – depth look at who your current customers are and what their relationships with you look like. Our model, the Customer Service / Sales Profile, will help you to do three things.

First, it will show you what kind of customer relationships you're trying to create. Is your success based in initial, stand-alone transactions? Or does the nature of your product or service put customers in partnership with you over longer periods of time? How important is it for you to have satisfied customers acting as a word – of – mouth advocates for you in the market place

Second, the Customer Service / Sales Profile will help you identify strengths in your current CRM practices. Even in cases where there's no formal CRM strategy, if you're still in business, you must be doing some thing right, may be several or many things. Knowing what right practices have evolved naturally will help you create the greatest possible improvement with the least amount of expense.

Third, because this process creates a visual image of your customer relationship, you will find it helpful in communicating to others throughout the organization. Knowing your current profile and the desired profile will naturally help you focus your energy and attention.

## Why call it the Customer Service / Sales Profile?

We call this model the Customer Service / Sales Profile because every business activity is ultimately justified by half its serves the customer. Even if you and your team never see cash – paying external customer, the contribution you make must have some positive impact on those external customer relationship or else you should strongly question its value and purpose. We use the phrase "Service / Sales" to remind us of three important rules.

### Truth # 1: Sales do not Equal Relationships

Way back in 1983, Theodore Levitt wrote an article for the Harvard Business Review titled "After the Sale Is Over." In it he explained that the sale is just the beginning of the relationship with your customer – a relationship more akin to a marriage then to a one – night stand. And consultants, practitioners, researchers, and authors have been building on this theme ever since.

Yes, the sale is a very important point in customer relationship. However, it is bracketed by the quality of service you are willing to offer, able to deliver, and credited with providing to your customers.

### Truth # 2: Service Extends Beyond the Buyer

Whether you're selling in – home plumbing repair or pace makers or e-business solutions, creating a customer relationship, and extending the opportunities you have to do business together mean more than wooing the individual who writes the check or sign the contract. You need to consider all the people who touch or who are touched by your product or service.

### Truth # 3: Service and Sales are on the Same Team

All too often, we are called into sales organizations or customer service departments that claim that everything would be better if "those other people", in service or sales "would just straighten up and get their act together."

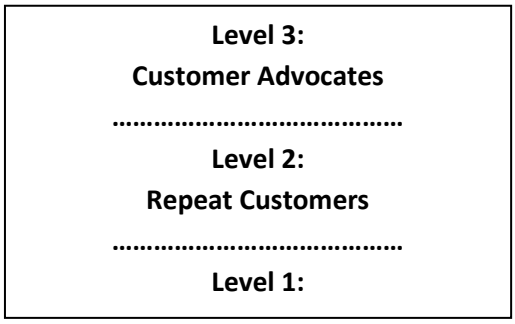
The sales people lament that the customer service people just complain, complain, and complain about pesky details like a few over – promises or a couple of tight delivery dead lines. "Don't they know that we've got to promise those things to get the sale?"

The customer service people roll their eyes at visions of golf club-swinging sales types teeing off with unrealistic promises and assurances that "the customer service team will be happy to move mountains for you." "Don't they know we have policies? If we did that for this customer, we'd have to make the same exception for every customer."

The truth is that to win the game of business, sales and service have to be plain on the same team. The phrase Service / Sales can serve as a reminder for both groups that you win only when you work together.

## The Three Levels of Service / Sales

There are three service / sales levels to the Customer Service / Sales Profile model




**The three service / sales levels**

Level 1 is initial transactions. At this level you are focused on discrete, initial interactions or stand-alone sales. This is the foundation for every business or organization. Yet, we know that the more money, time, and energy you must invest in getting customers to come to you in the first place, the harder it is to be profitable just working at this level. As we noted in Chapter 1, it's not unusual for customers to actually cost you money the first time they do business with you. Just consider the acquisition costs for you customers.

As you can see, in order for our Nature Retreat Center to be profitability at level 1, they need to:

- Identify customers at risk of leaving, never to return, and find our how they can woo them back.

- Look for ways to teach new customers more about what the Nature Retreat Center offers and how it works so that there are fewer avoidable service issues.
- Give staff tools and training on ways to turn the interaction into revenue – generating opportunities while at the same time making guests feel well served.

It will be important for the Nature Retreat Center to focus on this improvement. When initial transactions run smoothly, with the minimum of fuss or error, it provides a strong foundation for future business.

Level 2 represents repeat customers. At this level you're focus on getting customers to return for a second, third or fourth time. Customers may come back for the same purchase – like the loyal Carivou Coffee customer, cordially known by the staff as the "extra large, skil latte with Carivou cookie". Or the customer may turn to you for a variety of products and services – like a car insurance customers who comes back to a agent for home owner's, this ability, and life insurance.

Repeat customers develop greater economy and emotional ties with you. And they bring with them and expectation that you will value those ties.

For example, the Caribou Coffee customer may expect you to save the last Carivou cookie for him. And the insurance customer will look for her discount for having car, home, and life insurance with the same provider.

Yours CRM strategy will tell your team how much importance to place on repeat customers. CRM tools will help your team identify this precious members of your customer mix and prompt team members to notice and value the extended relationship with you.

The top level of model is customer advocates. Level 3 represent those customers who are not just satisfied and willing to do business with you again.

These customers actively tell others about their positive experience they spread the good word. You might even consider them to be active participants on your marketing team.

As you can see, each level builds upon the level before without quality initial transactions, customers won't want to do business with you again. And it's the customer who seems himself or herself in a positive relationship with you who can provide the strongest advocacy for you and your product and services.

**The Shape of your Custom Service/ Sales Profile**

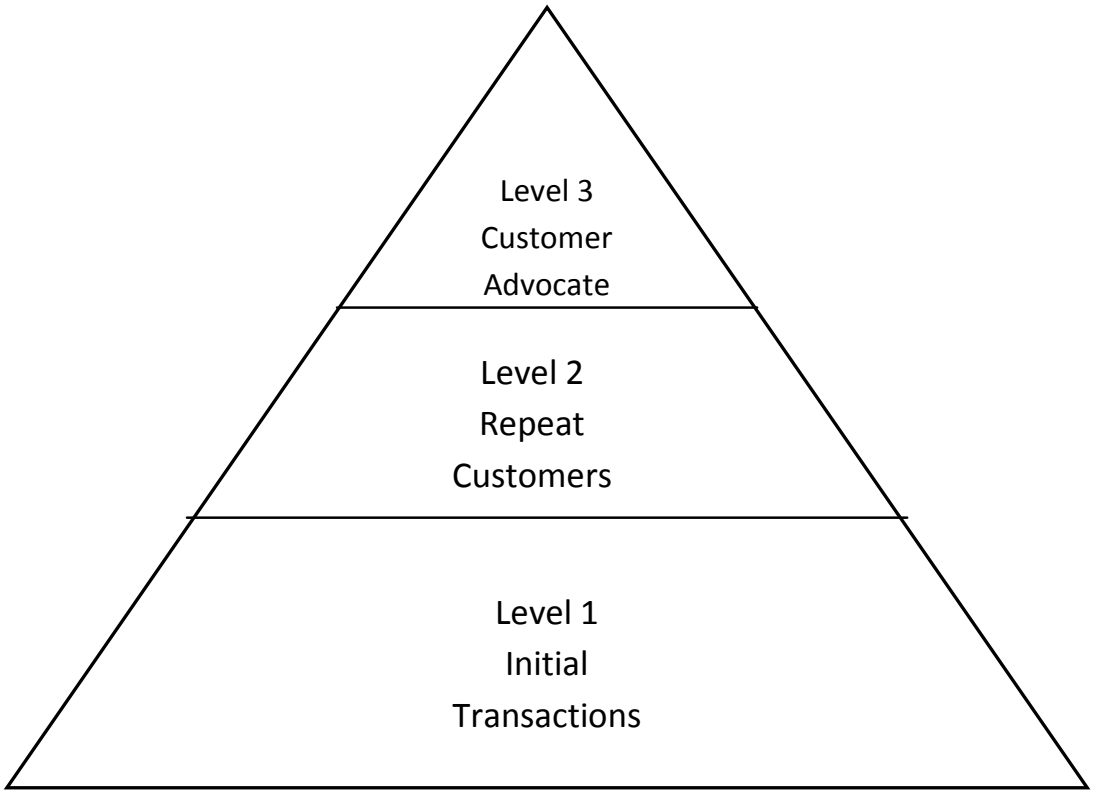
The Shape of your Customer Services / Sales Profile reflects the relationship among this three levels. It is driven by the nature of the product or service you offer, the expectation of your customer base, and the forces of market competition.

There are three basic Customer Service / Sales Profiles: The Pyramid, the Hourglass and the Hexagon.

**The Pyramid Profile**

The Pyramid is the conventional way to see the relationship among the three levels. It applies to the majority of businesses. Consider a retail department store, such as Minneapolis – based Target Stores. Each days hundreds of customers walk through the doors of any one Target location. Still more customers shop online at Target.com. Those customers represent the base level of initial level.

The percentage of those customers who are loyal to target, who regularly seek Target in preference to its competitors, make a level 2. At the top are those customers who actively send their friends, family members, and even business associates to Target. They tell positive stories about staff and service.

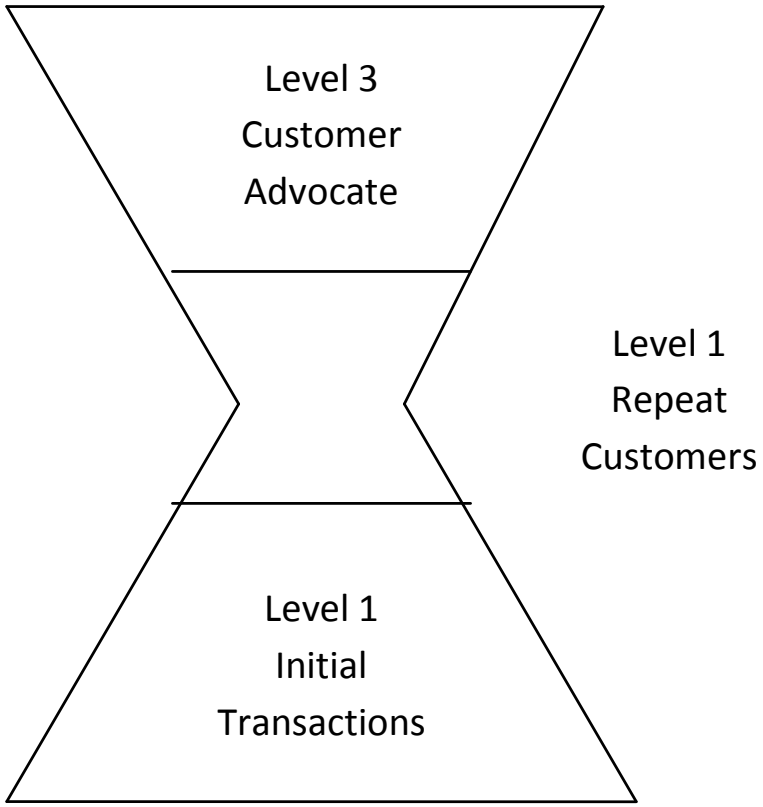


As you might imagine not every pyramid looks like a perfect isosceles triangle. For example, in some business model, there's a very strong emphasis on repeat customers but less on customer advocates. As one sales person for a large – scale computer application told us, "Yes, I think my customers are happy enough to keep business with me. And I'm working very hard to keep them happy. But, no. I wouldn't want to put my existing customers in a room with my prospects."

If you don't trust your repeat customers to help you "sell" a prospect, then you have pyramid with a broad middle and a small top. It might be tempting to tell this sales professional to go out and create more advocates. And that would be a dangerous shift if it meant losing focus on the repeat customer group. In a Pyramid Profile, customer advocates grow directly out of exceptionally well – satisfied repeat customers.

**The Hourglass Profile**

The Hourglass Profile is less common. In the Hourglass, you have a broad base of initial transaction, only a few of which become repeat customers. However, you seek to create customer advocate from as many of those initial transaction as possible.




**The Customers Service / Sales Profile**

Consider the relationship between a real – estate agent and her customer. Diane, and agent in the business for over a 15 years, explains that she sometimes gets a second sale, but rarely a third from most of a customers. "I get a second sale where the initial house is their 'starter home'. After two or five years they are ready to move up. Many of my clients are selling because they are moving out of the area. I don't get a second chance with them."

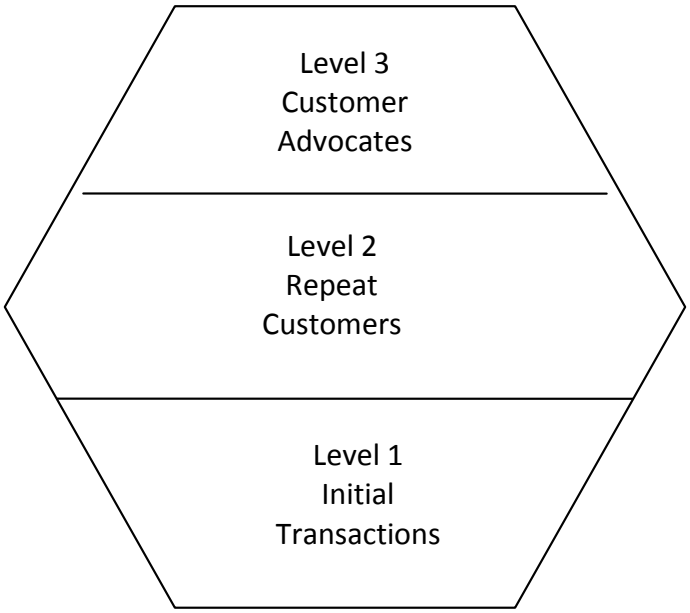
Yet Diane's business is booming. Her company has recognized her as a top performer for several years in a row. "I think my secret is really no secret. My clients are my biggest sales force. They are constantly recommending me to people they know who are buying or selling a home".

And Hourglass is most stable when it has a strong base of initial transaction and those transactions are handle in such a superior way that customers are eager to tell others about their experience. When this happens, the Profile creates its own self-renewing energy. Diane, for example, does put considerable time and effort into maintaining contract with past client, sending them calendars and other reminders, and keeping a name and phone number easily accessible so client who have an inclination to recommend her will find it easy to do so. But Diane is a first to admit that this process work with more ease and flow then in the yearly years of business, when she was less sure of herself and less sure about satisfying her clients.

**The Hexagon Profile**

In the Hexagon Profile describe a business that is very stable. It has all the repeat business it can handle or wants, so it feels little motivation to actively seek for level 3, customer advocates. It also feel no strong motivation to focus on initial transaction, since there are already plenty of repeat customers: for the movement. This is a vulnerable profile. Should anything disrupt the core of repeat customers, the business will be hard-pressed to replace them.

The Hexagon Profile can self – destruct when supply and demand are no longer in balance and no longer working in your favor. We watch a small advertising agency go under because it was operating under this profile. Secure with its three major clients and a study mix of small "filler" jobs, the team focused on doing the work. They paid little attention to growing their "filler" jobs into something more, or to get in their name out to encourage new client, or even to inviting their current clients to recommend them. When first one and then two of the core clients move their business, the team couldn't replace them quickly enough to stay viable. "I haven't done marketing in so long. I don't know where to begin," one owner sighed. How much easier it would have been if they'd asked for letters of recommendation and referrals months before, when their core customers were active and satisfied.




**Pitfalls of the Customer Service / Sales Profile**

There are two common pitfalls that cause individuals and department to become misaligned around their Customer Service / Sales Profile

***1. Focusing on the Top***

It's personally and professionally satisfying to have customer advocate. Human nature yearns for their positive affirmation. Beware of taking their praise so much to heart that you begin to think that anyone who isn't and advocate is just too picky and hard to please.

***2. Focusing on the Front Door***

Initial transaction are critical, but they're only one step in the customer relationship. When a rush of activity comes… and especially when it stays… it's easy to get caught up in processing customers through faster and faster – "Don't worry if it's not perfect, someone else is waiting to be served!" yet when the rush is over and you're waiting in vain for the next new customer, all those initial transaction will be looking for someone else, someone more service - oriented, for their next transaction.

**CRM and your Profile**

So what's your Customer Service / Sales Profile? Are you operating as a pyramid? As an Hourglass? Or as a Hexagons? It's important to know what kind of customer relationship

you've being creating so that you can be thoughtful and strategic in choosing what kind of customer relationship you want to create from this point forward.

What's work about your current profile? And what would you like to change? The answer to these questions will help to shape your CRM strategy. You will find that it's easier to align your team-and your organization-around a clear and consistent CRM strategy if you all share a common vision of your Customer Service / Sales Profile.

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## Lesson 1.4 - Service - Level Agreements (SLA)

It is just a new-age term for the age- old telecom contract," writes Julie Bort in her article, " SLA Savvy, Five Secrets for Making Sure You Get the Most from Your Service-Level Agreements" (Network World, September 27, 1999). And she's right. However, today service-level agreements cover much more than telecommunications. SLAs can also be found in IT (information technology), ASP (application service providers), and ISP (Internet service providers) agreements. And, whether you enter into a formal contract or use the concept in informal contract or use the concept in informal partnership discussion, understanding SLAs can help you ensure that everyone in your team is on board and contributing to your customer relationship management strategy.

### Service-Level Agreements Defined

In the words of Joel Snyder of Network World, and SLA "is really just a description of the service you've bought and paid for…" While Joel is literally correct, and SLA implies- and spells out in detail – something more. According to the ASP Industry Colsortium's Buyers Guide to Service – Level Agreement and SLA should include:

- The purpose of the SLA,
- Description of service,
- Duration of service,
- Installation time table,
- Payment terms,
- Termination conditions, and
- Legal issues such as warranties, indemnities,
- And limitation of liability.

The SLA, then, is a contract between the service provider and the customer – typically a business or organization, rather than an individual consumer.

### Three Keys to Effective SLAs

Whether you're the service provider or the customer a well thought out and clearly executed SLA can strengthen your relationship by setting reasonable expectation, clear

measures of performance, and rewards when performance is excellence or remuneration if it falls short.

To see this more clearly, let's consider a typical consumer agreement for telephone service compared with SLA between a telecom provider and a call center. Are examples look from the customers point of view, but feel free to imagine yourself on either side of these agreement. Consider the role the agreement does or does not play in keeping the customer loyal.

Put on your consumer hat for a movement. As a residential customer, you have a service agreement with your local telecom provider. You agree to pay a certain amount per month and the provider agrees to give you a dial tone. You may also contract with the same provider for additional services such as caller id, last call return, phone or line repair and the like. You decide to add a second line for your new home office. You call and to make and appointment for line installation. "Our technician will be there between 8 and noon."

You don't want to take the entire morning off work. Isn't a more definite appointment available?

"No. We'll call you when the technician is on the way. That's the best we can do".

So you take the morning off work, wait for the tech…and wait…and wait. At 11.50, you call the dispatcher for the status check….again.

"Oh, the other job ran long. The tech won't be able to make it. We'll have to reschedule. How about 8.00a.m. to noon, a week form today?"

You may get angry, but short of switching service providers, there's not much you can do.

Now, put on your business hat. Your organization also contracts for telephone services. Let's imagine, for example, that you have a customer contact center where hundred and five service representative handle incoming customer calls 24 hours a day, 7 days a week. Its imperative for your business that customers have 24/7 access, so you need a very high level of performance from your telecom provider. So, you establish service-level agreement.

In it, you detail accountability. Is your provider just bringing a dial tone to your internal telecommunication system? Or is your provider responsible for ensuring that your internal telecommunication system is functioning correctly? What about third – party

software or hardware? Will your provider take responsibility for telephone lines installed by another vendor? And what will the provider be responsible for if fire, flood, or an act of God interrupts your service?

Next, you detail performance level. What amount of time, if any, is it acceptable for your phone connection to be "down"? How quickly will new lines be installed when you choose to expand your service? Every key aspect of performances covered, in a quantifiable way, so you and the service provider know when the performance level is met and when performance is unsatisfactory.

Finally, you detail in your SLA remuneration. Remuneration is what the service provider promises to give you if it fails to meet performance level. Usually, it's a percentage of the fee for service. This part of the SLA can also include rewards if the provider gives an exceptional level of service performance.

You want to bring in three new phone lines. You call and make an appointment. In accordance with your SLA, installing new lines of this type may take as long as 48 hours. Because the sooner the lines are in, the more the provider meets, the company has an intensive to do a speedy job-and it does, getting your new lines up and running less than 24 hours after your call.

As a customer, its easy to see how the SLA benefits you. Thinking of the consumer example, you may even wish you had an SLA to hold over the head of your local telecom service provider. However, from the service provider's point of view, the SLA is more than a big stick wielded by customers to get performance.

Remember our definition of customer relationship management: a comprehensive approach for creating, maintaining, and expanding customer relationships. The crafting of the SLA provided and opportunity to create a customer relationship with reasonable and achievable expectation. It was a time for engaging a customer in creation of the service plan that works for both the provider and the receiver. Clear expectation for both the everyday event of the service relationship, such as expanding service, and fall backs and compensation for those times when, despite best efforts, things didn't work as we'd hope, also keep the customer relationship on an even keel.

### Creating an SLA

As a manager in promoting CRM, you may be on the provider or the receiver side of the SLA. Either way, the process for creating your service-level agreement remains the same, especially when the services you're contracting are tools to support your CRM strategy

There are six steps to the SLA process map.

**Step 1:** Iin the process is to review your CRM strategy. Because SLAs are traditionally focused on who does what and when, it's critical to begin with why any of us are doing any of it. The key focus should always be to create and retain customers With a clear understanding of what you want to accomplish you can move to

**Step 2**: Meet with the other party to define requirements and expectations. It's important to be extremely clear in your definitions because you and the other party whether a service provider or a customer - may have different worldviews.

Don't leave any expectation or requirement unstated. Walk together through the service process. What will it look like, feel like, sound like, when everything is going well? What types issues or service interruption might use anticipate and how should those be handled? Managing Relationship Through Conflict, for more on handling possible service problems. When you think you've defined the key performance requirement and expectation, take again with your CRM strategy. Will this performance truly help you achieve your CRM goals?

When both sides have agreed upon the key performance and expectations, you're ready for

**Step 3**: Defined performance measures. How will you determine if the agreed-upon performance level is being met? Measures should be timely and accurate, without placing any undue burden on anyone.

If your SLA concerns and application, you may measure performance with an application monitoring tools. This software solution can detect and record problems, identify slow downs, and run in – depth reports on transaction and response time. If human performance is at issue, you may need both quantitative and qualitative measures. Again, compare your performance measures with your CRM strategy. Are your measures getting at the performance elements that most promote your CRM approach?

**Step 4.** Define rewards and penalties, goes hand in hand with Step 3. The performance measures means little until its use to give rewards or to make corrections. Traditional SLAs focus on remuneration, on what the service provider will give back if performance falls short. Little, if any, attention is given to rewards for great performance.

"The reward is, they get to keep the contract," one manager told us. "Why should I give them extra if they do what they said they would do?"

Good point but what about those times when the service provider goes above and beyond? You may want to be more creative in defining rewards. For example, you could ask for a letter of acknowledgement and praise that you can share with the service team… or even use in marketing. The key is taking this opportunities to define ways to draw customer attention to superior performance.

Before leaving Step 4, compare your remuneration and reward agreement with your CRM strategy. Are you penalizing any behaviour that actually promote your CRM strategy? Are you rewarding any behaviour that doesn't serve your CRM strategy?

Now you're ready for implementation, **Step 5,** monitor performance. Here's where the rubber meets the road. You've define expectation and requirements, set up measures, and decided what you're going to do-to reward of to correct – based on the results. Put the process into motion and watch it go.

Keep your CRM strategy in mind as you review your monitoring efforts. Are you the monitoring police or the performance partner? We believe that your monitoring process can and should actually model the types of relationship you wish to promote with your customers.

The final **Step 6**, is to review the SLA regularly, at least annually. The first year, we recommend that you review the agreement even more often, so you can make any needed adjustment in expectation and requirement. Sometimes it's only after an SLA is in place that you realize that a measure is sending performance in the wrong direction or that your monitoring process is too cumbersome to provide timely information.

Equally important in this step is realizing that your CRM strategy may change over time, so you'll need to adjust your SLA to stay current with it. The following box summarizes the step we've just discussed.

**Using SLAs to support Internal Customer Relationship**

Used with an internal customer relationship, SLAs can help you achieve two of the CRM success factors listed in chapter 1.

1. Builds strong internal partnerships around the CRM strategy
2. Employees at all levels and all areas accurately correct information for the CRM system.

As stated earlier, CRM is everyone's responsibility "CRM does not belong just to sale and marketing. It is not the sole responsibility of the customer service group. Nor is it the brain child of the information technology team…. CRM must be the way of doing business that touches all areas." Internal SLAs can help other area know exactly how they support CRM.

For example, imagine that you're the manager of the customer service group. Your relationship to your organization's CRM strategy seems pretty clear. Your group is in contact with customers every day, using CRM tool to track each transaction, spot new trends as customer expectation change, and identify opportunities to expand the service relationship.

In addition to your contact with external customer, your group has internal service relationship with many other areas, including the warehouse. After reading this chapter you decide to create an SLA with this group as internal partners, you recognized that the agreement will involve performance – level expectations on both sides. You'll bring your concerns and invite your counter parts to bring theirs. You're there to discuss what you expect and what you need, so that at the end of the day external customers are well served. CRM, serving customers so well that they want to continue to do business with you and to find new ways to do business with you, is a touch stone for a good agreement.

For example, one of Kristi Anderson's clients recently installed a new CRM software to track customer problems. Customers service representative where instructed to open a ticket for each customer incident. Some incidents were complex and needed to be escalated to the engineering group for resolution. The engineers were good about acting to resolve the issue, but lousy about recording their actions and closing out the trouble ticket; it just seemed like unnecessary extra work to them. The manager of the customer service group met with the engineering team.

Without using the term "service-level agreement," he took them to the process during the meeting. Once they understood why the information on the trouble ticket was important and how it was used, they were much more willing to complete the online forms. In return they asked that some of the firms be simplified and that the groups agree on some common short hand ways of entering information. Recent monitoring shows that the engineers are following through on their performance commitment. The internal partnership between engineering and customer service is stronger than ever.

Your internal service – level agreement may not have the financial rewards or remuneration however, you can be creative. May be you'll decide to reward superior performance on either side by hosting a pizza party in appreciation.

**Making SLAs Work**

Ideally, service – level agreement are a way to ensure that a performance enhances customer relationship. But SLAs aren't a substitute for the ongoing, day – today work of uncovering what a customer expect and need, and searching for new ways to provide it to them.

Service – level agreement don't work when:

- Compliance to the "letter of the law" in the agreement means more than serving the customer.
- Customer needs an expectation change, but his SLA doesn't.
- Penalties are ignored or seen as a "cost of doing business"
- Superiors performance isn't recognized and acknowledge in a meaningful way.

Make sure that your formal and informal SLAs don't fall into one of these performance traps.

The SLA model –defining accountability, performance levels, and reward and remuneration-is a powerful tool for your customer relationship management efforts. We encourage you to take the SLA model and use it with your business-to-business customers, your consumer customers, and your internal customers.

## Self Assessment Questions

1. What is the relationship approach to business?
2. What are the ingredients of a CRM strategy?
3. What issues should a CRM strategy try to answer?
4. A CRM strategy is a paradigm shift in the way we conduct business. Comment
5. What steps can a company take to move customers up the loyalty ladder?
6. Where is your customer relationship emphasis? Is it on creating initial or stand-
7. Alone transactions (Level 1)? Is it repeat customer (Level 2)? Or do customer advocates (Level 3) drive your success?

## CASE STUDY

A major cellular service provider, AIRTEL, hired the service of synergy marketing, an agency specialized in devising the loyalty programmes, to prepare an innovative customer loyalty programmes. The initiatives sought to improve the customer acquisition and retention rates of the cellular phone customers, in a market of fierce competition.

The programme implementation calls for an accurate tracking of the customer behavior using control groups – customers like those in the loyalty programme who were not offered membership in the programme. By comparing the behavior of the customer in the loyalty programme with those not in the programme, the financial impact of the loyalty programme could be very precisely determined. Since, the programme is not going to be advertised, but informed through the mail to specific customers, a perfect "blind test" of loyalty programme effectiveness can be created in the cellular market.

**Questions**

1. You have to prepare a communication plan, sample selection, design of the programme and data analysis approach to help synergy marketing.
2. Prepare separate plans for pre-paid and post-paid customers.

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## UNIT – II

# CRM in Marketing

### Learning Objectives

*After going through this unit you will be able to:*

- Define Customer Relationship Management
- Understand the im[portance of one to one marketing
- Understand business objectives of CRM
- Analyze customer profitabuility and value Modeling
- Analyze CRM and customer service
- Understand Call Centre and customer satisfaction measurement

### Introduction

The concept of managing relationships with customers is not new. Companies have been interfacing with customers since the beginning of trade. However, the focus has always been to sell the products or services, as opposed to focusing on Customer Retention. Competition, driven by globalization and the Internet, has changed the face of business. Customers now have a variety of choices and, most importantly, they are becoming far more knowledgeable and demanding. The power has truly shifted to the customer. With this scenario, most companies realize that they need to treat their customers with more care. Companies are now desperately searching for different ways to manage customer relationships effectively, not only to acquire new customers, but also to retain the existing ones. According to a Harvard Business Review Study, some companies can boost their profits by almost 100% by retaining just 5% or more of their existing customers.

#### CRM: A Business Strategy for Growth

CRM is not a product or service; it is an overall business strategy that enables companies to manage customer relationships effectively. From the business perspective, it provides an integrated view of a company's customers to everyone in the organization so that the customer can be serviced effectively. For example, if marketing runs an outbound

campaign, all the information about the customers and the program should be retained for the sales people to follow up, the customer service people to answer any queries, and technical support to provide any field support. The idea is to have the same information shareable with all in the company. This will enable the company to present a uniform face to its customers when called upon to serve their needs. Such a CRM strategy also implies that the enterprise is customer-centric.

**Customer Relationship Management (CRM) Defined**

CRM is a discipline as well as a set of discrete software and technologies that focus on automating and improving the business processes associated with managing customer relationships in the areas of sales, marketing, customer service and support. CRM applications not only facilitate multiple business functions but also coordinate multiple channels of communication with the customer - face to face, call centre and web. CRM covers methods and technologies used by companies to manage their relationships with clients. Information stored on existing customers (and potential customers) is analyzed and used to this end. Automated CRM processes are often used to generate automatic personalized marketing based on the customer information stored in the system.

**Implementing CRM**

Customer relationship management is a corporate level strategy, focusing on creating and maintaining relationships with customers. Several commercial CRM software packages are available which vary in their approach to CRM. However, CRM is not a technology itself, but rather a holistic approach to an organisation's philosophy, placing the emphasis firmly on the customer. CRM governs an organization's philosophy at all levels, including policies and processes, front of house customer service, employee training, marketing, systems and information management. CRM systems are integrated end-to-end across marketing, sales, and customer service

**A CRM System should-**

- Identify factors important to clients
- Promote a customer-oriented philosophy
- Adopt customer-based measures
- Develop end-to-end processes to serve customers
- Provide successful customer support
- Handle customer complaints
- Track all aspects of sales

**Uses of CRM**

In its broadest sense, CRM covers all interaction and business with customers. A good CRM program allows a business to acquire customers, provide customer services and retain valued customers.

Customer services can be improved by:

- Providing online access to product information and technical assistance around the clock
- Identifying what customers value and devising appropriate service strategies for each customer
- Providing mechanisms for managing and scheduling follow-up sales calls
- Tracking all contacts with a customer
- Identifying potential problems before they occur
- Providing a user-friendly mechanism for registering customer complaints
- Providing a mechanism for handling problems and complaints
- Providing a mechanism for correcting service deficiencies
- Storing customer interests in order to target customers selectively
- Providing mechanisms for managing and scheduling maintenance, repair, and on-going support

**Business Objectives of CRM**

CRM applications, often used in combination with data warehousing, E-commerce applications, and call centers, allow companies to gather and access information about customers' buying histories, preferences, complaints, and other data so they can better anticipate what customers are looking for.

The other business objectives include:

- Increased efficiency through automation
- The ability to provide faster response to customer inquiries
- Having a deeper knowledge of customer needs
- Generating more marketing or cross-selling opportunities
- Better information for better management

- Reduced cost of sales and increased productivity of Sales Representatives
- Receiving customer feedback that leads to new and improved products or services
- Conducting more one-to-one marketing

**Essence of a CRM Solution**

In many companies, sales, marketing and customer service/support organizations work as decentralized functions. This forces customers to run from pillar to post when trying to meet their demands, creating a good deal of dissatisfaction. CRM provides a common platform for customer communication and interaction. The use of CRM applications can lead to improved customer responsiveness and a comprehensive view of the entire Customer Life Cycle. While CRM applications provide the framework for executing the best practices in customer-facing activities, ERP provides the backbone, resources and operational applications to make organizations more efficient in achieving these goals. CRM also acts as an enabler for e-business by developing web-based collaborations between the company, its suppliers, partners and customers. It can extend the traditional channels of interaction such as direct sales force or tele-business to the Web by providing a framework for managing the interactions and transactions. It also enables the customers to purchase products or services on-line and receive web-based services and support; with everything personalized to the individual customer.

**CRM Applications**

The genesis of CRM is Sales Force Automation (SFA). Current CRM applications are a convergence of functional components such as sales, marketing, and customer service, advanced technologies & communication channels.

**Sales Applications** - The thrust of sales applications is automating the fundamental activities of sales professionals. Common applications include:

- Calendar and scheduling
- Contact and account management
- Compensation
- Opportunity and pipeline management
- Sales forecasting
- Proposal generation and management
- Pricing

- Territory assignment and management
- Expense Reporting

**Marketing Applications** - Marketing Applications form the newest breed of applications in the CRM space. These applications complement sales applications and provide certain capabilities unique to marketing.

Common applications include:

- Web-based/traditional marketing campaign planning, execution and analysis
- Collateral generation and marketing materials management
- Prospect list generation and management
- Budgeting and forecasting
- A marketing encyclopedia (a repository of product, pricing and competitive information)
- Lead tracking, distribution and management

Marketing applications primarily aim to empower marketing professionals by providing a comprehensive framework for the design, execution and evaluation of marketing campaigns and other marketing related activities. For example, a successful marketing campaign typically generates qualified sales leads that need to be distributed to sales professionals who need to act upon them. Marketing and sales automations are therefore complementary.

## One-to-One Relationship Marketing

It is an approach that concentrates on providing services or products to one customer at a time by identifying and then meeting their individual needs. It then aims to repeat this many times with each customer, such that powerful lifelong relationships are forged. As such it differentiates customers rather than just products

One to One Marketing is more than a sales approach. It's an integrated approach that must permeate all parts of an organisation: marketing, sales, production, service, finance, etc. In fact, One to One Marketing needs to become the guiding vision that drives the whole company. One to One Marketing recognises that lifetime values of loyal customers who make repeat purchases far exceed that of fickle customers who constantly switch suppliers in search of a bargain. This is particularly true within financial services where the customer acquisition costs are very high.

Whilst at first the concept appears to be only suitable for a niche market of rich clients, modern information technology, particularly the new interactive mediums, provide an opportunity to bring personalised and customised products to the mass market yet at a mass produced price. This is called Mass Customisation.

However, it does require new thinking that breaks away from the traditional concepts of mass marketing and mass production. It is now recognised that the acquisition costs of a new customer is many orders of magnitude greater that of retaining an existing customer.

For example, in the general insurance industry acquisition costs can be equal to 2 to 3 years profit, yet many customers are switching suppliers every year! Further, with the introduction of Data Mining, many companies are now realising that just 20% of their customers provide 80% of the profits. Worst, many of the remaining 80% of customers are lost-makers.

One to One Marketing is different to mass marketing because it differentiates the customers & not products, and because it selects customers based on their lifetime value. Studies show that such an approach produces a more profitable income stream and more competitive advantage. Many of these more profitable customers are discerning, and they demand or aspire to more personalised products and services. It is true that the provision of such products and services has in today's mass markets become an expensive niche, and many customers feel "forced" to take the standard offerings. No wonder they become dissatisfied and switch when a new bargain is advertised. And in situations where there is no mass market. (e.g. solicitors) customers are becoming resentful for the apparent poor value for money. But now we have powerful and plentiful IT system, allowing us to create a whole new paradigm. It's called Mass Customisation.

**Mass Customisation**

Mass Customisation harnesses these new technologies to bring customised and personalised products and services to customers at a mass production price. The uniqueness and profitability of customised products and services, together with the economies of scale and mass market penetration, stemming from the use of mass production techniques.

Mass Customisation introduces a new paradigm whereby companies seek to fragment the market through economies of scope. Customers become integral with the product and service design processes, with more sophisticate customers undertaking simulations to answer "what-if" questions. Products and services are assembled from components to build unique products for individual needs. Mass Customisation, like One to One Marketing,

requires new organisational thinking. Every customer interaction provides an opportunity to learn more about the customer's needs and to then amend their existing products or services to meet their changing circumstances. True customer service leading to strong relationships and enhanced lifetime value. Every employee becomes a marketer!

Mass Customisation is a componentised approach for assembling individual products and services to meet the unique needs of your customers but at the same cost as a mass produced product. Using modern information technology, customers, agents, distributors or employees can assemble these products and services to meet your customer's specific requirements.

But it doesn't stop at product sales. Over time, the products and services are amended so that they continue to meet customer needs, and continue to reinforce the bonds between you and your customers. When One to One Marketing is combined with Mass Customisation we have a very powerful synergy that provides a true competitive advantage. Relationship marketing as practised in various sectors along with some effective tips on using your customer's database

**Why Relationship Marketing at all?**

When offerings from various companies are nearly at par in terms of quality and performance, it is the personal equation between a buyer and seller, which often tilts the scale in favour of the seller. Here are some examples of companies who have implemented relationship marketing and have benefited from it.

**Personal Touch**

In 1985, the FMCG giant Nestle had only 20% of the baby food market in France. They regularly mailed information on childcare to young mothers. Qualified dieticians were employed to help mothers chalk out a nutrition schedule for their children. By 1992, its share shot up by 40%.

**Cementing Bonds**

Birla Super Shoppes seeks to build relationships by offering free consultancy to cement buyers such as masons, civil engineers and contractors. Each Super Shoppe has a civil engineer and a taskforce to assist him. Travelling to the customer's site to give a demonstration or solve their problem helped them to build relationships with the customers.

**Banking on Relationships**

ANZ identified a gap between what customers expected (in the form of advisory services and investment banking) from the bank and the perceived delivery. It is for this crème de la crème, that the Captain Grindlays Club was formed. The bank pushes the whole customer-bank relationship beyond the ordinary functional spheres of banking, to something more one–to–one and exclusive.

**How to use your Customer Database**

***For Customers***

- Send timely reminders of needed services: doctor's/dentist's appointments, oil change/tune up, "your letterheads/memo pads will be depleted soon. Order now with the attached reply form..."
- Send customers' kids birthday cards, if you can get that on your database.
- Invite customers/prospects to a product demonstration or educational seminar. (Free to customers, small fee for prospects.)
- Using careful segmentation, send:
  - Information about price changes
  - Information about product changes
  - Product samples to customers.
  - Newsletter (especially as part of a Frequent Buyer program).

***For Business-to-Business***

- Case studies of successful implementation of your product. IT companies include case studies of solutions developed for their clients in their sales brochures.
- Send press releases on new product announcements to customer/prospect segments. Include information for requesting product brochures.
- Reprints of your ad campaign with note. (In case you missed our ads when they ran in ... xyz ... and ... abc ..., we're sure you'd want to see them.)
- Contests (customers only). Integrate with sales incentive contest for sales.
- Send them a copy of the annual report.

## Conclusion

If a firm is to implement relationship marketing, it has to understand the objective and nature of such a strategy. In the competitive situation that is emerging in almost all industries and markets, a relationship marketing strategy is crucial for survival.

### One-to-One Marketing - The Technologies

One to One Marketing exploits the new technologies, especially the interactive ones: Internet, interactive TV, web-TV, kiosks, fax, e-mail, voice mail, personal data assist, mobile phones, smart phones, etc., all allow personal messages and encourage customer feedback - and at a time and a place that suits the customer. Exploiting these technologies requires a range of appropriate support technologies, such as: customer information system, rules based systems, e-commerce systems, data mining tools, component based IT systems, enterprise repositories, object technology systems to mention a few. But these new technologies can do far more that simply provide new distribution channels to customers, or to support relationship management - important though these issues are in these competitive times. Interactive mediums, together with the support technologies outlined, can herald a new era of Mass Customisation

### One-to-One Marketing - More than Technology

One to One Marketing requires a different approach: There is a need to manage your customers, not just your products. You must take products to customers, not expect customers to come products. Protecting privacy is important. Threatening privacy destroys trust and discourages collaboration. It requires that all parts of the organisation that deal with or support customer services, to be truely customer focused, treating each as an individual. To be successful with One to One Marketing you may well need to undertake a change management programme.

### Benefits of One-to-One Marketing

- Higher Profits
- One to One Marketing delivers economies of scope. Not economies of scale.
- It initially concentrates on those 20% or even 10% of customers who are your most profitable.
- By providing tailored products to meet particular needs, you make comparative shopping difficult and you shift the focus from price to benefits.

- It aims for lifetime share of customer, not a share in an often static and crowded market**.**
- By developing Mass Customisation capabilities, you can then extend the service to more customers. You then gain an ever increasing market share without the need to match the lowest price mass market supplier.
- Lower Costs
- The cost of keeping profitable customers far outweighs the acquisition cost of new customers.
- With an intimate knowledge of individual customers, products and services can be more accurately targeted (right specification at the right time in the right way).

**One-to-One Marketing - The Implications.**

**Promotion** - One to One promotion needs to highlight individual possibilities and unique benefits. Timeliness of delivery is important.

**Design** - Customer needs will be better met where products and services can be personalised and customised easily. The marketing department needs to take a **component based approach** and create identifiable basic building blocks.

**Rules will define the possible combinations and limits**. Such rules will usually be held in a rules repository, along with the other business that defines policies, processes, etc. Processes and IT systems will need to support this approach, not only in product development, but through marketing, sales, and servicing.

**Production -** Production systems needs to assemble the basic blocks according to the rules. This may be down by your sales staff, agents, distributors or your customers themselves (Mass Customisation).

**Servicing** - Profiles of individual customer products as well as profiles of the individual customers, need to be available to support staff throughout the life of the customer.

**Feedback -** Feedback during the any part of the marketing, purchase or support cycles needs to be encouraged and captured. Such data needs to be analysed, communicated, and acted on in a timely fashion, perhaps within minutes. Information provided by customers must be used sensitively and be kept secure.

**Organisation** - All staff will be need to be well trained and motivated to meet individual needs. The management style and organisational culture may well need

changing. Staff need to be supported with good Information Technology A shared customer information system, data mining tools, interactive technologies, flexible component based systems object technology systems, and rules based systems are key.

## Cross and Up Selling

Cross selling and up selling are two of the best ways to develop your customer base and increase your average customer value.

Cross selling is the strategy of selling your customers a wider range of your products and services. This can be done by identifying which products to target at which consumers based on their past purchases and behavior. E.g. if they have a bank account would you try to sell them a mortgage, a pension or an ISA? To understand what products your customer may be in the market for you need to understand more about them. If they are older they may not be interested in a mortgage or a pension but they may be interested in savings products. To do this you need to understand:

- Demographics such as age, income, family composition
- Product history
- Responses to previous campaigns/offers

All this information can then be combined to build a propensity model for your different products to be used in campaign selections.

Up selling means driving more value out of the customer by making sure they make use of your service more often or upgrade to a higher value product. This would be done using the same techniques as for cross selling. Only by understanding more about your customers can you hope to target them with the right product proposition at the right time. This tactical activity can be a key tool in retention by deepening the customer relationship as they have an increasing number of products from you.

How to Up-Sell, Cross-Sell and Optimize

There are five ways to do this -

- Offering a greater quantity for a slightly higher price - For example, giving a three-for-the-price-of-two discount or a ‘large’ portion for a ‘medium’ price, such as a case of wine for the price of 10 bottles.

- Offering complementary products - For example, promoting accessories for electrical goods, such as batteries, tapes and carry-cases.
- Offering related products - For example, offering a discount on boots when a customer buys a winter coat, or swimwear with summer clothes.
- Offering a premium product - For example, ensuring that customers can't visit your site without being aware of the existence (and the advantages) of your highest-quality, big-ticket products.
- Rewarding loyalty - For example, offering a virtual discount voucher redeemable the next time your visitors your site, or if they refer you to friends and family.

Repeat Nature Businesses - Baby Supplies

If a customer regularly buys a particular product, then it's highly likely he is also buying related or complementary products (nappies with baby toiletries, for instance). If you offer a discount on these related products, you are not only increasing your sales, but helping the customer to streamline his shopping at the same time. Likewise, a drinks retailer could offer regular customers a special discount on premium products, such as champagne or related products such as glasses and cocktail access

Single Purchase Businesses - Furniture, hi-fi, Computer

Because customers will only visit for a one-off purchase, the objective here is to ensure they spend as much as possible while they are there. There are a number of ways to do this. You could offer competitively priced product 'bundles' such as the PC/printer/scanner/software combos offered by computer retailers. You could also highlight special offers on related products, such as half-price speakers with every stereo, or you could up-sell visitors to buy the premium products, for example, by offering a free carrier or tie with your designer label Another important point to make is that when it comes to major purchases, your customers need the decision-making, specifying and purchasing system to be as stress-free and as positive as possible. Therefore, you'll need to give them a first-class service throughout and present your credentials impeccably. Plenty of top brands lose out to smaller competitors simply because the site didn't have the same level of quality, choice or service

Random or Infrequent Repeat Businesses - Books, Music, Clothes

The objective in this case is two-fold: one - to encourage visitors to come back again more quickly than they might otherwise have done and two - to get people to spend

more while they are there. We have covered the second point in the section above, but to encourage visitors to come back again, you could, as with the repeat-purchase scenario, offer loyalty discounts and incentives. Likewise, you could draw attention to the rest of your product range or offer volume discounts such as two CDs for the price of two

Cross-selling and upselling are established methods of improving your sales and increasing customer loyalty. Upselling is the practice of offering customers a product in addition to the product they are currently purchasing. Cross-selling refers to selling items that are related or can be integrated with the item being sold. Both techniques can increase sales volume and provide a valuable service to your customers.

Many product types and Web sites lend themselves perfectly to cross-selling. For example, if you sell digital cameras, it makes perfect sense to offer related products to your customers: photo printers, paper, or other accessories. Selling consumable items such as paper and printer cartridges can also encourage shoppers to return to your store time and again, creating a long-term relationship. That can mean big profits over time. But you do not have to restrict your offerings to related items. You can upsell your customers by offering them nearly anything in addition to the item they are already interested in. While not necessarily relevant, as in cross-selling, upselling can still save your customers money. By combining shipping on multiple items, your customers can still come out ahead. You can also encourage them to purchase additional goods by offering free shipping or discounts on orders over a certain amount. If a customer's order totals Rs. 2500/- and shipping is free on orders over Rs. 3000/-, they may look around for something else

You can employ these techniques at either the shopping phase, or at the checkout phase. Implementing cross- or up selling at the shopping phase can be as simple as having links to similar products on your products pages with some copy such as "Customers who purchased this product also purchased…" This is a low-tech solution, but it can serve to expose more shoppers to your products. After all, not every site can populate the related products areas dynamically. Using a shopping cart that allows you to integrate your efforts is one of the easiest ways to successfully cross-sell and upsell your items. This is generally more effective, because users are already making a purchase.

You can also use the "Before you Check Out" technique. This is a step that is added in to your checkout process before an order is finalized. You can compare this to the small items that you will find at checkouts in grocery stores. This method takes advantage of the natural instincts of a shopper and is a very good way to cross-sell inexpensive add-ons for your products.

## Customer Retention, Behaviour Prediction

Customer Retention

Customer Retention marketing is a tactically-driven approach based on customer behavior. It's the core activity going on behind the scenes in Relationship Marketing, Loyalty Marketing, Database Marketing, Permission Marketing, and so forth. Here's the basic philosophy of a retention-oriented marketer:

**A. Past and Current Customer Behavior is the Best Predictor of Future Customer Behavior.**

Think about it. In general, it is more often true than not true, and when it comes to action-oriented activities like making purchases and visiting web sites, the concept really shines through.

**B. Active Customers are Happy (Retained) Customers; and they Like to "Win."**

They like to feel they are in control and smart about choices they make, and they like to feel good about their behavior. Marketers take advantage of this by offering promotions of various kinds to get consumers to engage in a behavior and feel good about doing it. These promotions range from discounts and sweepstakes to loyalty programs and higher concept approaches such as thank-you notes and birthday cards. Promotions encourage behavior. If you want your customers to do something, you have to do something for them, and if it's something that makes them feel good (like they are winning the consumer game) then they're more likely to do it. Retaining customers means keeping them active with you. If you don't, they will slip away and eventually no longer be customers. Promotions encourage this interaction of customers with your company, even if you are just sending out a newsletter or birthday card. The truth is, almost all customers will leave you eventually. The trick is to keep them active and happy as long as possible, and to make money doing it.

**C. Retention Marketing is all About: Action – Reaction – Feedback – Repeat**

Marketing is a conversation, Marketing with customer data is a highly evolved and valuable conversation, but it has to be back and forth between the marketer and the customer, and you have to LISTEN to what the customer is saying to you.

For example, let's say you look at some average customer behavior. You look at every customer who has made at least 2 purchases, and you calculate the number of days between

the first and second purchases. This number is called "latency" - the number of days between two customer events. Perhaps you find it to be 30 days. Now, look at your One-Time buyers. If a customer has not made a second purchase by 30 days after the first purchase, the customer is not acting like an "average" multi-purchase customer. The customer data is telling you something is wrong, and you should react to it with a promotion. This is an example of the data speaking for the customer; you have to learn how to listen.

**D. Retention Marketing Requires Allocating Marketing Resources**

You have to realize some marketing activities and customers will generate higher profits than others. You can keep your budget flat or shrink it while increasing sales and profits if you continuously allocate more of the budget to highly profitable activities and away from lower profit activities. This doesn't mean you should"get rid" of some customers or treat them poorly.

It means **when you have a choice**, as you frequently do in marketing, instead of spending the same amount of money on every customer, you spend more on some and less on others. It takes money to make money. Unless you get a huge increase in your budget, where will the money come from?

If you always migrate and reallocate marketing costs towards higher ROI efforts, profits will grow even as the marketing budget stays flat. You have to develop a way to allocate resources to the most profitable promotions, deliver them to the right customer at the right time, and not waste time and money on unprofitable promotions and customers. This is accomplished by using the data customers create through their interactions with you to build simple models or rules to follow.

## Customer Profitability & Value Modeling

Firms have been interested in customer profitability for many years. However, about seven to ten years ago, customer profitability as a measurable component of marketing really started to evolve for three main reasons. First, we now have the technology that enables us to store millions of data points. Second, in the last ten years the sophistication in analytics and modeling has increased many folds. These models allow us to turn customer data into knowledge. The third catalyst is the push for marketing to be more accountable. The emphasis on marketing metrics has greatly increased. More and more managers are asking themselves, how do we know we're getting a return on our marketing expenditure? Before these three changes, businesses paid attention to profitability – just not on a customer-by-customer basis. The attention and analysis was focused on either product-level profitability

or on broad customer segments. Now, because of increased data storage and analytical and modeling capabilities, we can drill down to customer level detail. And because of the need for marketing to be more accountable, we know we need to. Early on, CRM programs simply collected data at the customer level. There is a huge difference between that and converting CRM-based data into customer profitability.

The first fundamental component for understanding customer-by customer profitability is to know the revenue and the costs for each customer. However, most companies' accounting systems do not allocate costs on a customer-by-customer basis. To turn CRM data into a customer profitability model, a company must switch from activity-based cost accounting to customer-based cost accounting. This means allocating costs by customers. The second component is to move away from a brand management focus to a customer management focus. In a brand management model at a bank, for example, one manager manages mortgages, other checking accounts, and other credit cards. The managers don't know how any one customer interacts across the entire business.

For each product, a customer may be a low value customer, but he may be very valuable across the entire organization. Yet because the brand managers cannot know this, they may under-invest in the customer. If the bank followed a customer manager model, however, the customer's true value would be apparent and could be managed accordingly. It's important to be able to change the focus so that brand or property or departmental managers don't manage customers and their information, but rather, the central organization of the company does. The real reason is the push for marketing to be more accountable. The typical response of a marketing manager used to be, "I will improve customer satisfaction." Knowing customer satisfaction levels is fine and important, but it's no longer enough. Now senior management wants to know the return on that investment so they can understand exactly how much they should be spending to improve satisfaction. Revenue comes from customers buying products. If you can value one customer, you can value the entire customer base of a company. Then you can project at what rate the company is acquiring customers and at what rate they are leaving. Combining those components enables a company to derive the projected value of the customer base, which should be close to the value of the firm. Our research shows that customer value provides a strong proxy for market value of several firms. CEOs and senior management both care about the market value of the firm. Typically market value is estimated as discounted cash flow. The critical component in this approach is the projection of future cash flow. What is the basis for projecting cash flow?

A common approach is to use past data for this projection Marketing takes a bottom-up approach. Our premise is that cash flow is a result of customers buying products. Therefore, we can project cash flow and build the ultimate value of the company from the bottom up

by looking at each customer as a building block. Historically, when marketing talked about customer profitability, the notion was "How do I provide value to the customers? How do I make my product more valuable to the customer?" What customer profitability talks about is the flip side of customer value – which is how valuable the customer is to the company. So you can think of it as two dimensions – how do I provide value to the customer and how does the customer provide value to me? If I don't provide value to the customer, he won't buy anything. On the other hand, if he doesn't provide value to me, then should I spend valuable resources on pursuing his business? In marketing, we say the customer is the king – which we have to provide value to the customer. In finance, cash is king – how much value do I get from this particular customer? Customer profitability brings together these two dimensions? Revenue is easier to track because it looks at how much a customer actually gives a company. Customer cost is a harder measure to track because most companies' accounting systems were not designed to track customer-by-customer costs. Unfortunately, this means that acquisition and marketing costs are grouped together and averaged. Slowly, companies are beginning to allocate costs by customers because they can see how many times a customer uses an ATM or frequent flyer cards and so on

## Channel Optimization

Placing the power of predictive analytics right into the hands of marketers, Channel optimisation is an application for campaign optimization and execution. Channel optimisation uses advanced techniques to increase the profitability of campaigns. The application helps marketers determine to whom to send offers, which offers to send, when to send them and which channels to use. The objective is to enhance customer targeting across multiple campaigns. Unlike traditional marketing campaign approaches, which focus on choosing the best customers for each campaign, Channel optimisation optimizes across the entire set of campaigns, and selects the best one for each customer. This customer-focused approach can result in 25 to 50 percent increases in campaign revenue. Predictive analytics carries a significant potential for mainstream business processes, such as marketing and sales. The most important factor that will determine the success of predictive analytics is the ability for business users to deploy these analytics in their day-to-day-activities and incorporate the results directly into the actions they are taking. Companies can use multiple direct channels — direct mail, call center and the Web — to market its products.

## C**ross-Campaign Optimization**

Combining predictive analytics and advanced business logic, Channel optimisation enables marketers to anticipate how individual customers will respond to specific campaigns and channels, and calculates which campaigns will provide the greatest revenue. During

campaign creation, users can perform what-if analyses by adding business rules, such as specific sales targets or budget restrictions, to immediately see the impact on campaign expenses and revenues.

**Cross-Channel Optimization**

Channel optimisation generates campaigns for all outbound channels, such as direct mail, e-mail and the call center, using predictive analytics to select the best channel for each customer, from both a customer and cost point of view. The application will automatically select backup channels when the capacity of a channel is exceeded, to ensure completion of the campaign. Enforcement of Customer Contact Restrictions enforces internal contact restrictions and interaction policies such as "do-not-call" lists, ensuring that customers are not over contacted or contacted through restricted channels. These restrictions are enforced across all campaigns and channels.

**Event-Driven Campaigns**

**The** application monitors individual customer behavior to identify changes or "events" that indicate an unmet need or potential loss of value, and then selects the best campaign for each particular situation. As a result, customers receive timely offers that address their actual needs.

**Seamless Integration**

As a complement to an existing campaign management system, it will enable marketers to improve their campaign results. While the application can support every step of the campaign management process, it will seamlessly integrate with existing campaign management systems and processes, as well as existing marketing databases or data warehouses.

Marketers have often had to rely on a hit-or-miss approach to campaign management, meaning offers are often targeted too broadly, while the manual approach to customer selection makes executing multiple campaigns complex, time-consuming and hard to get right. Channel optimisation adds an automated precision to customer contact that improves individual campaign effectiveness and scales to large customer bases and complex, multi-campaign operations. The application allows marketers to leverage their business knowledge and expertise, but it takes the guesswork and risk out of marketing campaigns, enabling greater efficiency, effectiveness and profitability.

## CRM and Customer Service

Customer service is the provision of labour and other resources, for the purpose of increasing the value that buyers receive from their purchases and from the processes leading up to the purchase. With the rising dominance of the service sector in the global economy, customer service has grown in importance, as its impact on individuals, households, firms, and societies has become widespread. As a database marketer, you understand that some customers present much greater profit potential than others. But, how will you find those high-potential customers in a database that contains hundreds of data items for each of millions of customers? The modern concept of customer service has its roots in the craftsman economy of the 1800s, when individuals and small groups of manufacturers competed to produce arts and crafts to meet public demand. The advent of mass production in the early 20th century, followed by an explosion in the demand for goods after World War II, increased the power of suppliers at the expense of consumers, and thus reduced the importance of customer service. A shift in this balance began in the 1970s, as international competition increased, and the dominance of western manufacturers was challenged, first by Japan, then by Korea, China and other developing economies. Producers responded by improving the quality of their products and services. The economic boom of the 1990s again increased the power of suppliers who, while not completely reverting to lower standards of service, were able to be more selective of which customers to serve, and of what levels of service to provide. The overall quality of customer service - in society and in specific industries - will continue to be determined by the relative balance of power between suppliers and consumers; it will improve as competition becomes more intense, and decline as competition decreases.

### Strategic Advantage

A company can outperform rivals only if it can establish a difference that it can preserve. Customer service can be such a difference. It is very difficult to control, and therefore difficult to imitate. It is difficult to control because of its variability. The level of service may vary greatly between two providers in the same organization. It may also vary from one moment to another, even as delivered by the same provider. The difficulty is compounded in multi-unit operations: in addition to variability within units, there is also variability among units. That is both the challenge and the opportunity. The consistent delivery of superior service requires the careful design and execution of a whole system of activities that includes people, capital, technology, and processes. The few companies that can manage this system do stand out, and are sought out. This is the foundation of their sustainable competitive advantage.

**Culture**

For an organization's members to deliver superior service consistently, they must be acculturated, i.e. instilled with the values, traits, patterns, and behaviors associated with a service culture. The mechanisms of this acculturation include recruitment, training, empowerment, and accountability, within the framework of an organization's ideology of service.

**Service Ideology**

An organization's ideology comprises its purpose (Why are we here?) and values (What do we stand for?). Organizations renowned for providing excellent customer service have typically defined their purpose in terms of service – to serve their customers, and to serve their members. Their values typically include integrity, trustworthiness, reliability, personal responsibility, industriousness, continuous improvement, respect, and consistency.

**Recruitment**

The challenge of recruiting and retaining qualified customer service focused employees becomes painfully apparent when one is presented with a (not so uncommon) case in which a large company situates itself within a small rural area. This has been a tradeoff some companies have made in order to save a few dollars on real estate costs.

The difficulty comes when employees are discharged during seasonal down cycles and the same talent is desired three or four months later. This model is not ideal and is risky, thus companies find themselves utilizing talent oveseas needs longer term.

**Training & Empowerment**

Training is focused on enabling personnel to deliver service in manner that is beneficial to both the organisation's customers, and to itself.

**Accountability**

Whereas outstanding service organisations allow their people to make mistakes and learn from their failures, there is little or no tolerance for violations of its core service values. People who do not fit into the culture are removed.

**What Customers Want**

Delivering customer service begins with understanding what customers want. And this understanding begins with the understanding that they do not always know what they want, or why they want it. Traditional market research assumes that they do. Newer methods recognize that as much as 95% of our decision making is subconscious. Common research methods (e.g. surveys and focus groups) more often reveal what customers think their motivations are, rather than what their motivations truly are. When respondents do not comprehend their true motivations, they tend to state how they think they ought to be motivated. Recent progress in neuroscience and in observational technologies have yielded more reliable, less biased, results. Companies have Interaction Designers that use User Centred Design methods, among others, to understand what customers need. They often use Personas to represent the research outcomes, i.e., to describe the customer they are designing for. Regardless of how they arrived at their findings, most researchers agree on the factors listed in this table to the right. Suppliers that meet these requirements are likely to give their customers a satisfactory experience. In a competitive environment, however, satisfaction may not be enough. To stay in business, firms must be at least as satisfactory as their competitors.

Moreover, firms that aim to gain profitable growth must increase the number of their customers, while reducing the cost of customer acquisition. This is particularly true of companies that compete in mature industries. The objective then is not merely to satisfy customers, but to convert them into promoters (customers who recommend a company to others). Promoters serve to increase a firm's clientele, without increasing its cost of acquisition – i.e. with no additional marketing or promotional expense. But customers do not make recommendations lightly. When they make a recommendation, they put their own reputations on the line. Firms must earn that recommendation through the consistent delivery of outstanding customer service

**Good People**

- Friendly, helpful, courteous
- Empathetic
- Knowledgeable, accurate, thorough
- Resourceful, empowered
- Able to recommend solutions
- Able to anticipate needs
- Efficient

- Trustworthy, authentic
- Reliable
- Responsible
- Appropriate appearance and demeanor

**Good Offering**

- Good selection
- Good quality
- In stock
- Available demos
- Clear descriptions & pricing
- Competitive prices
- Financing, deferred payments

**Convenience**

- Convenient locations
- Long hours
- Available help, fast service
- Signage that facilitates self-service
- Fast checkout
- Shipping/delivery
- Installation
- Phone/web support
- On-site repair
- Hassle-free returns
- Quick resolution of problems

**Good Environment**

- Clean
- Organized
- Safe
- Low-pressure
- Energy level appropriate to clientele

**Benefits of customer service Providers**

- Higher income (more sales, repeat business, referred business)
- Recognition
- Personal satisfaction & fulfillment
- Less stress
- Higher self-awareness and self-control
- Greater authenticity
- Happier life at work
- Stronger social networks, family ties
- Happier life outside work
- Organizations
- Quality sales (more add-ons, more service sales)
- More repeat business
- More referred business
- Fewer returns
- Better reputation
- Higher morale, happier employees
- Lower employee turnover
- Higher caliber of job applicants
- Fewer complaints
- Higher productivity
- Better work environment
- Higher inventory turnover
- Higher profits

**Society**

- Higher income from individuals and firms.
- Higher productivity
- Stronger families and social networks
- Greater civility

**Customer Complaints**

Complaints are often treated as a nuisance. Indeed, many organisations are so determined to avoid them that they exclude any means by which customers can make complaints! Yet they have considerable value for a number of reasons: Although there will always be a small proportion of 'frivolous complaints', a complaint usually highlights something which has gone wrong with a part of the overall marketing operation; usually the high quality, which should be a fundamental requirement for most organisation, has not been achieved. Whatever the reason, the sensible marketer will want to know exactly what has gone wrong - so that remedial actions may be taken. The strength of good organisations is that its interactive nature enables the necessary conversations with the complainant to take place easily, and in good time, and the flexible nature of the 'product' allows for remedies to be quickly applied. The way a complaint is handled is often seen by customers, and their many contacts, as an acid-test of the true quality of support. What is more, it is also a powerful reminder to the organisation's own staff of just how important is quality. Not least, customers who complain are usually loyal customers (those who are not loyal tend just to switch to another supplier), and will continue to be loyal (and valuable) customers - just so long as their complaint is handled well.

In the case of services. the transparent nature of the processes themselves provide reassurance. Even so: The first requirement is that complaints should be positively encouraged. That is not the same as saying that the reasons for complaints should be encouraged. But, assuming that despite your best efforts the problems has occurred, you should put nothing in the way of any customer who wants to complain; and, indeed, positively encourage such complaints - since the main problem lies with the many more customers who do not complain (and instead change to another supplier) rather than the few who abuse the complaints system. This may be difficult to achieve in conventional markets, where the face to face contact often relies on the member of staff causing the complaint to log it! It should be much easier for e-commerce, where a specific structure can be put in place - which is guaranteed to work.

The second requirement is that all complaints should be carefully handled by painstakingly controlled, and monitored, procedures. Complaints must be handled well, and must be seen to be well handled; by the complainant, and by the organisation's own staff. Again, the structure of organisations should easily ensure that the best audit trails are maintained, and regularly monitored.

The third, and most important requirement, is that the complaint should then be fully investigated, and the cause remedied. Complaints are only symptoms. The disease

needs to be cured! There may be an understandable temptation to overlook complaints until they reach a 'significant level' - but holding off until the complaints reach this 'pain level' usually means that they have already become damaging to the organisations' image. It is far better to assume that 'one complaint is too many'!

The reality in most organisations is very different. Not least, despite the ease with which complaints may be handled, e-commerce companies are perhaps the worst offenders - possibly because the customer is remote, and has no means of embarrassing the manager responsible! Too often the number of complaints are minimised not by remedying the reasons for them but by evading the complainants! The assumption is usually made, wrongly so, that complainants are trouble-makers; and have to be handled in a confrontational manner! The reality is that most dissatisfied customers do not complain (a US survey showed that 97% didn't!), but they do tell their friends (the same survey showed that 13% complained to more than 20 other people!). It is easy to avoid an unsatisfactory vendor - there are many others to choose from. Clearly, if it was not already obvious, any organisation should be highly motivated to make certain its customers are satisfied. Yet, in practice, remarkably few do so!

**Satisfaction Surveys**

It is essential that an organisation monitors the satisfaction level of its customers. This may be, all else failing, at the global level; as measured by market research. Preferably, though, it should be at the level of the individuals or groups - especially where this is easy to achieve in the case of e-commerce, by simply asking customers, after they have used the service, how satisfied they are. IBM, at the peak of its success, every year conducted a survey of all its direct customers.

The results were not just analysed to produce overall satisfaction indices, though that was done (and senior management viewed any deterioration with alarm), but they were also provided to field management so that they could rectify any individual problem situations - where the customer was dissatisfied with any aspect of the IBM service and the IBM representative (presumably in 97% of the occasions if the above results - of the numbers who do not complain - hold true in this field) did not realise this to be the case! Much the same can be done with individual e-commerce customers - something which is much more difficult in conventional marketing.

There are a number of advantages to conducting satisfaction surveys (particularly where any individual problems highlighted can be subsequently dealt with) for e-commerce as much as in traditional markets:

Like complaints, they indicate where problems lie; for rectification

If they cover all customers, they allow the 97% of non-complainers to communicate their feelings; and vent their anger They positively show, even the satisfied customers, that their supplier is interested in the customer, and their complaints - which is at least half way to satisfying those complainants They help persuade the supplier's staff to take customer service more seriously. The only difference with e-commerce is that the process should be much easier to undertake. The importance of very high standards of customer service is evidenced by two examples. The marketing philosophy of McDonalds, the world's largest food service organisation, is encapsulated in its motto "Q.S.C.& V." (Quality, Service, Cleanliness & Value). The standards, enforced somewhat quixotically (but memorably) on its franchisees and managers at the 'Hamburger University' in Elk Grove Village (Illinois), require that the customer receive a 'good tasting' hamburger in no more than five minutes, from a friendly host or hostess; in a spotlessly clean restaurant. The second example, Disneyland, also insists on spotless cleanliness, and on the customer being 'The Guest'. It is salutary to observe how few of the competitors in either of these fields manage the simple task of keeping their premises clean, let alone being able to think of their customers as 'guests'; where the terms used in the fairground trade (with which Disney competes, albeit at a very different level) usually see the customer as some form of victim ('pigeon', 'mark', 'punter' etc) - to be fleeced before the fair moves on! E-commerce pioneers, with the important exception of Amazon, unfortunately seem to be following the latter path!

## The Call Centre

Customer satisfaction and loyalty have become key objectives for organizations as they recognize that long-term customers cost less to service and are more likely to spend more with the organization. The call center is the place where many of these objectives are carried out — one contact at a time.

Customers are more and more important. We can observe a transition from increasing market share to increasing "customer share". Every new technology makes it easier for customers to change the suppliers. Hence, competition amongst suppliers increases. They are forced to exploit new ideas and solutions to gain customers. The call centre is a centralized office used for the purpose of receiving and transmitting a large volume of requests by telephone. A call centre is operated by a company to administer incoming product support or information inquiries from consumers. Outgoing calls for telemarketing, clientele, and debt collection are also made. In addition to a call centre, collective handling of letters, faxes, and e-mails at one location is known as a contact centre.

A call centre is often operated through an extensive open workspace, with work stations that include a computer, a telephone set/headset connected to a telecom switch, and one or more supervisor stations. It can be independently operated or networked with additional centres, often linked to a corporate computer network, including mainframes, microcomputers and LANs. Increasingly, the voice and data pathways into the centre are linked through a set of new technologies called computer telephony integration (CTI).

Most major businesses use call centres to interact with their customers. Examples include utility companies, mail order catalogue firms, and customer support for computer hardware and software. Some businesses even service internal functions through call centres. Examples of this include help desks and sales support.

**Mathematical Theory**

A call centre can be viewed, from an operational point of view, as a queueing network. The simplest call centre, consisting of a single type of customers and statistically-identical servers, can be viewed as a single-queue. Queueing theory is a branch of mathematics in which models of such queueing systems have been developed.

These models, in turn, are used to support work force planning and management, for example by helping answer the following common staffing-question: given a service-level, as determined by management, what is the least number of telephone agents that is required to achieve it. (Prevalent examples of service levels are: at least 80% of the callers are answered within 20 seconds; or, no more that 3% of the customers hang-up, due to their impatience, before being served.)

Queueing models also provide qualitative insight, for example identifying the circumstances under which economies of scale prevail, namely that a single large call centre is more effective at answering calls than several (distributed) smaller ones; or that cross-selling is beneficial; or that a call centre should be quality-driven or efficiency-driven or, most likely, both Quality and Efficiency Driven (abbreviated to QED).

Recently, queueing models have also been used for planning and operating skills-based-routing of calls within a call centre, which entails the analysis of systems with multi-type customers and multi-skilled agents. Call centre operations have been supported by mathematical models beyond queueing, with operations research, which considers a wide range of optimization problems, being very relevant. For example, for forecasting of calls, for determining shift-structures, and even for analyzing customers' impatience while waiting to be served by an agent.

**Accommodation**

The centralization of call management aims to improve a company's operations and reduce costs, while providing a standardized, streamlined, uniform service for consumers, making this approach ideal for large companies with extensive customer support needs. To accommodate for such a large customer base, large warehouses are often converted to office space to host all call centre operations under one roof.

Centralised offices mean that large numbers of workers can be managed and controlled by a relatively small number of managers and support staff. They are often supported by computer technology that manages, measures and monitors the performance and activities of the workers. Call centre staff are closely monitored for quality control, level of proficiency, and customer service. Typical contact centre operations focus on the discipline areas of workforce management, queue management, quality monitoring, and reporting. Reporting in a call centre can be further broken down into real time reporting and historical reporting. The types of information collected for a group of call centre agents typically include: agents logged in, agents ready to take calls, agents available to take calls, agents in wrap up mode, average call duration, average call duration including wrap-up time, longest duration agent available, longest duration call in queue, number of calls in queue, number of calls offered, number of calls abandoned, average speed to answer, average speed to abandoned and service level, calculated by the percentage of calls answered in under a certain time period.

Many call centres use workforce management software, which is software that uses historical information coupled with projected need to generate automated schedules. This aims to provide adequate staffing skilled enough to assist callers. The relatively high cost of personnel and worker inefficiency accounts for the majority of call centre operating expenses, influencing **outsourcing** in the call centre industry. Inadequate computer systems can mean staff take one or two seconds longer than necessary to process a transaction. This can often be quantified in staff cost terms. This is often used as a driving factor in any business case to justify a complete system upgrade or replacement. For several factors, including the efficiency of the call centre, the level of computer and telecom support that may be adequate for staff in a typical branch office may prove totally inadequate in a call centre.

**Technology**

Call Centres use a wide variety of different technologies to allow them to manage the large volumes of work that need to be managed by the call centre. These technologies ensure

that agents are kept as productive as possible, and that calls are queued and processed as quickly as possible, resulting in good levels of service.

These include ;

- ACD (automatic call distribution)
- Agent performance analytics
- BTTC (best time to call)/ Outbound call optimization
- IVR (interactive voice response)
- Guided Speech IVR
- CTI (computer telephony integration)
- Enterprise Campaign Management
- Outbound predictive dialer
- CRM (customer relationship management)
- CIM (customer interaction management) solutions (Also known as 'Unified' solutions)
- Email Management
- Chat and Web Collaboration
- Desktop Scripting Solutions
- Outsourcing
- Third Party Verification (Third party verification)
- TTS (text to speech)
- WFM (workforce management)
- Virtual queuing
- Voice analysis
- Voice recognition
- Voicemail
- Voice recording
- VoIP
- Speech Analytics

**Call Centre Dynamics**

Types of calls are often divided into *outbound* and *inbound*. Inbound calls are calls that are made by the consumer to obtain information, report a malfunction, or ask

for help. These calls are substantially different from outbound calls, where agents place calls to potential customers mostly with intentions of selling or service to the individual. Call centre staff are often organized into a multi-tier support system for a more efficient handling of calls. The first tier in such a model consists of operators, who direct inquiries to the appropriate department and provide general directory information. If a caller requires more assistance, the call is forwarded to the second tier, where most issues can be resolved. In some cases, there may be three or more tiers of support staff. If a caller requires more assistance, the caller is forwarded to the third tier of support; typically the third tier of support is formed by product engineers/developers or highly-skilled technical support staff of the product.

**Management of Call Centres**

Management of call centres involves balancing the requirements of cost effectiveness and service. Callers do not wish to wait in exorbitantly long queues until they can be helped and so management must provide sufficient staff and inbound capacity to ensure that the quality of service is maintained. However, staff costs generally form more than half the cost of running a call centre and so management must minimise the number of staff present.

To perform this balancing act, call centre managers make use of demand estimation, Telecommunication forecasting and dimensioning techniques to determine the level of staff required at any time. Managers must take into account staff tea and lunch breaks and must determine the number of agents required on duty at any one time..

**Forecasting Demand**

Forecasting results are vital in making management decisions in call centres. Forecasting methods rely on data acquired from various sources including historical data, trend data and so on. Forecasting methods must predict the traffic intensity within the call centre in quarter-hour increments and these results must be converted to staffing rosters. Special attention must be paid to the busy hour. Forecasting methods must be used to pre-empt a situation where equipment needs to be upgraded as traffic intensity has exceeded the maximum capacity of the call centre.

**Call Centre Performance**

There are many standard traffic measurements (performance metrics) that can be performed on a call centre to determine its performance levels. However, the most important performance measures are:

- The average delay a caller may experience whilst waiting in a queue
- The mean conversation time, otherwise referred to as Average Talk Time (ATT)
- The mean dealing time, otherwise referred to as Average Handling Time (AHT - equal to ATT plus wrap-up and/or hold time)
- The percentage of calls answered within a determined time frame (referred to as a Service Level or SL%)
- The number of calls / inquiries per hour an agent handles (CPH or IPH).
- The amount of time spent while an agent processes customer requests while not speaking to a customer (referred to as Not Ready time/NR, or After Call Work/ACW, or Wrap-Up.)
- The percentage of calls which completely resolve the customer's issue (if the customer does not call back about the same problem for a certain period of time, it is considered a successful resolution or FCR - First Call Resolution).
- The percentage of calls where a customer hangs up or "abandons" the call is often referred to as Total Calls Abandoned or Percentage of calls abandoned. Calls are often abandoned due to long hold times when a call centre experiences a high call volume.
- Percentage of time agents spend not ready to take calls, often referred to as Idle Time.
- Quality Assurance monitored by a quality assurance (QA) team.

**Refinements of Call Centres**

There are many refinements to the generic call centre model. Each refinement helps increase the efficiency of the call centre thereby allowing management to make better decisions involving economy and service.

The following list contains some examples of call centre refinements:

*Predictive Dialling*

Computer software attempts to predict the time taken for an agent to help a caller. The software begins dialling another caller before the agent has finished the previous call. This, because not every call will be connected (think of busy or not answered calls) and also because of the time it takes to set up the call (usually around 20 seconds before someone answers). Frequently, predictive dialers will dial more callers than there are agents, counting on the fact that not every line will be answered. When the line is answered and no agent is

available, it is held in a retention queue for a short while. When still no agent has become available, the call is hung up and classified as a nuisance call. The next time the client is called an agent will be reserved for the caller.

*Multi-Skilled Staff*

In any call centre, there will be members of staff that will be more skilled in areas than others. An 'Interactive Voice Response' (IVR) Unit can be used to allow the caller to select the reason for his call. Management software, called an Automatic Call Distributor, must then be used to route calls to the appropriate agent. Alternatively, it has been found that a mix of general and specialist agent creates a good balance.

*Prioritisation of Callers*

Classification of callers according to priority is a very important refinement. Emergency calls or callers that are reattempting to contact a call centre are examples of callers that could be given a higher priority.

*Automatic Number Identification*

This allows agents to determine who is calling before they answer the call. Greeting a caller by name and obtaining his/her information in advance adds to the quality of service and helps decrease the conversation time.

**Additional Issues in Call Centres**

There are many other issues that have to be planned for when managing a call centre. A few of these issues are listed below:

- Call Center Noise Hazards
- Planning for failure of equipment
- Need for flexibility in meal-times
- Need for job variety and training
- Job exhaustion and stress
- Staff turnover (high attrition rates are common in the call centre industry)
- Call Center Noise Hazards Place Operators at Risk
- Many employers are unaware of the hazard of acoustic shock, despite the fact that up to 300,000 victims have been paid over $15 million worldwide.

- Acoustic shock is a sudden spike of noise; a hazard faced by 1 million call center operators. It can lead to physical problems such as tinnitus, and emotional problems, such as anxiety and depression.

**Variations on the Generic Call Centre Model**

The various components in a call centre discussed in the previous sections are the generic form of a call centre. There are many variations on the model developed above. A few of the variations are listed below:

*Remote Agents*

An alternative to housing all agents in a central facility is to use remote agents. These agents work from home and use a Basic Rate ISDN access line to communicate with a central computing platform. Remote agents are more cost effective as they don't have to travel to work, however the call centre must still cover the cost of the ISDN line. VOIP technology can also be used to remove the need for the ISDN, although the desktop application being used needs to be web enabled or VPN is used.

*Temporary Agents*

Temporary agents are useful as they can be called upon if demand increases more rapidly than planned. They are offered a certain number of quarter hours a month. They are paid for the amount they actually work, and the difference between the amount offered and the amount guaranteed is also paid. Managers must use forecasting methods to determine the number of hours offered so that the difference is minimised.

*Virtual Call Centres*

Virtual Call Centres are created using many smaller centres in different locations and connecting them to one another. The advantage of virtual call centres is that they improve service levels, provide emergency backup and enable extended operating hours over isolated call centres.

There are two methods used to route traffic around call centres: pre-delivery and post-delivery. Pre-delivery involves using an external switch to route the calls to the appropriate centre and post-delivery enables call centres to route a call they've received to another call centre.

*Interaction Centres*

As call centres evolve and deal with more media than telephony alone, some have taken to the term, "interaction centre". Email, Web Callback and more are gradually being added to the role.

**Criticism of Call Centres**

Criticisms of call centres generally follow a number of common themes:

From Callers

- Operators working from a script.
- Non-expert operators (call screening).
- Incompetent or untrained operators incapable of processing customers' requests effectively.
- Overseas location, with language and accent problems.
- Automated queuing systems.

From Staff

- Close scrutiny by management (e.g. frequent random eavesdropping on operator's calls).
- Low pay.
- Restrictive working practices (e.g. there isn't much space for personal creativity since many operators are required to follow a pre-written script).
- High stress: a common problem associated with front-end jobs where employees deal directly with customers.
- Poor working conditions (e.g. poor facilities, poor maintenance and cleaning, cramped working conditions, management interference)

As detailed above, none of these are inherent in the call centre model, although many companies will experience some or all of the above while implementing a call centre approach. As the science suggests, done properly, a call centre can offer the quickest route to resolution of customer queries, capitalising on the ready availability of highly skilled and intelligent people in some areas.

## Call Scripting

Advanced Call Scripting guides members of the sales and service teams through their interactions with customers. The result is improved lead conversion rates, increased customer satisfaction, and reduced training time. Sales reps use call scripts created with software applications to help qualify leads and position products correctly. Customer service reps use them to troubleshoot issues, ensure cases are categorized correctly, and cross-sell to customers.

With Advanced Call Scripting, the organization can develop branching scripts that display relevant follow-up questions based on how customers answer questions. It can also include tips on how to ask and answer questions when communicating with customers. An integrated scoring engine can contribute to improved lead quality by helping executives determine whether a lead is qualified. The executives can launch call scripts from several objects, including leads, opportunities, cases, contacts, and accounts. To simplify time-consuming data entry tasks, scripts can be configured to store the responses they receive in fields on these objects.

Consistency of the caller experience is a key, but often illusive, component of call center quality. In the past, call centers focused on extensive agent training, ongoing call monitoring, and regular employee evaluations as a means to enforce consistency from one call to the next and one agent to another. Unfortunately, all too often, these efforts fell short of the desired goal, leaving both agents and management frustrated and anxious. However, when the call flow can be programmed, or scripted, for the agent, this lofty ambition of consistency is much easier to achieve and maintain. In essence, if the call control can be embedded into the call processing system, consistency is the welcome byproduct. Pre-planning a call via scripting will not negate the need for agent training, monitoring, and evaluation, but it will make those efforts simultaneously more effective and less needful.

Advanced software allows call centers to handle the high expectations of today's clients who demand fewer errors and more sophisticated message processing. Intelligent Messaging guides the agent through each step of taking a call, gathering information from callers and then quickly dispatching that information to clients. The benefits include:

- Reduced agent errors
- Simplified difficult account call handling
- Agents guided through each step of message handling
- Simplified appointment taking, order entry, or brochure requests
- Customized look and feel of each script

The Web-based scripts make it easy for agents to handle detailed calls to schedule appointments, classes, or seminars and to take orders. The voice-based scripts use IVR (Interactive Voice Response) system to create automated voice applications.

Empower customer service, telesales and 3rd party vendors with customizable call scripts. Make sure that the agents are asking the most appropriate questions at the right time using customized workflow.

Information captured on the call is collected directly, ensuring high-quality data and more effective calls outcomes.

**Benefits of Call Scripting**

- Reduces agent training time
- Drop-down choices change dynamically based on customer response
- Supports personalized interactions based on existing record data
- Facilitates up-selling and cross-selling
- No third-party software required

## Customer Satisfaction Measurement

Customer satisfaction is the customer's perception that a supplier has completely satisfied their expectations.

Why Measure Customer Satisfaction?

The average business loses between 10% and 30% of its customers each year, often without knowing:

- Which customers they have lost
- When they were lost
- Why there were lost
- How much sales and profit customer decay has cost them

Research has demonstrated conclusively that it is far more costly to win a new customer than it is to maintain an existing one. The most powerful reason for doing anything in business is that it will increase profitability Measure customer satisfaction, and acting appropriately on the results, will increase profitability

- NOT taking action allows your customer base to decay while permitting your competition to gain market share

Consider these statistics

- Only 4% of all customers with problems complain
- The average person with a problem eventually tells 9 other people
- Satisfied customers tell 5 other people about their good treatment
- Cost of acquiring a new customer is 5 to 7 times greater than retaining current ones
- Cost of hiring and training a new employee is up to 10 times greater than retaining current ones

Your customer's perception of the value of your company provides is based on the following attribute foundation:

- Organizational
- Product
- Service
- Future behaviour

**Design and Use of a CSM Program**

The typical CSM (Customer Satisfaction measurement) program would be having the following steps -

***1. Defining the Objectives***

- Identify customer's priorities
- Learn customer's tolerance band
- Receive first-hand input on your company's performance
- Obtain performance ratings relative to your customer's priorities
- Learn performance ratings relative to your competitors' performance
- Establish priorities for improvement

***2. Develop the Research Design***

- Research design flows directly from the stated objectives

- Must be developed to ensure reliability
- Ability to provide consistent results
- Measures the original intent
- Eliminates bias
- Meaningful questions to the customer

***3. Questionnaire Design***

- Product attributes
- Service attributes
- Organizational attributes
- Future behavior attributes
- Benefits of Satisfaction Surveys

***4. Improve Customer, Client, or Employee Loyalty***

- React quickly to changes in the market
- Identify and capitalize on opportunities
- Beat the competition

True "customer satisfaction" is an organization's ability to attract & retain customers and enhance the customer relationship over time. It is not simple and the answer cannot be collapsed into a single "customer satisfaction index." Every interaction a customer has with a company's products & services is a reflection on quality.

Customer satisfaction measurement (CSM) is a management information system that continuously captures the voice of the customer through the assessment of performance from the customer's point of view.

This information provides a platform for the strategic alignment of organizational resources to deliver whatever is most important to customers. Customer satisfaction measurement is an evolving tool that is moving beyond early, basic measures of satisfaction toward approaches that enable a business to compete more effectively in its targeted market.

Simple approaches to assessing customer satisfaction fail to measure -

**1. Perceptions of Non-Customers**

Tracking "market satisfaction" requires input from non-customers as well as customers.

**2. Performance Relative to Competitors**

Customers judge your product/service offering relative to offerings of your key competitors. If your performance is improving, but your competitors are improving faster, your relative perceived quality would actually decline.

- Seek out features that are both unique and worth a lot to customers
- Differentiate their product/service offerings to meet differing segment needs better than their competitors
- Actively communicate these benefits, building a conviction by the customer that they are better off continuing their relationship
- In contrast, market-perceived quality versus competitors involves a dramatic shift in focus — from satisfying your current customers to beating competitors through **customer value management**. Firms that succeed in holding onto their customer relationships:

True customer value management entails integration of total quality management with the company's classic management systems (strategic planning, budgeting & control, capital investment, competitive analysis, performance measures & reward) to ensure that companies enter and invest only in businesses where they can be quality & value leaders.

The payoff from customer satisfaction measurement comes from its ability to define & direct a company's quality improvement efforts, and its quality/value position in the marketplace. Customer satisfaction measurement and quality impact profits by:

- Reducing costs
- Preventing erosion in revenues over time
- Increasing market share
- Increasing gross margins

The **loyalty business model** is a business model used in strategic management in which company resources are employed so as to increase the loyalty of customers and other

stakeholders in the expectation that corporate objectives will be met or surpassed. A typical example of this type of model is: quality of product or service leads to customer satisfaction, which leads to customer loyalty, which leads to profitability.

**The Service Quality Model**

A model by Kay Storbacka, Tore Strandvik, and Christian Gronroos (1994), the service quality model, is more detailed than the basic loyalty business mode but arrives at the same conclusion. In it, customer satisfaction is first based on a recent experience of the product or service. This assessment depends on prior expectations of overall quality compared to the actual performance received. If the recent experience exceeds prior expectations, customer satisfaction is likely to be high. Customer satisfaction can also be high even with mediocre performance quality if the customer's expectations are low, or if the performance provides value (that is, it is priced low to reflect the mediocre quality). Likewise, a customer can be dissatisfied with the service encounter and still perceive the overall quality to be good. This occurs when a quality service is priced very high and the transaction provides little value.

This model then looks at the strength of the business relationship; it proposes that this strength is determined by the level of satisfaction with recent experience, overall perceptions of quality, customer commitment to the relationship, and bonds between the parties. Customers are said to have a "zone of tolerance" corresponding to a range of service quality between "barely adequate" and "exceptional." A single disappointing experience may not significantly reduce the strength of the business relationship if the customer's overall perception of quality remains high, if switching costs are high, if there are few satisfactory alternatives, if they are committed to the relationship, and if there are bonds keeping them in the relationship. The existence of these bonds acts as an exit barrier. There are several types of bonds, including: legal bonds (contracts), technological bonds (shared technology), economic bonds (dependence), knowledge bonds, social bonds, cultural or ethnic bonds, idiological bonds, psychological bonds, geographical bonds, time bonds, and planning bonds.

This model then examines the link between relationship strength and customer loyalty. Customer loyalty is determined by three factors: relationship strength, perceived alternatives and critical episodes. The relationship can terminate if: 1) the customer moves away from the company's service area, 2) the customer no longer has a need for the company's products or services, 3) more suitable alternative providers become available, 4) the relationship strength has weakened, or 5) the company handles a critical episode poorly.

The final link in the model is the effect of customer loyalty on profitability. The fundamental assumption of all the loyalty models is that keeping existing customers is less expensive than acquiring new ones. It is claimed by Reichheld and Sasser (1990) that a 5% improvement in customer retention can cause an increase in profitability between 25% and 85% (in terms of net present value) depending upon the industry. However, Carrol and Reichheld (1992) dispute these calculations, claiming that they result from faulty cross-sectional analysis.

According to Buchanan and Gilles (1990), the increased profitability associated with customer retention efforts occurs beceause: The cost of acquisition occurs only at the beginning of a relationship: the longer the relationship, the lower the amortized cost. Account maintenance costs decline as a percentage of total costs (or as a percentage of revenue). Long term customers tend to be less inclined to switch and also tend to be less price sensitive. This can result in stable unit sales volume and increases in dollar-sales volume.

Long term customers may initiate free word of mouth promotions and referrals.

Long term customers are more likely to purchase ancillary products and high-margin supplemental products.

Long term customers tend to be satisfied with their relationship with the company and are less likely to switch to competitors, making market entry or competitors' market share gains difficult.

Regular customers tend to be less expensive to service because they are familiar with the processes involved, require less "education," and are consistent in their order placement.

Increased customer retention and loyalty makes the employees' jobs easier and more satisfying. In turn, happy employees feed back into higher customer satisfaction in a virtuous circle.

For this final link to hold, the relationship must be profitable. Striving to maintain the loyalty of unprofitable customers is not a viable business model. That is why it is important to for marketers to assess the profitability of each of its clients (or types of clients), and terminate those relationships that are not profitable. In order to do this, each customer's "relationship costs" are compared to their "relationship revenue." A useful calculation for this is the patronage concentration ratio. This calculation is hindered by the difficulty in allocating costs to individual relationships and the ambiguity regarding relationship cost drivers.

## Expanded Models

### *Virtuous Circle*

Schlesinger and Heskett (1991) added employee loyalty to the basic customer loyalty model. They developed the concepts of "cycle of success" and "cycle of failure". In the cycle of success, an investment in your employees' ability to provide superior service to customers can be seen as a virtuous circle. Effort spent in selecting and training employees and creating a corporate culture in which they are empowered can lead to increased employee satisfaction and employee competence. This will likely result in superior service delivery and customer satisfaction. This in turn will create customer loyalty, improved sales levels, and higher profit margins. Some of these profits can be reinvested in employee development thereby initiating another iteration of a virtuous cycle.

Fredrick Reichheld (1996) expanded the loyalty business model beyond customers and employees. He looked at the benefits of obtaining the loyalty of suppliers, employees, bankers, customers, distributors, shareholders, and the board of directors.

## Self Assessment Questions

1. Explain the concept of one to one marketing?
2. What is cross selling? How can a company use it to the best advantage?
3. List down & explain the methods of cross selling.
4. How will customer retention help the organisation to be more profitable?
5. Expalain the concept & methods of call scripting.
6. What is CSM? How is it oimportant for modern organisations?
7. How can an organisation use event marketing to the best advantage?
8. What are the important aspects of CRM that will help managers in running the organisation more efficiently?
9. What is customer value modelling? Expalin?
10. Explain how behavour prediction can increase sales revenues?

## CASE STUDY

The Federasl Charter Services (FCS) was started in the Year 2000 with a view to provide quality and value added services to passengers from all over the world to Kerala. It is estimated that nearly 10 million Keralites are settled in several parts of the World which includes the US, UK, Singapore, Germany, France and Switzerland. The state has been witnessing a boom in the hospitality sector. The NRI Keralites themselves had mobilised the money for setting up the first privately owned international airport at Nedumbassery in Cochin in 1998. Taking in to account of all these factors the FCS in 2001 decided to expand its network in a global manner including Middle East and Europe. As apart of it, the FCS acquired new aircrafts and changed its name to FCS airlines.

The company has been showing a steadty increase of it's top line since then but the projected growth in market share was not achieved.

You have to prepare a plan for maintaining customer credibility through service guarantees and an improved CRM strategy. Your plan should have clear cut strategies and the possible impaxct of the strategy to help the company gain a competitive advatage.

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## UNIT – III

### Learning Objectives

*After going through this Unit you should be able to*

- Understand the Sales Force process and activities
- Appreciate the Knowledge Management Practices in Customer Relationship Management
- Understand importance of Enterprises Resource Planning
- Understand Supplier Relationship Management
- Understand Partner Relationship Management

### Unit Structure



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## Lesson 3.1 - Sales Force Automationm

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### Introduction

Before getting to know about Sales force automation we need to know first what a sales process is. A **sales process** is a systematic methodology for performing product or service sales. The reasons for having a sales process include seller and buyer risk management, achieving standardized customer interaction in sales and scalable revenue generation.

Specific steps in sales processes vary from company to company but generally include the following steps:

1. Sales lead
2. Qualified prospect
3. Need identification
4. Closing
5. Deal Transaction

From a seller's point of view, a sales process mediates risk by stage-gating deals based on collection of information or execution of procedures that gate movement to the next step. This controls seller resource expenditure on non-performing deals. Ideally this also prevents buyers from purchasing products they don't need though such a benefit requires ethical intentions by the seller. Because of the uncertainty of this assurance, buyers often have a buying or purchasing process.

Sales processes are generally more common for companies that either have large revenue risks that require systematic assurance of revenue generation and/or those that choose to use a more consultative sales approach (e.g. Saturn, IBM, Hewlett-Packard).

Strictly even an effective ad hoc or retail sales process can be described by steps of an ideal sales process though some of the steps may be executed quickly. Often a bad sales experience can be analyzed and shown to have skipped key steps. This is where a good sales processes mediate risk for both buyer and seller.

Many companies develop their own sales process; however, off the shelf versions are available from companies such as Huthwaite International and Miller Heiman. These provide a customisable process and a set of electronic tools that can be freestanding or can be integrated if required with the company's CRM or opportunity management system

***Sales Process Management***

Sales process management includes all the tasks associated with finding sales opportunities and closing deals. This includes:

- Prospecting and qualifying leads.
- Managing contacts, opportunities, and accounts.

- Tracing the stages of deal closure and its related probabilities, including the variable compensations directly or indirectly related to closing deals.
- Managing and tracking communications between salespeople and customers, such as conducting direct e-mail campaigns.
- Maintaining a database of product information in a format that's easy for the sales force to access, either online in the office or offline at a customer site.

***Forms of Sale Activity***

The term sales is includes many activities some of the various modes of selling include:

- Direct Sales - involving face-to-face contact
    1. Retail or consumer
    2. Door-to-door or travelling salesman
    3. Party plan
- Industrial/Professional Sales - selling from one business to another
    1. Business-to-business
- Indirect - human-mediated but with indirect contact
    1. Telemarketing or telesales
    2. Mail-order
- Electronic
    1. Web B2B, B2C
    2. EDI
- Agency-based
    1. Consignment
    2. Multi-level marketing
    3. Sales agents (real estate, manufacturing)

Types of sales include

- Transaction sales
- Consultative sales
- Complex sales

**Sales Force Automation**

In today's global marketplace, organizations are fiercely competing for customers. Increasingly, technology is playing an ever important role in the acquisition, service and retention of customers. Within the broader landscape of strategic information management, sales related technology is being utilized by executives aiming to improve sales processes and achieve higher revenues.

To this end, there is a growing concentration on sales performance metrics in an attempt to meet corporate growth targets. Sales Force Automation (SFA) systems have become the backbone for many sales organizations.

The adoption rate of these systems has grown significantly over the last five years, and they are considered an immediate competitive necessity rather than a future luxury. Even in the face of 55-75% implementation failure rates; organizations still look to these systems to satisfy their burning need to improve their internal customer information systems and sales processes in order to increase their external competitiveness.

The origin of SFA can be traced back to the original personal computers adopted by salespeople in the early 1980's to perform basic transaction processes. Towards the end of the decade, microcomputer applications were introduced and were touted as increasing the 'learning curve' of salespeople in helping them correctly identify customers and execute sales methods.

Soon after these applications were introduced salespeople saw the introduction of mobile communication devices such as mobile phones and pagers. It was not until the early 1990s that the sales force caught up with the rest of the organization and finally started to embed IT into its operations at the organizational, individual and team level.

**SFA Definition**

There is a wide spectrum of sales and IT related activities that are considered part of SFA. Although there is no universal definition, is the most commonly used, "sales force automation involves converting manual sales activities to electronic processes through the use of various combinations of hardware and software applications." This paper will use this definition as the framework to review previous research and to orientate the proposed methodology.

**Organisational Level**

The underpinning question that organizational level analysis aims to answer is whether there are any organizational benefits from SFA, and if there are what are they and how are they achieved and maintained?. First, it empirically found a positive relationship between the functional breadths of the SFA buying committee and overall organizational system benefits. Additionally, firms that had the combined intent to improve both operational efficiency and to establish a strategic competitive edge proved to have greater pay-off than simply those who aimed to automate manual selling tasks.

These findings further contributed to SFA research and presented the question of economically quantifying SFA facilitated improvements. Improving an organization's efficiencies' was the overriding factor behind initiating SFA projects. Paradoxically, the majority of respondents could not expand on 'improved efficiencies' when asked to do so. Suggestions for future work shifted towards investigating post-implementation situations and field sales representatives' experience relative to their performance. Considering these two important studies, we can see that the SFA research focus quickly encompassed a wide array of topics.

The most recent organizational study evaluated the distance between management and the sales force in terms of their respective perceptions of SFA planning, communication and evaluation. The study highlights the difference in opinion of these two groups in regard to SFA trade-offs and benefits. Although both had the same goal of increased efficiency, both projected different effects from the system.

Management sought increased sales with less sales people versus the sales person's view to increase individual sales through activity automation. This dichotomy of intended benefits can often be attributed to a multitude of individual level analysis factors which influence SFA adoption and utilization.

**Individual Level**

SFA research at the individual level has become a multi-dimensional research area. There are many variables which can affect the maximization of the system and sales performance. The highest sales producers were those that rated 'high' on acceptance positive attitude towards new technology and also in number of years of experience. Overall, a strong connection between the salesperson's attitude type towards using new technology in the day-day activities and years of experience in relation to sales success existed. A study investigated attitude factors that impacted levels of SFA 'infusion.' 'Infusion' was defined

as "the extent to which the salesperson fully utilizes SFA to enhance her productivity". The factors reviewed included: personal innovativeness, perceived usefulness, attitude toward new system, compatibility with current system, facilitating conditions, subjective norms and ease of use. The relationship of these factors was mapped to dependent outcomes of levels of 'intention to use' and 'infusion of use' of the new SFA system. The two key results of this work were important managerial considerations. The findings indicated that salesperson attitude concerning the new systems usefulness in their role and compatibility with current system had a large bearing on the adoption rate. It was found that the level of infusion positively correlated with the level of 'facilitating conditions' such as training and support provided by the organization. Although the idea of 'infusion', thus, establishing a new desired benchmark for SFA utilization, they failed to qualify or discuss the timing of their post-implementation data sample. The data was collected just six months after implementation. The author of this paper suggests that their findings could have offered greater insights by comparing the responses after a twelve or twentyfour month interval, therefore, adding to the limited longitudinal analysis in this area. Only after such time would sales people have been able to benefit from training and 'infused' SFA into their daily work translating to higher levels of efficiency and performance.

**Implementation Success vs. Failure – what makes the Difference?**

Successful SFA implementation and adoption can depend on several core activities. Recent research has further cemented the importance of training and salesperson involvement in the decision-implementation planning. Another important variable is genuine projections from management on the system's impact on the salesperson's day day operations. This is directly related to the first step of adoption model: managerial communication. Equally as important as understanding why some firms succeed in SFA implementation, is to understand why others fail. A recent study offered valuable insights into how not to manage SFA. The authors investigated SFA adoption through the 'identity theory' framework. Logically, sales-people are often more autonomous than other members of the enterprise. As such, they react differently to organizational changes such as SFA. Suitably, the focus on specific elements that make up the salesperson's 'identity' which contribute to and are impacted by their level of adoption. The authors investigated the relationships between individual perceptions of technology (comprised of individual traits, disposition toward technology, role perception and organization characteristics) and their professional state on the person-technology fit and measured to the extent to which these relationships influenced both subjective (such as job satisfaction) and the objective (for example salesperson retention) Alarmingly, the results indicated that initial enthusiasm and adoption of the system quickly decreased following the initial training and implementation and ultimately resulted in increased rejection of the system by the sale force. Their analysis

highlighted the fact that if SFA is not supported in an ongoing manner, it can lead to low levels of 'person-technology fit.' This in turn can lead to wider organizational problems such as poor job satisfaction and ultimately salesperson turnover. This critical business problem is one that requires analysis at the organizational, individual and team level.

The discussion above suggests that SFA does not sustain any benefits for field sales representatives and also poses managerial headaches in terms of cost employee productivity and morale. However, some suggest otherwise. Increased sales person productivity is an inherently assumed benefit of SFA, however, there are few empirical studies to either prove or disprove this assertion. Furthermore, which areas of sales activities are enhanced by SFA and to what degree? the wide array of SFA technologies is categorized into categories that primarily reflected their impact on sales activities: organizing, presenting, reporting, informing, supporting and processing transactions and communicating. Their robust analysis revealed valuable insights into which technologies where being used in the field. The organizing category, more specifically, contact management, was the overriding category area with the greatest improvement in efficiency. The second important finding was that an enhancement in communication with both clients and the home office greatly increased with some form of SFA. The interaction and SFA usage with team members at the home office is a related issue which should be researched in the future to address team dynamics.

**The Changing Nature of Sales Roles**

Several recent studies have provided a deeper drill-down on the complexities on SFA adoption and effectiveness on experienced users of SFA. Their research examined the technology stressors related to SFA and the level of infusion of SFA into sales representatives' daily work. In sum, the research quantified that as the complexity of the sales person's task to integrate the new technology into the work increased, the related effort and time they dedicated to this activity decreased. Put simply, sales people felt overwhelmed with the level of impact SFA changed their routines and even the nature of their roles. This issue cannot be overlooked or underestimated in regards to the impact it can have on SFA success. Likewise, the integration of SFA within broader organization initiatives can have both negative and positive effects on sales performance.

**Lead Management**

Managing leads effectively and optimizing lead flow across sales and marketing are critical to achieving sales success. With Sales force you can track prospect inquiries and seamlessly route qualified leads to the right people so sales reps get instant access to the latest prospects and leads are never dropped or lost.

Lead Management is designed to optimize the initial pre-sales process, freeing up your sales department to focus on the most valuable prospects and opportunities. For a given marketing campaign, you may wish to generate leads for certain business partners within a target group. You use leads to qualify the level of interest presented by these business partners, with a view to transforming them into opportunities. Both customers and prospects can be considered as leads. For example, an existing customer may be a lead for a new project you are working on.

This scenario addresses the following business challenges:

- Leads are wasted if they are not delivered to the right person at the right time. Organizations struggle with the ability to get leads to the right person in a timely manner
- Good leads are often overlooked, while time is wasted following up on poor leads. There is no ability to incorporate a corporate standard in the qualification process to ensure quality and timeliness of follow-up
- There is no standardization of surveys, or capabilities to easily create centralized surveys
- Having quality leads is imperative to ensuring success with the leads. Duplication of leads, causes wasted time and money
- Organizations have not visibility into the lead process, and have no ability to make adjustments to ensure success
- No visibility into the Lead Management process, no idea how many leads, number qualified, conversion rates, where each lead is in the process, etc.
- The lead process is directly tied to ROI, most companies have no understanding of the impact of leads and lead conversions to ROI

**Benefits**

- Prevent leads from falling through the cracks
- Improve responsiveness to prospect inquiries
- Standardize lead qualification best practices
- Increase lead conversion rates
- Build distinct lead management processes for distinct groups
- Get the most from your marketing spend

- Optimize lead flow from capture to close
- Set security controls to ensure teams or partners can access only their own leads

**Ways for Improving Your Lead Management Process**

If you're looking for ways to increase revenue, one of the fundamental processes you need to review is your lead management program. Prospect leads can originate in a variety of ways, and there is often only a very loose structure in place to manage and react to those leads. Your sales pipeline and your ability to hit revenue targets all begin with good lead management. Try these eleven strategies for improving your lead management efforts.

**1. Develop a Concrete Definition of a Lead and Make Sure all Employees Understand it**

One of the biggest disconnects between sales and the rest of the company is the definition of a lead. When does a prospect become a lead that a salesperson will actually work on? It's estimated that 90 percent of the leads that are sent to sales staff are never acted upon. And there are generally two primary reasons for that. First, the lead is routed to the wrong person and never gets passed along to the correct person or at least not in a timely fashion. Second, the lead isn't ready to engage with a salesperson yet. So the sales person will make one, maybe two contacts with that prospect and then move on to "lower hanging fruit." For better sales effectiveness, your sales staff and the rest of the company need a more granular definition of when a prospect becomes an actual lead that should be forwarded to sales.

**2. Install an Effective Sales Opportunity Management Solution (we Recommend Prophet!)**

For optimal sales effectiveness, you need to provide employees with a tool that captures information about each and every interaction with your prospects and customers.

**3. Track the Source of the Lead**

People most often hear about your company and products and services through ads, referrals, online banner ads or some other form of advertising. You need to keep track of what actually caused these suspects to raise their hands so you can better determine what works and what doesn't. In addition, it's important to capture the source of each intervening event so you can determine such things as how many times you need to touch a customer or what order of touches work best. If you don't capture the source, you have no way of figuring out what's working.

**4. Distribute your Leads Quickly**

Studies have shown that if you respond within 48 hours of a prospect contacting you, your sales closing rate goes up dramatically. Think about your own experiences. How many times have you tried to contact a company to request information and they never get back to you? By responding quickly, you set yourself apart from your competitors. Make sure you track this rate as a key sales metric.

**5. Nurture your Leads**

Depending on the products and services you offer, most people are probably not ready to buy based on their first interaction with you. Best practices call for nurturing your leads over time. You need to develop campaigns that allow you to touch your prospects multiple times so you can move them through the sales cycle until they're ready to think about actually purchasing from you.

**6. Excite Your Sales Staff About Each Prospect**

The best salespeople focus on detailed qualifying, and so should the rest of your staff. The more information you have about a prospect, the more excited your salespeople will be about the lead. Whoever's collecting prospect information needs to extract additional information from every prospect with each interaction, including such things as "what interested you about our products" and "why is it important to you." They should also try to may the organization so your salespeople are getting in touch with the decision-makers in each company.

**7. "Tag, you're it."**

How do you save those interesting bits of information about customers and prospects? If you tag your records with the names of your competitors on deals, what their objections are, whether they'll be a referral or not, which products they already own and so on, you can then find those detail fast in the future. This allows you to leverage what you learn in order to be more successful.

**8. Treat Your Prospects Like Customers**

By capturing the source I mentioned above in #2 about each prospect, anyone at your company can answer a call from that prospect and more effectively answer their questions. This will have a significant impact on your prospects and will cause them to want to engage with your team further.

**9. Measure Everything you do**

But in order to measure your results, you need to decide what you want to measure and why. Then you can capture the correct information upfront. And once you have the right information, you can determine the return on investment of your campaigns and focus on the campaigns and prospects that will increase your sales pipeline.

**10. Hold Regular Meetings with Your Sales Staff and Anyone else involved in the Sales Process**

You should meet with appropriate staff members on a regular basis to review lead quality, win/loss records, and tracking CRM systems so you can continue to improve your sales effectiveness.

**11. Preload Your Database with the Right Prospects**

Your customers are the first step in prospecting sales leads. Most people think they already know who their customers are, but many companies tell us they find a few surprises when they do an analysis of their customer base. So confirm what you know about your customers. Then, once you know who your customers are, define a few key attributes about them. This could be external attributes such as geography, SIC code, company size (employee count and revenue), or internal attributes such as products, territory, credit type and contract type. Now you can use the profile of your best customers to better define and acquire new prospects.

**Knowledge Management**

The concept of corporate knowledge is not a novel idea. Today's challenging business environment requires executing strategy faster, more cheaply and more effectively to survive in a global business world. Corporations are under constant pressure to improve performance in every facet of their operations.

It is competing in a shifting landscape. With the growth of the Internet and an increasingly mobile workforce, leveraging organizational knowledge is not an option - it is an imperative to succeed in today's competitive landscape. Corporations that have the foresight to manage their knowledge capital today with an open, scalable and extensible approach will have an advantage in the future, making it tougher for their competition to catch up.

***"Knowledge management is a differentiating factor for companies today, providing the difference between being competitive and just dong business."***

Howard Deane, the National Director of knowledge management at KMPG

***"If we only knew what we know, we would be 30 percent more productive."***

— Lewis Platt, CEO Hewlett-Packard (1992-1999)

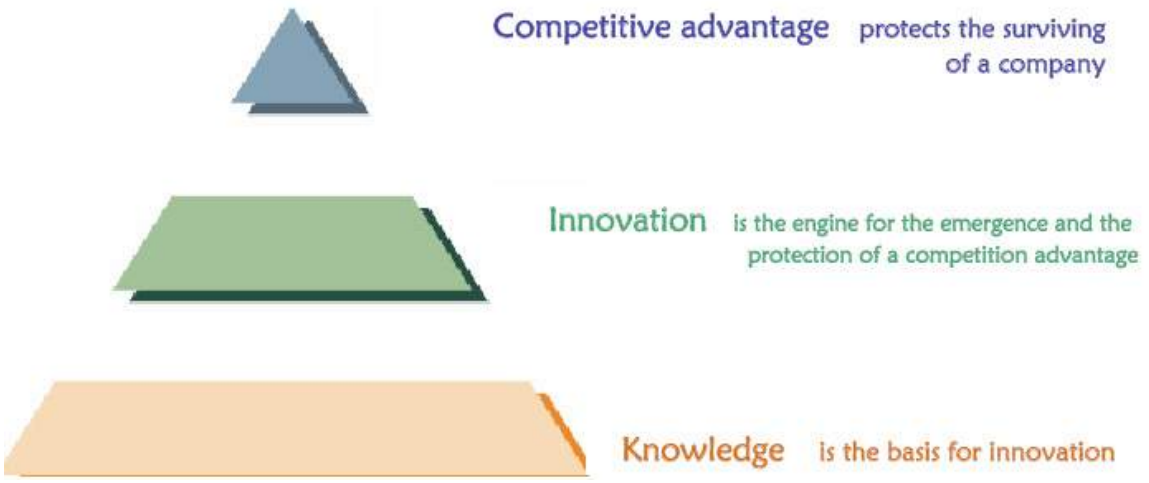
So effective Knowledge Management is a critical component of any business strategy. To successfully manage and leverage knowledge and expertise across global boundaries, companies need to implement knowledge management strategies that enable them to capture, manipulate, and deploy the information residing in their environments.
Knowledge management.

## Knowledge

Knowledge is not static; it evolves. Any knowledge management system must be able to support the acquisition, analysis, preservation, and reuse of knowledge as a continual cyclical process. Knowledge exists in two forms: explicit knowledge that can be codified and tacit knowledge that cannot always be codified.

Knowledge is a fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices and norms.

Knowledge representation is too formalized; much tacit knowledge will be lost. Thus knowledge representations for knowledge management systems must be flexible and discursive.



There are various definitions for Knowledge management. Few among them are:

- A variety of general and specific technologies for knowledge collection (e.g., data mining, text summarizing, the use of intelligent agents, and a variety of information retrieval methodologies), knowledge storage and retrieval (e.g., knowledge bases and information repositories), and knowledge dissemination and application (e.g., intranets and internets, groupware, decision support tools, and collaborative systems).

- Knowledge management is a continuing cyclical process with no end, not a linear one with a single goal. A knowledge management system will therefore be continually evolving, or learning, and any technology used to implement it must support evolution and learning. This point is worth repeating: knowledge management is a continuous ongoing process, not something to be done only once.

- "A multi-disciplined approach to achieving organizational objectives by making best use of knowledge. It involves the design, review and implementation of both social and technological processes to improve the application of knowledge, in the collective interest of stakeholders"

Interim Australian Standard Knowledge Management, 2003

- "A discipline that promotes an integrated approach to identifying, capturing, evaluating, retrieving and sharing all of an enterprise's information assets"
- Gartner Group, 1998

- Knowledge management involves the acquisition, storage, retrieval, application, generation, and review of the knowledge assets of an organization in a controlled way. The knowledge that is to be managed is that which is critical to the company—that which adds value to your products or to your services.

Here are some examples:

- Knowledge of a particular job, such as how to fix a fault in a piece of critical manufacturing equipment.

- Knowledge of who knows what in a company, who solved a similar problem last time.

- Knowledge of who is best to perform a particular job or task, who has the latest training or best qualifications in a particular subject.

- Knowledge of corporate history—has this process been tried before, what was the outcome?

- Knowledge of a particular customer account and knowledge of similar customers.
- Knowledge of how to put together a team that can work on a project, who has worked successfully together in the past, what skills were needed on similar projects.

The three Pillars of Knowledge Management are Technology, Process and People. The objectives of Knowledge Management can be briefed as creating knowledge repositories, improving knowledge access, enhancing the knowledge environment and managing knowledge as an asset.

**Framework for Knowledge Management**

The knowledge management framework contains four elements:

1. business drivers behind the need ("why"),
2. content ("what"),
3. people ("who"), and
4. The approach ("how").

"Why?" Knowledge management can be very expensive and time consuming; therefore, these solutions have to align with an organization's overall goals and objectives.

"What?" Content needs to be identified, captured and categorized for easy reuse and adaptation.

"Who?" Knowledge management must identify and develop expertise within the organization.

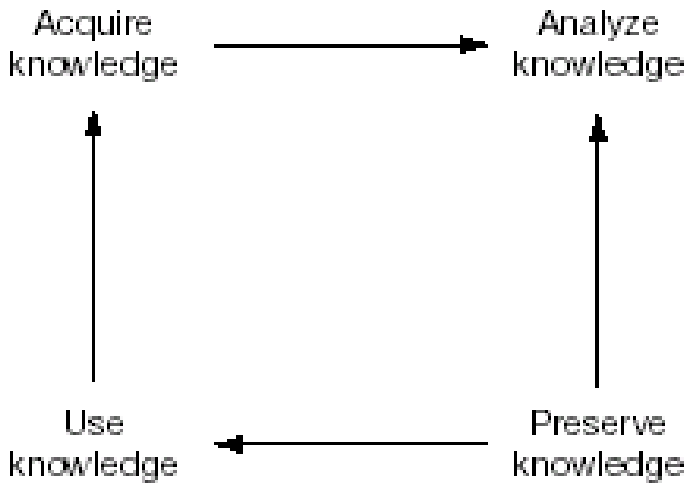
"How?" Technology has been an innovating force in emerging approaches to knowledge management.

**Activities in Managing Knowledge**

The act of managing knowledge can be characterized by the following four activities:

1. Acquire knowledge (learn, create, or identify);
2. Analyze knowledge (assess, validate, or value);
3. Preserve knowledge (organize, represent, or maintain); and
4. Use knowledge (apply, transfer, or share).

These activities do not exist in isolation. Instead, you can think of them as a cycle, as shown in Figure. This can be viewed as follows:




**KM Cycle**

(*Source:* The Economic Intelligence Unit 2006)

At a recent workshop held at Cambridge University in England, a group of people active in knowledge management and artificial intelligence identified the main activities needed by a knowledge management system. These were mapped to artificial intelligence methods or techniques. The main knowledge management activities were identified as the acquisition, analysis, preservation, and use of knowledge.

Case-based reasoning is a methodology for supporting knowledge management. It is not important now that you know what. CBR is or how it works; this will be explained in the next chapter.

The classic definition of CBR:

"A case-based reasoner solves problems by using or adapting solutions to old problems."

Riebeck, C.K., & Schank, R. (1989). Inside Case-Based Reasoning. Erlbaum, Northvale, NJ.

Knowledge Management, in contrast, can be about documenting and sharing what is through activities such as:

**Knowledge Audits**

Determining exactly what intellectual capital exists in the company at a given point in time. Knowledge audits can take the form of informal interviews, such as illustrated by Mary's activities in the Medical Multimedia, self-reporting formal paper-based surveys, or through group meetings with management and employees.

**Collaboration**

Formal task- or project-oriented groups designed to facilitate information sharing. Formal collaboration normally involves the participation of employees who normally would not work together in the course of their regular work.

Communities of practice: Employees who share tasks, projects, interests, and goals, normally within a specific work area. For example, the programmers and artists in Medical Multimedia formed two communities of practice, defined largely by their common work function. Communities of practice are generally self-forming, dynamic entities.

**Knowledge Mapping**

A process of identifying who knows what, how the information is stored in the organization, where it's stored, and how the stores of information are interrelated.

**Mentoring**

Experts sharing heuristics, values, and techniques with employees new to processes within the company. Mentoring, like the formation of communities of practice, can be fostered by the corporation but not dictated.

Social network analysis: The process of identifying who interacts with whom and how information is communicated from one individual or group to another.

Storytelling: Otherwise known as the case-based method of teaching, storytelling is a way of communicating corporate values and other implicit forms of knowledge.

Training and development: The traditional method of dispersing explicit knowledge. However, in Knowledge Management, training and development normally involves internal experts from different disciplines, as opposed to professional trainers.

## 7C Model

The new conceptual model for understanding organizational knowledge creation, known as the 7C model, which suggests that

The following seven Cs play a critical role in the creation of organizational knowledge: Connection, Concurrency, Comprehension, Communication, Conceptualization, Collaboration, and Collective intelligence (Oinas-Kukkonen 2004).

The model is based on the distinction of individual and organizational knowledge and explicit and tacit knowledge. The 7C model suggests that the seven Cs, i.e. Connection, Concurrency, Comprehension, Communication, Conceptualization, Collaboration, and Collective intelligence, play a central role in the knowledge creation process.

The paper also argues that previous research has focused on the technology and organizational contexts, and many of the Web's inherent key features have not been utilized to the extent they should. Better support for the largely neglected human-sensitive subprocesses of organizational knowledge creation, Comprehension and Communication, may be achieved through deeper utilization of the Web's hypertext functionality. Moreover, organizations may improve both their core business activities and improvement capabilities as well as search for competitive advantage from business alliances.

## Main Issues in Evaluation Knowledge Management Systems

| Comprehension | Collaboration | Collective intelligence |
|---|---|---|
| and Communication | and Conceptualization | and Organizational impact |
| customers | decision making | revenue |
| business processes | rationale | profitability |
| product portfolios | reasoning | return on investment |
| product features | reuse of knowledge | growth |
| markets | productivity | market share |
| ideas for future business | … | customer satisfaction |
| recognizing key problems | | employee satisfaction |
| solving key problems | … | … |
| shareholder value | | |

## Why is Knowledge Management Important in Today's Business Climate?

In the emerging economy, a firm's only advantage is its ability to leverage and utilize its knowledge. Knowledge management is more of a strategy supported by technology that can show a quantifiable, and sometimes substantial, return on investment. These are some reasons for requirement KM:

1. KM helps you capitalize on intellectual capital.
2. KM addresses your growing knowledge needs.
3. KM benefits your budget (in an up or down economy).
4. Delaying a KM implementation puts you at a competitive disadvantage.
5. KM self-service saves money and makes customers happy.

Knowledge management solutions are now the most important strategic technologies for large companies, according to a new report and survey of European executives by the Economist Intelligence Unit, sponsored by Tata Consultancy Services.

In the survey, 67% of companies cite knowledge management/business intelligence solutions as important to achieving their strategic goals over the next three years. This compares with 63% that accord the same level of importance to new CRM solutions, and 35% that see mobile/wireless technology as vital.

Considerations which drive Knowledge Management are:

- Making available increased knowledge content in the development and provision of products and services
- Achieving shorter new product development cycles
- Facilitating and managing organizational innovation
- Leverage the expertise of people across the organization
- Benefiting from 'network effects' as the number of productive connections between employees in the organization increases and the quality of information shared increases
- Managing the proliferation of data and information in complex business environments and allowing employees to rapidly access useful and relevant knowledge resources and best practice guidelines

- Facilitate organizational learning
- Managing intellectual capital and intellectual assets in the workforce (such as the expertise and know-how possessed by key individuals) as individuals retire and new workers are hired
- A convincing sales pitch from one of the many consulting firms pushing Knowledge Management as a solution to virtually any business problem, such as loss of market share, declining profits, or employee inefficiency

**Issues in Knowledge Management**

Knowledge Management involves maintaining as much of the knowledge worker's relevant knowledge for the corporation as possible.

- A KM initiative must reflect the reality that knowledge workers vary in knowledge, skills, and aptitude.
- In evaluating the contribution of knowledge workers in the modern knowledge organization, there is a significant difference between knowing and doing.
- The knowledge worker–management relationship can't be left to chance but must be managed.
- A KM initiative must include investing in knowledge worker loyalty.
- Continuing knowledge worker education is essential to maintaining the value delivered by knowledge workers.
- Although communities of practice are self-organizing structures, management should facilitate their formation and direction.
- A new business model or management initiative, no matter how innovative and promising, must consider human behavior.
- A KM initiative represents additional overhead, much of which is borne by knowledge workers in their daily work.

The Knowledge Management can be viewed in different perspectives. They are:

- KM as a Technology - Systems, Methods, Practices
- KM as a Discipline - Multidisciplinary, Integrative

- KM as a Management Practice and Philosophy - Focus on Effectiveness, Culture, and Stakeholders
- KM as a Societal and Enterprise Movement - Focus on Broad Societal, Enterprise, and Personal Basic Values

### *Significance of Knowledge Management*

Knowledge is available and leveraged amongst different parts of the organization

- Employees in distant locations are able to collaborate
- Activity or process times are positively impacted through the instant availability of
- knowledge
- Knowledge Management is information put to work

  - Human Interaction is the focal point surrounding the collection, distribution and reuse of information
  - Decision-making is facilitated by the almost immediate availability of information and the tools to analyze it
  - Helps maintain an organization's intellectual capital
  - An employee's knowledge about a customer, solution or process is available to the entire organization
  - Attrition has less of an impact on the organization since an individual's knowledge is already captured

### Critical Factors of Success for Km

- People: concept and change management
- Shared Vision
- Alignment with Business Strategy
- Leadership and Sponsor Support
- Early Success
- Incentive and Reward System
- Enabling Technology

## Ten Principles of Km for Success

1. KM is a discipline
2. One champion is not enough
3. Cultural change isn't automatic
4. Create a change management plan
5. Stay strategic
6. Pick a topic, go in-depth, and keep it current
7. Don't get hung up on the limitations
8. Set expectations or risk extinction
9. Integrate km into existing systems
10. Educate the self-service users

****

## Lesson 3.2 - Knowledge Management Practices

### Knowledge Management Practices (KMP's) in Ghana

Knowledge management practices have facilitated innovative performance and to the productivity of industries. Some KMPs are

- Promoting a culture of information and knowledge sharing
- Motivating employees and executives to remain with the firm
- Forging alliances and partnerships for knowledge acquisition
- Implementing written knowledge management rules

There exist certain constraints to the development. They are the poor linkage between knowledge production and economic systems, inadequate human capital, inadequate investment in science and technology infrastructure and ineffective paths of technology innovation

Some strategies have been recommended for the development of GHANA. They are raising the potential pool of skilled labor, improving the science and technology infrastructure and creating an enabling environment for innovation in private sector industrial firms

### Knowledge Management Leadership

In order to lead the organizations which tend to adopt the knowledge management practices it becomes essential to have a proper and effective leadership. Like the definition of Knowledge Management, the types and roles of knowledge leadership in a corporation are usually defined on a case-by- case basis. Although there are dozens of terms ascribed to knowledge leaders by consulting firms, the five main categories of knowledge leadership and their roles in the corporation are:

1. Chief knowledge officer (CKO). A strategic, senior management position focused on promoting, communicating, and facilitating KM practices in the corporation. The highly visible CKO typically reports directly to the CEO but may report to the CIO.

2. Knowledge analyst. A tactical, lower- to midlevel position that involves learning and personally disseminating the best practices of the organization. Knowledge analysts may use technologies to accumulate and manage knowledge, but the technologies are for their personal use only. The risk of relying on knowledge analysts is that they can walk away with the best practices of the corporation, with no record for those left behind to follow.

3. Knowledge engineer. A tactical, lower-level position that is focused on collecting information from experts and representing it in an organized form, typically in computer-based systems, that can be shared and stored in the corporation. Knowledge engineers frequently form the interface between employees and computer technologies, such as expert systems—programs that imitate the decision-making abilities of experts.

4. Knowledge manager. A tactical, midlevel position that involves coordinating the work of knowledge engineers and analysts, especially in larger corporations. Knowledge managers may report to the CKO, CIO, or CEO.

5. Knowledge steward. A tactical, low-level, and often temporary or informal position normally associated with smaller companies. Compared to the other forms of knowledge leadership, knowledge stewards have the least formal experience with KM principles and usually have other, primary responsibilities in the corporation.

Of the five general forms of leadership, the chief knowledge officer is typically the most visible, least understood, and highest paid member of any KM initiative. Unlike senior managers, a CKO typically has no underlying power base and minimal support staff, and can't make significant decisions without first being empowered by senior management.

The above are the different types of leaderships in order to implement the knowledge management in any organizations.

**Mirosoft**

In the age of e-commerce, few brands have a more commanding presence than Microsoft. For millions of people and hundreds of thousands of companies around the globe, Microsoft operating systems and software applications are indispensable components of their work and home environments. But that extraordinary presence comes with an equally compelling challenge. As a direct consequence of the company's scope and market penetration, Microsoft must grapple with one of the industry's most daunting customer service loads. This vignette dramatically shows the benefits of knowledge management using an organizational memory.

Microsoft's strategy encompassed two important tactical moves.

First, the company's three major contact points were consolidated into a single channel for all customers.

Second, customer service representatives were trained as "knowledge brokers," tasked with handling inquiries across all products, programs, and services, rather than relying on a procedure that routed the customer to an appropriate specialist.

"The overall goal was to drive up first contact resolution and improve the customer experience. From the outset, it was clear that this strategy relied on us being able to implement a knowledge management system that would put all the information on our products, programs, and services at the agents' fingertips."

Helen Pickup, Director of Microsoft's Customer Care Centre in Glasgow, Scotland.

After reviewing a number of technologies, Microsoft engaged Project Techniques, a consulting firm, to help evaluate and identify the best solution. Microsoft's call center outsourcer, Thus PLC, also participated in the evaluation process. The first step in the process was to identify the type of organizational memory that would satisfy Microsoft's requirements.

Project Techniques reviewed the relative merits of each of the main knowledge management technologies: knowledge-based systems, natural language search, and case-based reasoning (CBR). The goal was to find a tool that would provide both technical and non-technical agents with easy, structured access to the knowledge base. This led them to select CBR over the other available technologies.

Following an extensive evaluation of CBR applications, Microsoft chose eGain's CBR product, which captures the full range of customer service, sales, and support data in a single organizational memory and deploys that information across the entire contact center. Furthermore, support agents can use different levels of the product based on factors such as user expertise, the customer's situation, or the communication medium (for example, online customer self-service, live Web collaboration, and email).

One of the most important advantages offered by CBR technology lies in its natural, conversational interface. Support agents are provided with information structured to mimic the way people think and speak. Other information retrieval applications, such as keyword search systems, typically are not equipped with sophisticated search refinement capabilities.

As a result, keywords often return too many hits, and misspelled or incorrect keywords return none. With CBR, when the agent fails to find a solution on the first attempt, the application will ask a further question designed to refine the search, similar to the way people engage in conversation. Once the application was deployed in the call center, Microsoft managers discovered another important by-product of CBR technology, namely, its user-friendliness.

Within nine months following the implementation of a CBR knowledge management system, Microsoft reported:

- A10 percent improvement in overall customer satisfaction rating;
- A 28 percent increase in "first-time-fix" success rate;
- A 13 percent increase in the "agent is informed" customer survey score;
- A significant reduction in the time required to train new agents, as well as to elevate existing agent skill sets to the expert level;
- A much wider range of customer care issues handled by individual agents, who also delivered more consistent responses, regardless of the problem.

Summarizing Microsoft's venture into knowledge management, Helen Pickup declared, "We are confident that knowledge management is key to success in the customer care arena. We expect to continue investment in this area."

**Toyota**

**Toyota's** KM practices were considered unique because KM was embedded in its culture, unlike at most other enterprises where it was implemented as a separate and independent effort.

KM initiatives in Toyota are

- Toyota University
- Toyota institute
- Global production center
- Toyota global knowledge center

**TCS**

**TCS** were rated on eight knowledge performance parameter and was one of the 14 winners in Asia's Most Admired Knowledge Enterprises (MAKE) Study 2005

TCS was awarded as the best practice in KM, by panel of Asian Fortune 500 Senior Executive and renowned KM experts.

The main objective of TCS was focused on locating, organizing, sharing and transferring knowledge for the benefits of the employee and clients spread throughout the world

### 3M

3M in the U.S. has a reputation for encouraging new ideas and turning those ideas into products and profits. CEO Livio DeSimone is to have ten percent of the company's revenues generated by products less than a year old. Beliefs and values at 3M have encouraged knowledge transfer and led to significant investments in information technology for knowledge transfer among knowledge workers. A strong culture of knowledge management permeates 3M Corporation's operations. The company actively encourages new product development by requiring that 30 percent of annual sales come from products less than four years old. It has a history of using its organizational knowledge base to spin off new businesses from existing technical platforms, and of sharing technical knowledge to communicate about current product activities and statues. 3M is also using knowledge management to make discoveries that can lead to new products (Turban et al., 2003).

### Accenture

Accenture has more than 200 knowledge managers worldwide. For a large consulting company whose very product is knowledge, there is considerable motivation to create a knowledge base to share accumulated know-how. For this reason, Global Best Practices (GBP) knowledge base was created, a central repository of knowledge about world-class business practices. The GBP base contains quantitative and qualitative information about how companies achieve best-in-the-world standards of performance in activities that are common to most companies (Turban et al., 2003)

### AT&T

AT&T has built an online directory of expertise, mapping who knows what. Updating people profiles — often by individuals themselves — was found to be cheaper and more feasible than continuous editing, maintenance, and validation of content. Furthermore, providing a directory to the knowers is likely to lead to either the knowledge sources or the knowledge possessors.

Thus we see that **Knowledge** Management involves rethinking how management relates to employees. At issue is how to reward the mentors and other knowledgeable employees for the incremental value they create in the company through sharing their knowledge. In many regards, the basic principles of Knowledge Management go against human nature, in that employees, as well as managers, are naturally reluctant to give up their hard-won advantages. This reluctance to share the real core of information isn't limited to business but is also prevalent in academia, which is established around KM principles. Researchers often offer statistical summaries and generalizations instead of raw data, and the technical details of leading edge technologies are rarely published in a timely manner unless tenure or significant funding is at stake.

Knowledge workers are central to the operation of a knowledge organization. Not only do they represent the greatest potential for multiplying the value of a company, but they also represent the greatest risk to value loss. Furthermore, managing knowledge workers is challenging because of the competing goals of encouraging knowledge sharing thorough communities of practice while maintaining control over the general direction of the corporation through information hiding and filtering.

For knowledge workers who represent a positive value multiplier, providing consistent supportive feedback through the corporation's touch points, investing in knowledge worker education when economically feasible, and maintaining the processes associated with knowledge worker loyalty all maximize the value that the knowledge worker can bring to the corporation.

Knowledge Management begins with a practical implementation plan that adequately addresses people, process, and technology challenges, whether working with vendors and developers or shifting the corporate culture to embrace the concept and reality of a knowledge organization. An insightful and capable senior manager can recognize and appreciate predictors of a successful KM initiative and manage the potential risks involved. As long as stakeholder expectations are managed in a way that avoids the hype that kills other business innovations, the prospects for a successful KM implementation, and for the KM industry as a whole, look exceptionally bright.

**Force Field Automation**

In today's competitive environment, network companies are under constant pressure to improve customer service while reducing costs; in field operations this drives a necessity for utilities and communication businesses to optimize resource assignment and dispatching.

GE Energy's integrated solution suites for network companies includes Field Force Automation (FFA), a comprehensive software application combining proven, optimal resource management and superior street routing. In addition, FFA software's powerful integration capabilities and use of standard protocols can improve field services by enhancing and automating business processes across a variety of work management and corporate systems. FFA delivers significant efficiencies and cost savings to technical field service teams within large and small organizations. FFA streamlines the flow of work orders throughout the entire organization, including creation, assignment, dispatch, monitoring, field activity reporting, and charge accounting for activities such as:

- Inspection
- Repair
- Maintenance
- Outage restoration
- Meter reading
- Service installation and testing
- Trouble call response

As field-based work progresses, status updates are returned to the source system, ensuring that all members of the organization are updated and ready to provide customers and co-workers with timely, accurate information. FFA also promotes better communication between dispatchers and field teams by providing technical, commercial and spatial information. Data is more accessible and reliable and FFA reduces the amount of voice communication required to only the essential emergency information, minimizing dispatch room disruption. Easily accessible to senior managers, dispatchers and service technicians, FFA is supplied with a configured Internet portal, providing optimized field operations via the Internet.

**FFA Product Description**

The three major components within the core package of FFA are:

- Resource planning that lays the building blocks for effective scheduling:

    a. Stores individual and crew employee calendars, start/end work location, Organizational structure, skill set, wages, preferences, and equipment held – Models workforce shift/rotation, holiday, illness, training, and overtime considerations

b. Analysis of company policies and collective agreements affecting staff deployment

c. Full support for multi-person crews and individuals required for a specific task

- Optimized scheduling differentiates FFA by combining resource intelligence, planning, and modeling with advanced street level routing:

  d. Schedules resources using manual, automatic, and semi-automatic modes with heuristic algorithms

  e. Automatic, optimal selection of materials and workers based on complex resource analysis, including advanced real time analysis such as proximity and equipment of currently deployed crews.

     - Optimized routing, beyond point-to point distances, with street level information, such as:
     - One-ways
     - Average speed
     - Traffic signals
     - Real-time information (if available) such as traffic flow, accidents, Closures, etc.

- Dispatch management delivers optimized crew deployment with these abilities:
  - Web-based dispatch board and Gantt chart dispatcher has full control from calendar management to technician login/logoff Track employee tasks on dispatch board with map-based dispatching and GPS/AVL updates
  - View overall operations or detail on work and mobile workers
  - Alert dispatchers to priority events
  - Automated work status updates

**Flexible, Automated Scheduling**

Automated scheduling in FFA is achieved by defining rules that can take into account:

- Personnel training and qualifications
- Individual responsibilities
- Each team's material and equipment
- Rapid response
- Crew proximity
- Other business-specific factors

With FFA, the dispatcher can overrule the automatically generated schedules and add or prioritize work orders manually. In order to accommodate prioritized unplanned work orders, automatic re-scheduling of low priority tasks is also available. This is essential, when, for example, a SCADA system generates emergency or higher priority tasks than those currently being scheduled or dispatched. Configuration of user-defined alarms or notices ensure the dispatcher is instantly aware of any issues and can take relevant actions, rescheduling work orders if necessary. For low-priority routine maintenance tasks, the workflow engine provides configurable workflows for automating the specific processes.

**Features**

- Automate work order lifecycle from design through project completion
- Manage all levels of work orders with an intrinsic hierarchy that supports projects, service orders, work orders, actions, and routine and emergency events
- Includes street-level routing database
- Flexible scheduling to include completely automated, semi automated, and manual Operations
- Ability to integrate to other work order generating systems and enterprise systems – CIS, OMS, WMS, EAM, ERP
- Collect work order status in real-time
- Manage jeopardy and keep alert of workload imbalances
- Offer real-time appointment booking with configurable window times

**Benefits**

- Reduce dispatch times associated with manual crew assignment by 33%
- Cost savings from 25-35% on overall field operations, recognized in as few as eight months
- Improve operating efficiencies by reducing the number of dispatchers necessary to handle high volume situations (storms, events)
- Decrease emergency crew personnel deployed by as much as 15-20%
- Reduce radio and phone traffic for system operators performing system updates that crews can perform directly
- Improve the quality of reliability data by reducing voice communications necessary and establishing a single point of data by central dispatchers

- Increase customer satisfaction due to more timely updates of restoration status
- Eliminate the complexity and high cost of acquiring and maintaining point software products from different vendors and performing custom integration

## CRM links in e-Business: E-Commerce and Customer Relationships on the Internet

### ECRM

With eCRM, manufacturers have the opportunity to take customer interaction to new levels of effectiveness by integrating customer information otherwise hoarded by customer service, marketing, and sales departments and making it available across the organisation to improve the overall customer experience.

Some large companies are gaining significant competitive advantage by using Information Technology (IT) and business to analyze and manage their relationship with each customer. This trend is relevant to many larger companies. While smaller companies tend to rely on people, rather than computers, to track and manage their customer relationships, this trend is still relevant to them because: -

Most IT driven changes in large companies sooner or later are adapted by progressive smaller companies, as relevant software packages suited to the needs and budgets of SMEs are developed. Any SME planning an overall medium term eBusiness/IT strategy thus needs to consider whether aspects of CRM are likely to be relevant to that strategy.

The ability of large companies to provide a holistic approach to customers may partly erode one of the competitive advantages enjoyed by SMEs, namely their ability to provide a much more personalised service than their larger competitors.

CRM is the three-letter acronym for Customer Relationship Management. CRM packages are software tools that allow the user to keep a record of all interactions with a customer. Typical examples of these interactions are:

- Complaints
- Queries
- Requests for Quotations
- Instructions and so on

As the user is recording the interactions, the user can have access to all the customer information that exists on the system. Information such as:

- Account Balance and Transaction History;
- Order Status;
- Shipping Status;

And static details such as name, address, phone, email etc.The level of information available is dependent on the level of functionality of the CRM tool or the degree of integration with the company ERP package. [ERP packages process accounts, sales order processing, stock movements, purchases and so on. The CRM tool also has functionality:

1. To assign actions (arising out of an interaction ) to different users,
2. Keep a record and status on all actions that have been taken against a particular transaction.
3. Classify an interaction as being 'open' until all the desired actions have been completed

The strength of CRM is that any employee within the company can access the interaction record at any time to review the status and update it. The customer cannot catch the employee, who has access to the CRM tool, unaware. This gives the customer the ' VIP feeling' because the customer feels that every employee in the company is aware of the customer and the customer's issues.

CRM originally evolved from the recording and fixing of complaints to the current level where packages are now available on the Internet. In the latest eCRM generation, the customer may record the complaint and could change the customer's own static details Using a web browser.

CRM systems also allow for proactive dealings with potential and existing customer [e.g. quotes] and electronic mail-shots. Records are kept of these interactions in the same way as complaints and other 'reactive' interactions are stored. The normal operational transactions [such as sales order processing, order picking, dispatch, invoicing and so on] would not normally be stored on a CRM tool as this functionality is readily available in ERP packages. However, some of the Tier 1 CRM solutions have started to store this type of information also. The most well known CRM tool is provided by Siebel Systems.

**Competitive Advantage Through CRM**

European manufacturers have been slow in adopting customer relationship management. Without explicit retention goals, programs for improving customer loyalty go

nowhere with subpar business performance as a frequent result. But while many companies have such goals in place, fewer are achieving them. The success of many non-European manufacturers in Europe over the last two decades has a lot to do with their forward-thinking practices in managing their customer relationships.

With customers embracing "imported" brands like Nike, Procter & Gamble, and Colgate- Palmolive in consumer products, Dell in personal computers, and General Electric in appliances, many European manufacturers' notions about customer loyalty are being called into question. The impact of competitors that excel at anticipating and serving customer needs is beginning to be felt. Despite many European manufacturers' hesitation in adopting CRM practices and principles to date, they now have a unique opportunity to quickly take a lead position. Having sat on the sidelines and let the first wave of CRM initiatives pass them by; these companies can now use the Internet to rethink their customer interactions from scratch. Rather than getting on the traditional CRM bandwagon, they can leapfrog the competition by leveraging the more advanced capabilities of customer relationship management in the digital world: eCRM. Indeed, eCRM gives companies far greater opportunities to improve marketing and customer satisfaction than traditional CRM approaches. Most traditional CRM initiatives predate the World Wide Web and tend to be in silos such as customer service, sales, or marketing functions. For example, many companies installed CRM software in their customer call centers to create deep databases on customers, repair and other service records, and the company's product and service information. By implementing CRM, these companies made improvements in certain narrow areas of the business. For example, their service reps became more knowledgeable about each customer and better able to handle their issues after the purchase. But the primary benefits of the system were limited to the customer service function often the call centre representatives. Sales people typically did not gain access to the data, which they might have used to help make a sale.

Traditional CRM rarely provided a consistent enterprise-wide picture of the profitability and needs of individual customers. In essence, while helping give a better customer experience, those traditional CRM efforts did little to help companies decide where to invest next or how to improve their product offerings or sales process.

As we discuss later, without this holistic, integrated, 360-degree view of the customer, most of the value of CRM efforts dissipates quickly as competitors have little trouble in catching up. Flexible enterprise-wide eCRM systems can create a "digital loyalty cycle" across marketing, sales, and customer service. This provides customers with the optimal price, quality, quantity, brand, pre-sales and after-sales service experience. This is becoming the benchmark for successful customer relationship management in the digital age.

With eCRM, manufacturers have the opportunity to take customer interaction to new levels of effectiveness by integrating customer information otherwise hoarded by customer service, marketing, and sales departments and making it available across the organisation to improve the overall customer experience. Traditional knowledge and analysis of product and geographic markets are becoming relatively less useful as the understanding of individual customers, their purchase history, requirements, and lifetime value is becoming the ultimate unit of analysis. The battleground is moving from scale and market-share to customer profitability and wallet-share. Without investments in stronger eCRM capabilities, however, a complete, actionable picture of individual customers is often unavailable for most companies. This means that strategic marketing decisions today are often founded upon quicksand. As a result, customer loyalty is becoming more and more a subject to the now infamous mouse click.

An eCRM system or Web-based CRM system is fundamentally less cumbersome and less expensive to implement than traditional CRM because eCRM can be extended more easily to users everywhere in the company through the Internet. As common standards for exchanging product, service, and customer data emerge, such as eXtensible Markup Language (XML) standards, partners in the sales and distribution channels can be linked more easily to the system and share in the benefits. The cost savings can be sizeable. For example, GE estimates the cost of taking a phone order at around 5 for simple products and as much as 80 for its higher-tech offerings. In contrast, an order placed online costs an average 20-cent. With GE getting 20 million phone calls a year in its appliance business alone, the savings from Internet -based CRM technology could become immense. But the value of eCRM goes way beyond cutting cost. The technology allows companies to capture customer feedback at more of the "touch points" between a company and its customers across channels and functions e.g. meetings with sales people, customer service inquiries, purchases over the Internet, customer surveys, user groups, and the like and use it to improve relationships and value for individual customers.

European manufacturers have been slower to adopt many key enterprise technologies, such as the installation of an enterprise resource planning (ERP) system, for effectively managing millions of customer interactions. Without an ERP system to track the status of a customer's order from the factory to the customer's door, a manufacturer cannot tell a customer some of the most important things he or she wants to hear these days: Where is my order and when do I get it? Unresponsiveness to customers' concerns, if not rectified, will threaten the sustainability of many manufacturers. The continuing integration and expansion of the European market and the arrival of the Euro are both opportunities and threats. Certainly, those forces have put European manufacturers on more of an equal footing with their competitors based elsewhere, particularly in the United States. An even bigger

factor pushing European industrial companies to get much better at managing customer relationships is the Internet.

The global communications network eliminates much of the age-old geographic and information advantage that many manufacturers have had over their customers. Customers of everything from cars and appliances to computers and books can now get information on pricing, product features and other buying criteria from a broad array of sellers without leaving their home or office, and they can often complete the transaction electronically. Unlike many services (such as hair cuts and hotel services), most manufacturing products can be transferred across borders and are easily comparable across geographies in terms of price, quality, quantity, delivery, and so forth.

As consumers become more familiar with the Net, as bandwidth increases and access cost falls, Internet usage will continue to soar. Even if consumers do not buy online, the information they gain on the Internet can still affect prices. Companies must understand that, not unlike the impact of imports on competition, it takes only a small percentage of total sales to go through Internet channels to seriously affect value propositions, prices, and profits.

### From Product and Geography Focus to Customer - Centric Strategies

The combined impact of the Euro and the Internet has highlighted pricing disparities across Europe and will no doubt begin to erode them for manufactured and other internationally tradable goods and services. As manufacturers traditionally have reaped the rewards from differential pricing strategies in each country and region, these developments will undoubtedly cause already slim profit margins to become even slimmer. An interesting example of this is to compare prices online for the same technology items in different countries from multi-national IT suppliers such as Dell.

While many regional differences will persist within Europe such as those determined by culture, language, government policies, and payment systems manufacturers will have to move beyond product and geography-centric sales, marketing, and customer service practices and start to put the customer at the centre of attention. If increasingly knowledgeable customers can make price comparisons from country to country, the only way for manufacturers to retain price premiums and increase shareholder value will be to offer greater value through improved customer service and target customers with differentiated offerings. That is, they will have to maximize the way they treat each and every customer or segment. The entire customer interaction, including what goes on after the sale, will become even more important. Customer loyalty and retention are bound to become the ultimate platform for competition.

**Customer Loyalty and Profitable Growth**

Because it costs significantly more to continually attract new customers than to retain the current ones, and because the value of most customer relationships increases over time, companies that increase revenue without holding onto their best customers wind up eroding profitability and, thus, shareholder value.

When we look at the business performance of customer-centric manufacturers, we find clear indications of the underpinnings of success. Customer-centric manufacturers are more likely to exceed their goals for return on assets and market share compared to non-customer centric companies. They are also much more likely to exceed key operational goals for inventory reduction, parts shortages, labour costs, and organisational learning.

**Designing The Digital Loyalty Cycle**

If customer loyalty is the goal, eCRM is the tool. Although companies can use eCRM to pursue benefits in any one part of the business, the greatest benefits come from using it to link every operation in a business that affects the customer experience. Integrating and leveraging efforts across pricing, product quality, marketing, sales, and customer service through the digital loyalty cycle will increasingly become the hallmark of successful companies. By always working from a real-time perspective, for example, front-line staff and strategic partners can continuously improve the way they interact with individual customers and segments. In doing so, they not only can improve the customer experience, they can also improve the way feedback from customers is leveraged across product development, manufacturing, marketing, sales, and service.

When executed correctly, eCRM implementations are designed as a digital loyalty cycle that continuously improves to create lasting competitive advantage. When a manufacturer uses eCRM technology and redefines its business processes in customer acquisition and retention, it strengthens its capabilities in key areas that determine a customer's purchase decision including pricing, product quality, marketing, sales, and customer service to create a virtuous, digital loyalty cycle. The impact of eCRM strategies is beginning to show. In traditional call centres alone, eCRM lets companies shift much of the people-intensive customer service transactions to online transactions that let customers serve themselves if they wish. Considering the enormous cost of running call centres to serve customers in multiple languages and cultures and legal environments across Europe, the Internet provides a permanent but flexible solution to handle this diverse and costly set of requirements. Content created in one country can be translated through software adapted to other countries in near real-time.

The experience of System Label, the Irish specialist printer of industrial labels equipment, demonstrates how eCRM can increase responsiveness to customer requirements. Since implementing several system developments including a new eCRM package, the company often turns around orders faster than its 5 day target at the outset of the project. With eCRM, customer-centric manufacturers can use customer information to better predict customers' buying patterns, which allows them to better manage pricing and marketing decisions in real time.

Behind the scenes of the eCRM systems are conventional, perhaps, but crucial components for success: business processes, technologies, and people. When it comes to business processes, manufacturing companies must understand the customer loyalty cycle and use an integrated approach across the organisation to strengthen loyalty. That is, they must synchronize and differentiate everything that affects an individual customer's loyalty: brand, quality, price, sales, and service experience. It is no small task, but by first focusing on the customers that are most profit-able and key to future survival, companies can leverage eCRM where it matters most.

In terms of technology, companies must use IT to gather, analyze and disseminate information from customers across the enterprise. Enterprise resource planning (ERP) systems can serve as the foundation. For some, a web-based approach is likely to be both faster and cheaper. Leveraging Internet technology eases the implementation burden and increases flexibility in designing global and regional manufacturing, distribution, and service networks. The same comparison can be made between traditional CRM and eCRM. That is, a typical installation of a CRM system a few years ago would take, say, around 6-12 months. Today, with eCRM, a similar, enhanced and more flexible system based on Internet technology is not only less expensive to install but also much quicker, taking just about 3 to 6 months depending on the specific circumstances of the company.

People are key to serving customers well. Companies must therefore invest in people through continual learning, such as just-in-time and cross training, to ensure that they have the skills and mindset to achieve customer loyalty goals. In addition, incentives should measure and reward customer satisfaction and loyalty. Base wages and benefits may have to be upgraded, and knowledge systems should be supported. Successful companies understand that employee loyalty is crucial to building customer loyalty.

**Overcoming Real and Imagined Barriers to eCRM**

Becoming customer-centric does not happen overnight. It requires moving the supply chain from a "push" to a "pull" that is, shifting from producing and distributing

products according to internal forecasts to building and delivering to meet actual customer demand in a profitable manner. This shift requires thinking of the "supply chain" as the "demand chain".

The challenges to manufacturers are significant but unavoidable. The good news is that many barriers to change are more perceived than real. Take, for example, the lack of a common payment system in Europe and lack of common rules governing financial institutions. If a company wants to set up accounts with the same bank in each EU country, it may need as many as 900 signatures. Some say this will prevent the Internet from facilitating the free flow of goods and services across country lines. But EU countries have already adopted significant legislative changes designed to facilitate both the single European Market and eBusiness.

The one barrier to eCRM that is very real and very big is complacency. Manufacturers are at risk of losing the game if they cannot change their mindset and take advantage of new tools and technologies to become more customer-oriented. Companies often still believe that if you make a good product, people will buy it. If they continue to focus only on the design and manufacture of products, they will miss important opportunities to learn more about what their customers really want and to provide the profitable after-sale services that customers increasingly need and demand. If, on the other hand, they are willing to view their operations more broadly by adopting eCRM technologies to get closer to customers, they can strengthen their customer interactions, grow, and prosper. In the case of Zomax Ireland, for example, it was customers that drove the company to embrace eCRM and other technologies and this is likely to be the experience of many Irish businesses over the coming years.

The arguments manufacturers typically make for skimping on customer retention practices and capabilities like eCRM are rapidly weakening. The challenge now is to use technology to lead the next revolution by leveraging the online loyalty and creating sustainable business models.

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## Lesson 3.3 - Enterprise Resource Planning

**Enterprise Resource Planning** systems (ERPs) integrate (or attempt to integrate) all data and processes of an organization into a single unified system. A typical ERP system will use multiple components of computer software and hardware to achieve the integration. A key ingredient of most ERP systems is the use of a single, unified database to store data for the various system modules.

The term ERP originally implied systems designed to plan the utilization of enterprise-wide resources. Although the acronym ERP originated in the manufacturing environment, today's use of the term ERP systems has much broader scope. ERP systems typically attempt to cover all basic functions of an organization, regardless of the organization's business or charter. Business, non-profit organizations, non governmental organizations, governments, and other large entities utilize ERP systems.

Additionally, it may be noted that to be considered an ERP system, a software package generally would only need to provide functionality in a single package that would normally be covered by two or more systems. Technically, a software package that provides both Payroll and Accounting functions (such as QuickBooks) would be considered an ERP software package.

However, the term is typically reserved for larger, more broadly based applications. The introduction of an ERP system to replace two or more independent applications eliminates the need for external interfaces previously required between systems, and provides additional benefits that range from standardization and lower maintenance (one system instead of two or more) to easier and/or greater reporting capabilities (as all data is typically kept in one database).

Examples of modules in an ERP which formerly would have been stand-alone applications include: Manufacturing, Supply Chain, Financials, CRM, Human Resources, and Warehouse Management.

### Overview of ERP

Looking more closely at ERP systems, a key factor is the integration of data from all aspects of an organization. To accomplish this, an ERP system typically runs on a single

database instance with multiple software modules providing the various business functions of an organization.

Some organizations - typically those with sufficient in-house IT skills to integrate multiple software products - choose to only implement portions of an ERP system and develop an external interface to other ERP or stand-alone systems for their other application needs. For instance, the PeopleSoft HRMS and Financials systems may be perceived to be better than SAP's HRMS solution. And likewise, some may perceive SAP's manufacturing and CRM systems as better than PeopleSoft's equivalents. In this case these organizations may justify the purchase of an ERP system, but choose to purchase the PeopleSoft HRMS and Financials modules from Oracle, and their remaining applications from SAP.

This is very common in the retail sector, where even a mid-sized retailer will have a discrete Point-of-Sale (POS) product and financials application, then a series of specialised applications to handle business requirements such as warehouse management, staff rostering, merchandising and logistics.

Ideally, ERP delivers a single database that contains all data for the software modules, which would include:

**Manufacturing**

Engineering, Bills of Material, Scheduling, Capacity, Workflow Management, Quality Control, Cost Management, Manufacturing Process, Manufacturing Projects, Manufacturing Flow

**Supply Chain Management**

Inventory, Order Entry, Purchasing, Product Configurator, Supply Chain Planning, Supplier Scheduling

**Financials**

General Ledger, Cash Management, Accounts Payable, Accounts Receivable, Fixed Assets

**Projects**

Costing, Billing, Time and Expense, Activity Management

**Human Resources**

Human Resources, Payroll, Training, Time & Attendance, Benefits

**Customer Relationship Management**

Sales and Marketing, Commissions, Service, Customer Contact and Call Center support

**Data Warehouse and**

Various *Self-Service* interfaces for Customers, Suppliers, and Employees

Enterprise Resource Planning is a term originally derived from manufacturing resource planning (MRP II) that followed material requirements planning (MRP). MRP evolved into ERP when "routings" became major part of the software architecture and a company's capacity planning activity also became a part of the standard software activity. ERP systems typically handle the manufacturing, logistics, distribution, inventory, shipping, invoicing, and accounting for a company. Enterprise Resource Planning or ERP software can aid in the control of many business activities, like sales, marketing, delivery, billing, production, inventory management, quality management, and human resources management.

ERPs are often incorrectly called *back office systems* indicating that customers and the general public are not directly involved. This is contrasted with *front office systems* like customer relationship management (CRM) systems that deal directly with the customers, or the eBusiness systems such as eCommerce, eGovernment, eTelecom, and eFinance, or supplier relationship management (SRM) systems.

ERPs are cross-functional and enterprise wide. All functional departments that are involved in operations or production are integrated in one system. In addition to manufacturing, warehousing, logistics, and Information Technology, this would include accounting, human resources, marketing, and strategic management.

ERP II means open ERP architecture of components. The older, monolithic ERP systems became component oriented.

EAS - Enterprise Application Suite is a new name for formerly developed ERP systems which include (almost) all segments of business, using ordinary Internet browsers as thin clients.

## Before

Prior to the concept of ERP systems, departments within an organization would have their own computer systems. For example, the Human Resources (HR) department, the Payroll (PR) department, and the Financials department. The HR computer system (Often called HRMS or HRIS) would typically contain information on the department, reporting structure, and personal details of employees. The PR department would typically calculate and store paycheck information. The Financials department would typically store financial transactions for the organization.

Each system would have to rely on a set of common data to communicate with each other. For the HRIS to send salary information to the PR system, an employee number would need to be assigned and remain static between the two systems to accurately identify an employee. The Financials system was not interested in the employee level data, but only the payouts made by the PR systems, such as the Tax payments to various authorities, payments for employee benefits to providers, and so on. This provided complications. For instance, a person could not be paid in the Payroll system without an employee number.

## After

ERP software, among other things, combined the data of formerly disparate applications. This made the worry of keeping employee numbers in synchronization across multiple systems disappear. It standardised and reduced the number of software specialties required within larger organizations.

## Best Practices

Best Practices were also a benefit of implementing an ERP system. When implementing an ERP system, organizations essentially had to choose between customizing the software or modifying their business processes to the "Best Practice" functionality delivered in the vanilla version of the software.

Typically, the delivery of best practice applies more usefully to large organizations and especially where there is a compliance requirement such as IFRS, Sarbanes-Oxley or Basel II, or where the process is a commodity such as electronic funds transfer. This is because the procedure of capturing and reporting legislative or commodity content can be readily codified within the ERP software, and then replicated with confidence across multiple businesses who have the same business requirement.

Where such a compliance or commodity requirement does not underpin the business process, it can be argued that determining and applying a best practice actually erodes competitive advantage by homogenizing the business compared to everyone else in their industry sector.

Evidence for this can be seen within EDI, where the concept of best practice, even with decades of effort remains elusive. A large retailer, for example, wants EDI plus some minor tweak that they perceive puts them ahead of their competition. Mid-market companies adopting ERP often take the vanilla version and spend half as much as the license cost doing customisations that deliver their competitive edge. In this way they actively work against best practice because they perceive that the way they operate is *best practice*, irrespective of what anyone else is doing.

## Implementation

Because of their wide scope of application within a business, ERP software systems are typically complex and usually impose significant changes on staff work practices (if they did not, there would be little need to implement them). Implementing ERP software is typically not an "in-house" skill, so even smaller projects are more cost effective if specialist ERP implementation consultants are employed. The length of time to implement an ERP system depends on the size of the business, the scope of the change and willingness of the customer to take ownership for the project. A small project (eg, a company of less than 100 staff) may be planned and delivered within 3 months; however, a large, multi-site or multi-country implementation may take years.

The most important aspect of any ERP implementation is that the company who has purchased the ERP product takes ownership of the project.

To implement ERP systems, companies often seek the help of an ERP vendor or of third-party consulting companies. These firms typically provide three areas of professional services: Consulting, Customisation and Support.

*Consulting Services*

The Consulting team is typically responsible for your initial ERP implementation and subsequent delivery of work to tailor the system beyond "go live". Typically such tailoring includes additional product training; creation of process triggers and workflow; specialist advice to improve how the ERP is used in the business; system optimisation; and assistance writing reports, complex data extracts or implementing Business Intelligence.

The consulting team are also responsible for planning and jointly testing the implementation. This a critical part of the project, and one that is often overlooked.

Consulting for a large ERP project involves three levels: systems architecture, business process consulting (primarily re-engineering) and technical consulting (primarily programming and tool configuration activity). A systems architect designs the overall dataflow for the enterprise including the future dataflow plan. A business consultant studies an organization's current business processes and matches them to the corresponding processes in the ERP system, thus 'configuring' the ERP system to the organization's needs. Technical consulting often involves programming. Most ERP vendors allow modification of their software to suit the business needs of their customer.

For most mid-sized companies, the cost of the implementation will range from around the the list price of the ERP user licenses to up to twice this amount (depending on the level of customisation required). Large companies, and especially those with multiple sites or countries, will often spend considerably more on the implementation than the cost of the user licenses — three to five times as more is not uncommon for a multi-site implementation.

*Customisation Services*

Customisation is the process of extending or changing how the system works by writing new user interfaces and underlying application code. Such customisations typically reflect local work practices that which are not currently in the core routines of the ERP system software.

Examples of such code include early adopter features (e.g., mobility interfaces were uncommon a few years ago and were typically customised) or interfacing to third party applications (this is 'bread and butter' customisation for larger implementations as there are typically dozens of ancilliary systems that the core ERP software has to interact with). The Professional Services team is also involved during ERP upgrades to ensure that customisations are compatible with the new release. In some cases the functionality delivered via previous a customisation may have been subsequently incorporated into the core routines of the ERP software, allowing customers to revert back to standard product and retire the customisation completely.

Customizing an ERP package can be very expensive and complicated, because many ERP packages are not designed to support customization, so most businesses implement the best practices embedded in the acquired ERP system. Some ERP packages are very generic

in their reports and inquiries, such that customization is expected in every implementation. It is important to recognize that for these packages it often makes sense to buy third party plug-ins that interface well with your ERP software rather than reinventing the wheel.

Customisation work is usually undertaken as bespoke software development on a time and materials basis. Because of the specialist nature of the customisation and the 'one off' aspect of the work, it is common to pay in the order of $200 per hour for this work. Also, in many cases the work delivered as customisation is not covered by the ERP vendors Maintenance Agreement, so while there is typically a 90-day warranty against software faults in the custom code, there is no obligation on the ERP vendor to warrant that th code works with the next upgrade or point release of the core product.

One often neglected aspect of customisation is the associated documentation. While it can seem like a considerable — and expensive — overhead to the customisation project, it is critical that someone is responsible for the creation and user testing of the documentation. Without the description on how to use the customisation, the effort is largely wasted as it becomes difficult to train new staff in the work pratice that the customisation delivers.

*Maintenance and Support Services*

Once your system has been implemented, the consutling company will typically enter into a Support Agreement to assist your staff keep the ERP software running in an optimal way. A Maintenance Agreement typically provides you rights to all current version patches, and both minor and major releases, and will most likely allow your staff to raise support calls. While there is no standard cost for this type of agreement, they are typically between 15% and 20% of the list price of the ERP user licenses.

## Advantages

In the absence of an ERP system, a large manufacturer may find itself with many software applications that do not talk to each other and do not effectively interface. Tasks that need to interface with one another may involve:

- Design engineering (how best to make the product)
- Order tracking from acceptance through fulfillment
- The revenue cycle from invoice through cash receipt
- Managing interdependencies of complex Bill of Materials
- Tracking the 3-way match between Purchase orders (what was ordered), Inventory receipts (what arrived), and Costing (what the vendor invoiced)

- The Accounting for all of these tasks, tracking the Revenue, Cost and Profit on a granular level.

Change how a product is made, in the engineering details, and that is how it will now be made. Effective dates can be used to control when the switch over will occur from an old version to the next one, both the date that some ingredients go into effect, and date that some are discontinued. Part of the change can include labeling to identify version numbers.

Computer security is included within an ERP to protect against both outsider crime, such as industrial espionage, and insider crime, such as embezzlement. A data tampering scenario might involve a terrorist altering a Bill of Materials so as to put poison in food products, or other sabotage. ERP security helps to prevent abuse as well.

**Disadvantages**

Many problems organizations have with ERP systems are due to inadequate investment in ongoing training for involved personnel, including those implementing and testing changes, as well as a lack of corporate policy protecting the integrity of the data in the ERP systems and how it is used.

Limitations of ERP include:

Success depends on the skill and experience of the workforce, including training about how to make the system work correctly. Many companies cut costs by cutting training budgets. Privately owned small enterprises are often undercapitalized, meaning their ERP system is often operated by personnel with inadequate education in ERP in general, such as APICS foundations, and in the particular ERP vendor package being used.

- Personnel turnover; companies can employ new managers lacking education in the company's ERP system, proposing changes in business practices that are out of synchronization with the best utilization of the company's selected ERP.
- Customization of the ERP software is limited. Some customization may involve changing of the ERP software structure which is usually not allowed.
- Re-engineering of business processes to fit the "industry standard" prescribed by the ERP system may lead to a loss of competitive advantage.
- ERP systems can be very expensive to install.
- ERP vendors can charge sums of money for annual license renewal that is unrelated to the size of the company using the ERP or its profitability.

- Technical support personnel often give replies to callers that are inappropriate for the caller's corporate structure. Computer security concerns arise, for example when telling a non-programmer how to change a database on the fly, at a company that requires an audit trail of changes so as to meet some regulatory standards.
- ERPs are often seen as too rigid and too difficult to adapt to the specific workflow and business process of some companies - this is cited as one of the main causes of their failure.
- Systems can be difficult to use.
- The system can suffer from the "weakest link" problem - an inefficiency in one department or at one of the partners may affect other participants.
- Many of the integrated links need high accuracy in other applications to work effectively. A company can achieve minimum standards, then over time "dirty data" will reduce the reliability of some applications.
- Once a system is established, switching costs are very high for any one of the partners (reducing flexibility and strategic control at the corporate level).
- The blurring of company boundaries can cause problems in accountability, lines of responsibility, and employee morale.
- Resistance in sharing sensitive internal information between departments can reduce the effectiveness of the software.
- There are frequent compatibility problems with the various legacy systems of the partners.
- The system may be over-engineered relative to the actual needs of the customer.

**Supply Chain Management (SCM)**

Supply chain management (SCM) is the oversight of materials, information, and finances as they move in a process from supplier to manufacturer to wholesaler to retailer to consumer. Supply chain management involves coordinating and integrating these flows both within and among companies. It is said that the ultimate goal of any effective supply chain management system is to reduce inventory (with the assumption that products are available when needed). As a solution for successful supply chain management, sophisticated software systems with Web interfaces are competing with Web-based application service providers (ASP) who promise to provide part or all of the SCM service for companies who rent their service.

Supply chain management flows can be divided into three main flows:

- The product flow
- The information flow
- The finances flow

The product flow includes the movement of goods from a supplier to a customer, as well as any customer returns or service needs. The information flow involves transmitting orders and updating the status of delivery. The financial flow consists of credit terms, payment schedules, and consignment and title ownership arrangements.

There are two main types of SCM software: planning applications and execution applications. Planning applications use advanced algorithms to determine the best way to fill an order. Execution applications track the physical status of goods, the management of materials, and financial information involving all parties.

Some SCM applications are based on open data models that support the sharing of data both inside and outside the enterprise (this is called the extended enterprise, and includes key suppliers, manufacturers, and end customers of a specific company). This shared data may reside in diverse database systems, or data warehouses, at several different sites and companies.

A data warehouse is a central repository for all or significant parts of the data that an enterprise's various business systems collect. The term was coined by W. H. Inmon. IBM sometimes uses the term "information warehouse."

Typically, a data warehouse is housed on an enterprise mainframe server. Data from various online transaction processing (OLTP) applications and other sources is selectively extracted and organized on the data warehouse database for use by analytical applications and user queries. Data warehousing emphasizes the capture of data from diverse sources for useful analysis and access, but does not generally start from the point-of-view of the end user or knowledge worker who may need access to specialized, sometimes local databases. The latter idea is known as the data mart.

Applications of data warehouses include data mining, Web mining, and decision support systems (DSS).

By sharing this data "upstream" (with a company's suppliers) and "downstream" (with a company's clients), SCM applications have the potential to improve the time-to-

market of products, reduce costs, and allow all parties in the supply chain to better manage current resources and plan for future needs.

Increasing numbers of companies are turning to Web sites and Web-based applications as part of the SCM solution. A number of major Web sites offer e-procurement marketplaces where manufacturers can trade and even make auction bids with suppliers.

E-procurement is the business-to-business purchase and sale of supplies and services over the Internet. An important part of many B2B sites, e-procurement is also sometimes referred to by other terms, such as *supplier exchange*. Typically, e-procurement Web sites allow qualified and registered users to look for buyers or sellers of goods and services. Depending on the approach, buyers or sellers may specify prices or invite bids. Transactions can be initiated and completed. Ongoing purchases may qualify customers for volume discounts or special offers.

E-procurement software may make it possible to automate some buying and selling. Companies participating expect to be able to control parts inventories more effectively, reduce purchasing agent overhead, and improve manufacturing cycles. E-procurement is expected to be integrated with the trend toward computerized *supply chain management*

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## Lesson 3.4 - Supplier Relationship Management (SRM)

### Introduction

Supplier relationship management is a comprehensive approach to managing an enterprise's interactions with the organizations that supply the goods and services it uses. The goal of supplier relationship management (SRM) is to streamline and make more effective the processes between an enterprise and its suppliers just as customer relationship management (CRM) is intended to streamline and make more effective the processes between an enterprise and its customers.

SRM includes both business practices and software and is part of the *information flow* component of supply chain management (SCM). SRM practices create a common frame of reference to enable effective communication between an enterprise and suppliers who may use quite different business practices and terminology. As a result, SRM increases the efficiency of processes associated with acquiring goods and services, managing inventory, and processing materials.

According to proponents, the use of SRM software can lead to lower production costs and a higher quality, but lower priced end product. SRM products are available from a number of vendors, including 12 Technologies, Manugistics, PeopleSoft, and SAP.

### The Essentials of Supplier Relationship Management

In virtually every industry, the role of the supplier has radically expanded over the past decade. Today there are cases where almost every aspect of product development and operations has been outsourced to a new breed of suppliers. Suppliers have gone from simply being invited to the design team meetings to becoming the design team.

The role of the supplier has also been changed by the need for assured supply. Greater outsourcing, supply chain management and vendor-managed inventories have all increased the risk that a critical component may not be available when it comes time to make an original equipment manufacturers (OEM) shipment. When this happens to a major product line at the end of a quarter, we often read about it in the newspapers, as the supplier-short shipment is cited as the reason the company missed its quarter.

The result is a fundamental power shift in the world of manufacturing. Suppliers are no longer simply supplying, they are critical players in the success of the business. For a growing list of features in OEM products, suppliers now own the intellectual capital that goes into creating the products. A few examples of this are computer monitors, automotive braking systems and passenger seating. If a supplier fails to develop and deliver competitive features, the OEM product is no longer competitive. If the supplier doesn't allocate adequate supply, OEMs can't ship and take revenue for their products.

The traditional systems that have been used for product development and procurement don't work anymore. Meanwhile, the potential downside cost and risk associated with managing supplier relationships has skyrocketed. These factors fuel the requirements for a fresh approach to managing relationships with suppliers.

This trend toward more outsourcing and greater supplier value has also changed the economics of today's corporation. More and more companies have purchase spend exceeding 50 percent of their top-line revenue. There are also growing concerns over the increased risk associated with aggressive outsourcing. In the old days, supply risk could be offset through split awards and effective management of second sources, but the trend toward suppliers designing, building and even directly shipping complete subsystems has nearly eliminated the second source option. Any time a supplier falls short on delivery or doesn't get a critical subsystem developed in time for a new product's launch, the top line suffers. This makes supplier relationship management, or SRM, the best investment a company can make in design and procurement. It is the only system that can simultaneously reduce cost and risk.

## The Challenge of Strategic Sourcing

As the role of the supplier has expanded, a new business vocation has emerged: strategic sourcing. The wizards of strategic sourcing are the commodity managers who must make a plethora of supply decisions every day — as well as rethink all of the supply decisions that have been made in the past — and immediately act on these new decisions. Unfortunately, the facts associated with strategic sourcing have historically been impossible to collect on a timely basis.

The following is a list of essential pieces in the strategic sourcing pie and why not aggregating and analyzing them can become costly:

- *Spend Aggregation* — Where is spend going across the entire enterprise, what is being spent with each supplier and how much is being spent on each commodity? Although

these are often the most fundamental facts a company uses for strategic sourcing, they're seldom easy to collect. Companies have multiple procurement systems (or instances of the same system), multiple supplier masters and inconsistent commodity coding schemes. Spend aggregation facts are often the most powerful negotiating tool a buyer can have. Buyers can knock 15 percent off the cost of purchases simply by understanding their true overall spend on a given commodity and using that information to cut a better contract with a preferred supplier.

- *Material Consolidation* — How many "3-inch blue widgets" do we buy, and do we need all of these varieties? What if we selected a preferred "3-inch blue widget" and found a way to use it for all "3-inch blue widget" requirements? The challenge is to establish clean, rich content about what a company buys and then analyze functional equivalents to determine preferred varieties. Studies have shown that duplicate parts cost at least $10,000 a year to maintain. One major computer company successfully reduced the variety of parts it purchased from 540,000 to 280,000 through this kind of material consolidation program, saving hundreds of millions of dollars in the process.

- *Demand and Forecast Deviation* — From a negotiation perspective, it's useful to understand where you've been spending your money in the past, but the real key is to *understand where you'll be spending your money in the future*, because it is never the same. The more variability exists in your business, the less likely it is that you will buy the same things from the same suppliers in the future. When this happens, you invariably pay more for the volumes that increased and you fail to live up to your commitments for the volumes that decrease, missing out on the lower unit prices you negotiated in the past.

- *New Product Design Changes* — Product design teams regularly come up with something new that must be sourced before a new product can go into production. That often means introducing a new supplier. If the sourcing team identifies these new requirements in time, they can identify potential sources, negotiate contracts and secure volume materials. If they find out too late, the new product can't ship and everyone scrambles to rush in high-priced materials or design out the hard-to-source parts.

- *Contract Performance* — Every good-sized company has hundreds to thousands of contracts in place with its suppliers. Occasionally, companies actually buy according to their contracts. Most of the time they do not. Demand changes, engineering changes and supplier short shipments often result in contracts failing to meet negotiated volumes. The actual transactions that are booked against a contract must

then be monitored and alerts must be established to flag significant anomalies. This becomes very difficult when companies have thousands of contracts and dozens of procurement systems with inconsistent content, item and supplier masters. ",

- *Supplier Performance* — Even when all of the right contracts are in place and demand forecasts are accurate, suppliers can still fail to deliver, severely damaging your business. When it happens frequently, you have a bad supplier and you need to demand improvement or move your business to a higher performing supplier. The same is true for quality. You also need to identify the suppliers who are providing more than just on-time delivery and steer more business their way.

- *Supplier Market Opportunities* — To understand alternate sourcing opportunities in the outside market, you need to be able to quickly prepare a request for information (RFI) package and test the supply markets. It often requires sophisticated "what-if" analysis to understand the total cost of switching your spend from an existing (underperforming) supplier to a new source.

The basic facts required to source strategically are diverse and often difficult to collect in a large, multi-division enterprise. Because of this, they are seldom available and never current. Armed with fragmented and out-of-date information, buyers must strive to negotiate the right contracts at the best terms possible and hope nothing goes wrong.

## The Power of a Single View

As SRM solutions were developed, it became clear that the workflows that create, execute and sustain optimal supplier relationships are integrally related to one another. They cross the traditional boundaries of design, procurement and manufacturing and extend out into the supplier's environment. They also cross the physical barriers of multiple divisions, plants, purchasing and design centers. In the existing systems that managed all of the supplier information and transactions, there were a very large number of disparate systems that did not talk to one another. There was also duplicate and inconsistent data across these systems. Getting a complete view of a part, a supplier, or a bill of material for outsourced parts required sifting through fragmented data in a number of different types of legacy systems.

What is needed is a single view of all of the processes that face the supplier. This single view must be able to cut across functional disciplines and cross physical barriers, as well. At the same time, any new solution has to leverage all of the legacy systems that are already in place.

But are SRM systems really worth investing in? Well, there are some significant benefits. First, SRM provides the ability to strategically manage all aspects of the supplier relationship to reduce the cost and risk associated with the kind of outsourcing practices seen today. SRM tools help companies create, execute and sustain their sourcing strategy.

**The Supplier Must Win, Too!**

SRM solutions can also help create incentives for your suppliers. A number of OEM-centric initiatives designed to support extended outsourcing have failed for a very simple reason — there was no win for suppliers. Suppliers often operate on narrow margins and face fierce competition. They struggle to differentiate themselves and are unwilling to invest in something that commoditizes their offerings, such as auctioning.

Looking at SRM from the supplier perspective, there are three areas where SRM could provide benefits:

- *Forward Visibility* — When the forecast they've been building against is no longer valid, suppliers are often the last to know. Typically, the lag time between the OEM knowing the real demand and the supplier being notified is 60 to 70 days. During this lag time, two very bad things are happening. First, the supplier is building things the OEM doesn't need and probably won't take delivery on. The cost of erroneous production will have to be eaten by someone. The other bad thing that happens is that the supplier is probably not building what the OEM needs to capture demand for truly hot sellers. This will cost revenue and market share.

- *Design Wins* — In the world of direct material, a supplier's sales success is often determined by the OEM's design team — long before a contract is negotiated. This happens when a supplier's parts, materials or subsystems get designed into a new product. By guiding an OEM design team to use preferred parts from preferred suppliers, SRM closes the loop with the suppliers who provide the most value.

- *Content Syndication* — One of the lessons learned during the B2B exchange craze was that suppliers cannot publish custom catalogs for every customer or exchange that they do business with. All but the very largest suppliers lack the resources and technical know-how to pull it off. What suppliers need is the ability to publish once and syndicate their catalog across all of their trading parties. They can still provide key customers with filtered catalogs and private pricing, but the basic content is only published and maintained once.

## Four Steps to SRM Success

Oracle believes that there are four critical factors to consider for a successful implementation of an SRM solution.

The first step is integration. An enterprise cannot offer SRM to its suppliers until it has automated and integrated its own internal processes. As SRM draws on information generated throughout the enterprise, including, but not limited to, product life cycle management, supply chain planning, enterprise resource planning and customer relationship management, this information should flow from a single data source.

Pella Corporation, a US manufacturer of windows and doors, wanted to lower its overall costs by adopting a central web-based approach to procurement and improving the management of vendor terms and agreements.

By integrating Oracle Financials and Oracle Procurement, Pella streamlined its procure-to-pay processes and achieved significant time and cost savings, while gaining valuable insight and business intelligence.

Oracle Procurement enabled Pella's corporate purchasing division to cut transaction times for purchase orders from thirty minutes to five, a reduction of eighty-six percent. Pella's manufacturing division has cut clerical costs and time per purchase order by fifty percent. Tracey Buck, co-ordinator of facilities management for Pella said: 'Oracle Procurement has helped reduce the number of calls from Pella's corporate purchasing department and from vendors by as much as ninety-five percent.'

Secondly, suppliers need to be connected to the enterprise. They should be able to inquire, view and transact directly with the buyer's system. The method of connecting suppliers to the business must be affordable, scalable and relatively straightforward to implement and use.

The range of interface options available to suppliers - XML, EDI, web services, portals or email - means that their investment in linking to the buyer's system can be kept to a minimum.

Thirdly, once a single view of the supply chain has been enabled, analytical tools can be added to help identify the areas of greatest opportunity for both the buying organisation and the supplier base, and to monitor performance. Business intelligence tools assist decision-making and can help increase profitability for both parties.

For example, if over fifty percent of a month's projected inventory of a particular item is sold within the first week of the month, the supplier is automatically notified to deliver additional stock, ensuring that the buying organisation has sufficient supply to meet customer demands, while simultaneously boosting its own revenue.

Business intelligence tools can also be used to track supplier performance against business objectives, other than just price. Monitoring performance is an important step in improving supplier relationships, however according to a study by Aberdeen Group, only about half of enterprises have formal procedures in place to measure performance. Aberdeen analyst, Mark Vigoroso, says that without measurement procedures in place, companies have no way of knowing if money and effort spent on supply chain planning is doing any good.

Finally, a culture of collaboration must be fostered across the supply chain, and suppliers viewed as a source of competitive advantage, rather than cost. Gartner notes that properly managed supplier relationships 'can contribute to enterprise innovation and growth', while a poorly managed supply base 'will drive up costs and slow new product initiatives'.

An integrated, connected supply chain can help lower costs, as manufacturers and suppliers are able set joint production, inventory and fulfilment schedules against real-time market data.

A modular approach can be taken to an SRM project, starting, for example, with a critical supplier-facing function such as procurement or sourcing. UK retailer Littlewoods plc achieved 24 percent savings on its procurement of indirect goods in a successful pilot of Oracle Sourcing.

Oracle Sourcing, a complete and integrated global sourcing application, allows a company to optimise its supplier base, reduce sourcing costs, improve supplier relationships, and source for best value. Littlewoods has now moved its purchasing function online permanently with Oracle Sourcing and expects to massively save on its annual procurement spend.

'Littlewoods Retail spends around £320 million (US $462 million) a year on purchasing goods - a significant amount - that we believe can be reduced through the use of online auctions carried out through Oracle Sourcing,' said David Hallet, chief information officer for Littlewoods Retail Ltd.

In a highly competitive marketplace, companies are searching for further opportunities to reduce costs and improve operational efficiencies. According to Gartner, supplier relationship management (SRM) represents an evolutionary extension of supply chain management, driven by the need for enterprises to better understand their suppliers' long-term financial and operational contribution to the top and bottom lines. It is the next step in managing the supply chain more effectively.

Supplier relationship management then represents an opportunity to improve the accuracy and speed of buyer-supplier transactions, while improving collaborative working practices to the benefit of both parties, driving continuous improvement and lowering total cost of ownership.

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## Lesson 3.5 - Partner Relationship Management (PRM)

Partner relationship management (PRM) is a business strategy for improving communication between companies and their channel partners. Web-based PRM software applications enable companies to customize and streamline administrative tasks by making shipping schedules and other real-time information available to all the partners over the Internet. Several CRM providers have incorporated PRM features, such as Web-enabled spreadsheets shared through an extranet, in their software applications. PRM is often compared to customer relationship management (CRM) and there is some argument over whether the complex relationships of channel partnerships makes it necessary for PRM to be a separate entity, or merely a component of CRM.

Channel refers to

In information technology, the term channel is used in a number of ways.

1. In telecommunications in general, a channel is a separate path through which signals can flow.
2. In the public switched telephone network (PSTN), a channel is one of multiple transmission paths within a single link between network points. For example, the commonly used (in North America) T-carrier system line service provides 24 64 Kbps channels for digital data transmission.
3. In radio and television, a channel is a separate incoming signal or program source that a user can select.
4. In optical fiber transmission using dense wavelength-division multiplexing (DWDM), a channel is a separate wavelength of light within a combined, multiplexed light stream.
5. On the World Wide Web, a channel is a preselected Web site that can automatically send updated information for immediate display or viewing on request. See push technology.
6. In computer and Internet marketing, a channel is a "middleman" between a product creator and the marketplace. Value-added resellers (VAR) and retail store chains are examples of channels in this context.
7. Using Internet Relay Chat, a channel is a specific chat group.

8. In IBM mainframe systems, a channel is a high bandwidth connection between a processor and other processors, workstations, printers, and storage devices within a relatively close proximity. It's also called a *local connection* as opposed to a *remote* (or telecommunication) *connection*.
9. In a field-effect transistor (FET), a channel is the semiconductor path on which current flows.

Related terms include: clear channel, channel extender, Fibre Channel, Fibre Channel over IP, channel associated signaling, and channel bank.

A spreadsheet refers to a sheet of paper that shows accounting or other data in rows and columns; a spreadsheet is also a computer application program that simulates a physical spreadsheet by capturing, displaying, and manipulating data arranged in rows and columns. The spreadsheet is one of the most popular uses of the personal computer.

In a spreadsheet, spaces that hold items of data are called cells. Each cell is labeled according to its placement (for example, A1, A2, A3...) and may have an absolute or relative reference to the cells around it. A spreadsheet is generally designed to hold numerical data and short text strings. Spreadsheets usually provide the ability to portray data relationships graphically. Spreadsheets generally do not offer the ability to structure and label data items as fully as a database and usually do not offer the ability to query the database. In general, a spreadsheet is a much simpler program than a database program.

Daniel Bricklin and Bob Frankston created the first spreadsheet application, VisiCalc (for "visible calculator"). Lotus 1-2-3 came next, followed by Microsoft Excel. While Lotus 1-2-3 was the first to introduce cell names and macros, Microsoft Excel implemented a graphical user interface and the ability to point and click using a mouse. There are many other spreadsheet applications on the market today; however, Lotus 1-2-3 and Microsoft Excel continue to be the most popular.

## Extranet

An extranet is a private network that uses Internet technology and the public telecommunication system to securely share part of a business's information or operations with suppliers, vendors, partners, customers, or other businesses. An extranet can be viewed as part of a company's intranet that is extended to users outside the company. It has also been described as a "state of mind" in which the Internet is perceived as a way to do business with other companies as well as to sell products to customers.

An extranet requires security and privacy. These can include firewall server management, the issuance and use of digital certificates or similar means of user authentication, encryption of messages, and the use of virtual private networks (VPNs) that tunnel through the public network.

Companies can use an extranet to:

- Exchange large volumes of data using Electronic Data Interchange (EDI)
- Share product catalogs exclusively with wholesalers or those "in the trade"
- Collaborate with other companies on joint development efforts
- Jointly develop and use training programs with other companies
- Provide or access services provided by one company to a group of other companies, such as an online banking application managed by one company on behalf of affiliated banks Share news of common interest exclusively with partner companies

**What is CRM (customer relationship management)?**

CRM (customer relationship management) is an information industry term for methodologies, software, and usually Internet capabilities that help an enterprise manage customer relationships in an organized way. For example, an enterprise might build a database about its customers that described relationships in sufficient detail so that management, salespeople, people providing service, and perhaps the customer directly could access information, match customer needs with product plans and offerings, remind customers of service requirements, know what other products a customer had purchased, and so forth.

According to one industry view, CRM consists of:

- Helping an enterprise to enable its marketing departments to identify and target their best customers, manage marketing campaigns with clear goals and objectives, and generate quality leads for the sales team.
- Assisting the organization to improve telesales, account, and sales management by optimizing information shared by multiple employees, and streamlining existing processes (for example, taking orders using mobile devices)
- Allowing the formation of individualized relationships with customers, with the aim of improving customer satisfaction and maximizing profits; identifying the most profitable customers and providing them the highest level of service.

- Providing employees with the information and processes necessary to know their customers, understand their needs, and effectively build relationships between the company, its customer base, and distribution partners

## Successfully Implementing a Partner Relationship Management (PRM) Solution

If indirect channels makeup a large portion of your overall sales strategy, meaning that you sell more than let's say 30% of your goods and/or services through resellers, dealers, distributors, or retailers; then investing in a Partner Relationship Management (PRM) solution may make sense for your business.

Most of us that have channel-related responsibilities know of, or have at least heard of, PRM. We know the value that these software packages are intended to provide include: reduced program administration costs, automation, greater program intelligence, tighter partner collaboration, accountability measurement, and channel investment-return calculation, just to name a few of the benefits that most PRM solutions tout. However, if these tools are truly realizing the intended benefits, then ***why are many manufacturers, vendors, and distributors abandoning their PRM systems?***

The answer is simple. ***Many PRM systems are being abandoned because they are not being used***, neglected not by you the vendor, but by your partners. After all, if the partners aren't using the system, what's the point? The common mistake that most PRM solutions make is to focus 100% on providing the vendor with all the capabilities an organization could possibly want. This commonly results in a cluttered Graphical User Interface (GUI) with features and functions that may seem impressive in a product demo during the tool selection process, but are less impressive to your partners when they finally gain access to them and find the system too difficult or time consuming to use. And herein lies the problem.

Rich features and functions are the heart of any software solution, no doubt. ***But how these capabilities are presented to the user, how the user is expected to interact with the system, and the value the system provides the users are most important in a PRM solution***.

Why is this so important? The majority of the users of the system exist outside of your enterprise. This means that you will have less control of tool usage compliance. Certainly any PRM solution that you may consider should have some level of compliance measurement built-in, but this will not completely solve your partner "technology adoption" issue if the following haven't been considered.

**Vendor Positioning and Rollout Strategy**

Partners' use of the PRM solution will initially rely on how effectively they are introduced to the technology. This means that the vendor strategy for implementation is critical. Here are common mistakes that are made in the rollout phase:

- Focusing on "partner control" features instead of partner value-add
- Not implementing the solution as a part of your business process
- Overlooking the effort required for complete buy-in within your own organization to support the solution
- Rushing to rollout too many functions or programs without proper "phasing". Implement more than (2) new partner programs at once often lead to disasters.
- Lack of enforcement by other members of the Channel Team
- Lack of appropriate upfront tool training
- Lack of ongoing support
- Not designating a "tool administrator" or partner "go-to" person for tool questions

**Choosing the Right PRM Solution**

The ultimate users of your PRM solution are the partners. So why is it that most PRM solution are chosen solely based on the capabilities that are provided to the vendor? Beyond satisfying your requirements as a vendor, the tool should also satisfy your partners' requirements as well. The best way to achieve compliance with your partner community is to select a solution that provides the partners with value. ***Tool capabilities should add value to the partner's business and better enable them to sell your goods and services, not just monitor their success selling your goods and services***. The following are typical "partner requirements" and questions to consider when choosing a solution.

- ***Ease of use***

1. Will partners need to be trained? By who? How?
2. How intuitive is the solution to use? What is the learning curve?
3. Can partners access the solution easily, 24x7, and from anywhere?
4. Is the partner required to search for new data at random or does the solution "push" or notify partners of new data?
5. How much of the partners' time is required to manage the solution?

6. Does the system employ an "easy-on, easy-off" philosophy
7. Can the partner manage data locally?

- ***Value Add to the Partner***

  - How is the solution helping my business partners grow their business?
  - Does the solution give partners greater access to my program information?
  - Does the solution give the partner a competitive advantage?
  - Does the solution improve current business processes for the partner?

- ***Integration***

  - Is the solution "intrusive" and force the partner to displace other technologies that they are using?
  - How well does this solution work with other solutions that partners may already have in place?

- ***Flexibility***

  - Can I implement the solution in phases or by partner program or do I ave to roll out a broad solution with multiple partner programs at once?
  - Can I just implement (and pay for) only the functions I feel that I really need?
  - Can I complete implementing a new program in about 3 months (if it takes a year, watch out!)?

**PRM Lifecycle**

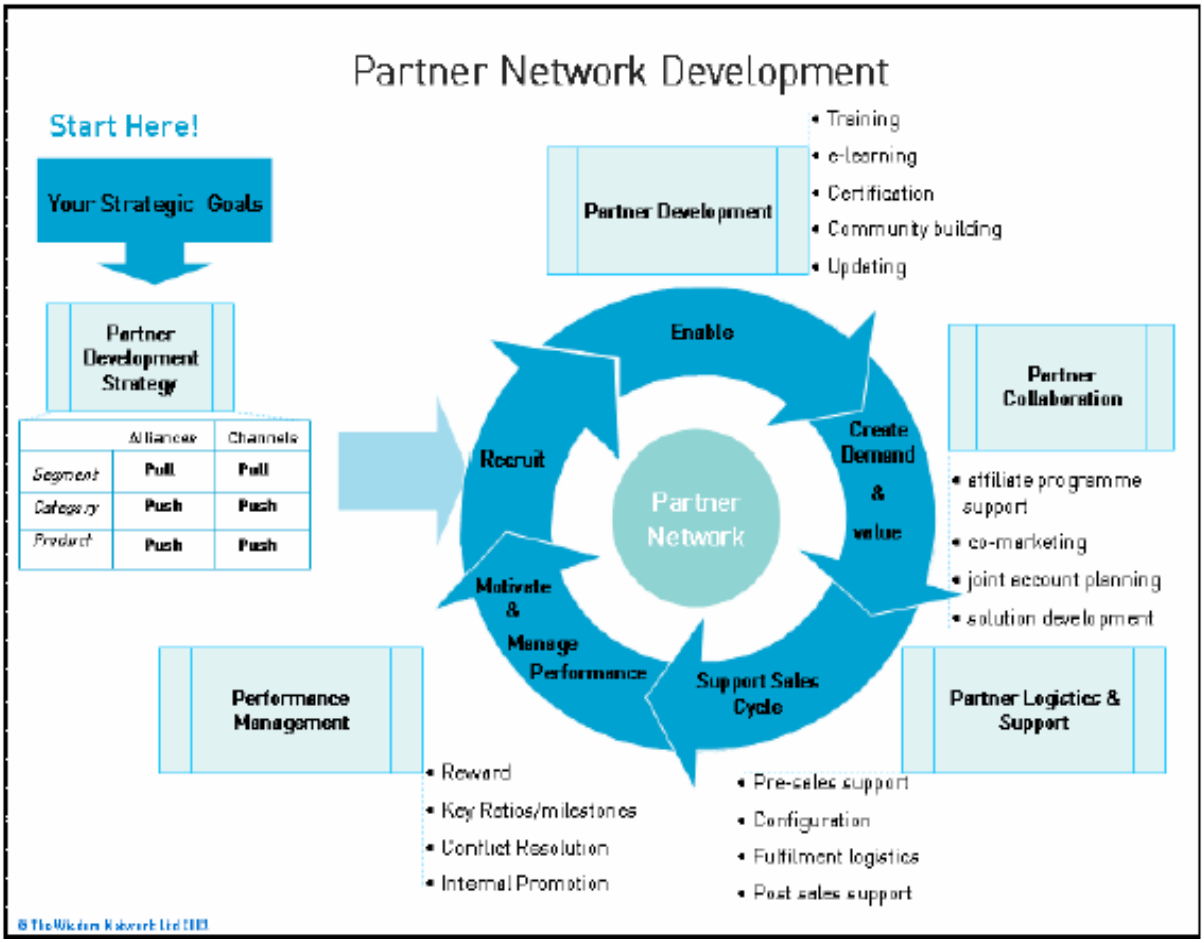
The rough potential scope of PRM looking at it as a subset of B2B Customer Relationship Management, and like CRM to do with relationship lifecycles, only in this case partners not customers is given below.

The five main 'buckets' of activity revolve around:

- Partner Strategy – selection and recruitment – not just channels but also alliances. This is becoming increasingly important for Telco companies trying to reach and develop 3G and Broadband markets, where their traditional skills and capabilities require significant broadening. This has also applied for some time to IT hardware

manufacturers, which through alliances with software companies and relevant channels can make themselves relevant to specific market segments through these associations.

- Training, certification & informing – getting partners up to speed and up to standards that are in keeping with the brand promise.
- Collaboration – in advance of and throughout the whole sales cycle
- Logistics and administrative support – presales/post-sales
- Performance Management –the discipline of managing important relationships with strategically important partners – both channel and alliance partners. Whilst these aspects are not always truly sequential, they do give a view of the main aspects of partner network interactions. This is why at the centre of the relationship lifecycle I have placed a sphere: - Partner Network Development. The idea being that PRM should not be solely about automating or e-enabling current partner relationships,(indeed, I would argue that this view is a major danger sign), but should be very deliberate and focused attempt to generate competitive advantage through the development of an effective and relevant partner network – alliances as well as channels.



This 'networked' view is gaining currency at the moment due in part to the whole e-business phenomenon, enabling real-time collaboration for relatively little cost. David Ford Professor of Marketing at Bath University and a member of the Industrial Marketing and Purchasing Group (IMP) which has been studying networked relationships since 1976, states in his book 'Managing Business Relationships' 1998, that 'marketing is the way that a company brings the benefits of its own and other companies' technologies to its customers and integrates them with their own'.

'Technologies', here also includes processes and skills and is not limited to the 'hard stuff'. He argues that companies no longer compete with other companies, but now it is a case of networks competing with networks, and to confuse matters further, a firm can be a member of competing networks, which is pretty much business as usual in the IT world. The difference however, is that rather than just creating a collection of ad hoc relationships, driven by sales quota assigned to channel or partner managers, a firm should take a strategic view and figure out:

- Which customers to serve?
- How does their ecosystem function?
- What do they or might they need given their context?
- How best to serve them – now that we have dug behind to determine their wants/needs and behaviours and how those are being shaped?

This brings into play the whole value creation and delivery network, and as markets mature and organisations attempt to break out of the commoditised and low profit environment that many find themselves in today, this networked view becomes of paramount importance as the major source of generating competitive advantage at speed.

**Start with the Strategy not the Technology**

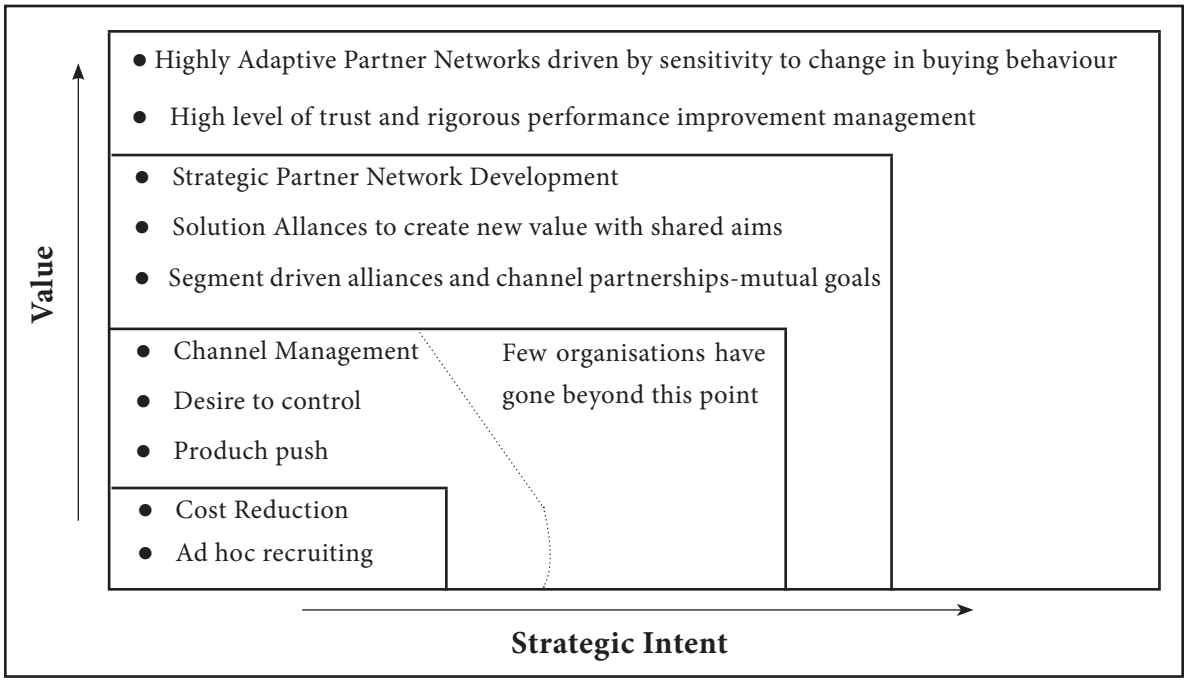
In recent times it has almost become a machismo thing, that strategy is seen as a management exercise in hesitation and that execution is all that matters. This maybe explains why so many firms have jumped to the conclusion e.g. implement software from a market leader, and figure out why and how to make it work later. A very high incidence of failure follows as a result. What this means is that whilst we should not agonise over decisions and waste time, we can and should think things through carefully so that what we implement has the desired effect in the market place where it really counts. If you fail to do this bearing in mind that in PRM we are dealing with a networked business environment, where the individual 'nodes' are independent businesses; then I can almost guarantee

failure. Too often decisions on infrastructure systems are made by IT departments who have done their best to interpret vague requirements given to them by senior management, who won't themselves spend time on thinking through what is really required. So my unequivocal first recommendation is to figure out where you want to be, and what part PRM should play in support of your strategic objectives 2-3 years out. If you just focus on cost savings or efficiencies like improving procedures for allocating market development funds, or administrative partner management processes, you will miss the opportunity to develop competitive advantage and waste time on developing something that can be easily replicated by your competitors. The other major risk is that none of your efforts will appeal to your partners as they may well perceive that you are trying to control costs at their expense. The degree of strategic intent holds the key for generating value, not just for your firm but also your partners.

**Focus Your Strategy**

Efficiency is great, effectiveness is even better. Any major program, (and PRM is potentially a fairly large one), needs some lodestone to govern its progress and outcome. This is what good strategy should do. If your strategic intent is really focused on developing an effective partner network in order to crack open markets or generate profitable growth by moving from commodity to higher value add transactions, then one of the first thorny issues you will come across, is that more than one department or part of the organisation 'owns' the 'go-to-market' strategy. This is particularly true in large multinationals or global companies which are organised along product not customer or market lines. This same issue is one of the main causes of CRM failure. From an outsiders point of view the obvious thing to do is to organise around customers or markets. Experience shows that this requires too much political heat or a massive crisis (of the sort faced by IBM at the start of the '90s) to gain traction. Therefore a pragmatic approach is required that balances the individual product line needs with the customer or market segment 'solution' needs. If you look at the IT market, it soon becomes clear that much of the demand for products is derived and not direct. A computer can be bought in its own right for its particular features – a commodity sale, or as a component linked to a number of other major elements – infrastructure sale, or possibly as part of a business system – solution sale. In each case the reason for the purchase is different, and will impact buyer behaviour. The product line owners should be focused on the commodity and infrastructure sales where they can increase the value of product shipped through cross selling and let the segment managers (with full P&L accountability) coordinate them on the solution sale.

**Evolution of the Partner Network**




Whether or not strategy is the responsibility of a single department or a cross departmental team, the value propositions and routes to market must have specific customers or markets in mind. This is critical in order to work out:

- Relevant ecosystem of value adding partners
- Buyer behaviour
- Routes-to-market
- Strategic partners

In reality, many organisations already have established partners – both alliance and distribution, some specific to a geographical region or country and others more global, especially in the corporate market. Where this is the case, it makes sense to segment your partners by strategic importance as defined by your strategic objectives and not necessarily historic revenue contribution. Some of these partners are influencers and do not necessarily contribute any direct revenue, but they are vital. In any case these will be the nucleus of partners that should now be the focus of your PRM program.

## Developing a Win/Win Environment – Essential to PRM

It's a truism that unless there is something 'in it' for your partners, it doesn't matter how sexy or sophisticated the solution, you simply won't be able to generate the change in behaviour that you are seeking. It is also very dangerous to treat all partners the same and

assume that what you are asking them to do will be so obviously good for them that they will snap your hand off to play ball. They won't. Anyone who has been involved with a CRM program affecting many internal stakeholders from different parts of the organisation will know just how tough it can be to generate buy-in for change.

Now magnify that by 100 and you will get some idea of the real challenges confronting your organisation. A common refrain heard by partners is 'the organisation is too difficult to deal with'. Another is ' they don't understand how we work'. Both are recipes for losing competitive advantage, yet they can both be solved by taking the time up front to work out what motivates partners or potential partners. Fundamentally they are in business to make money, so if they can do that more effectively with you then without you, you have developed competitive advantage. A place to start is to recognise two things about partners.

- They have their own business model which may not always coincide with your own.
- They may be changing their business model due to the same pressures you are under.

Understanding how these independent businesses generate profits provides insights into what is likely to motivate them. Better still find out from them by using structured interview techniques to determine who does what best and what impact it will have on their business, and how do you compare and where are you deficient? An approach developed is called a 'Competitive Advantage Audit'. The aim of this is to find out what sources of competitive advantage have been 'left on the table' by competitors and what value your partners can gain from your PRM program.

As you can see from the PRM lifecycle diagram there are many activities and areas that can be assessed, and also addressed by some of the more sophisticated PRM systems. The output from this very focused piece of work can be used to build partner consensus early on as well as give you insights into the returns you can expect from the PRM program. Part of the success of business networks can be attributed to the culture that surrounds them. In the days when markets were expanding at breakneck speed, attention to value add within the network, did not seem so important. When yearend figures looked less than rosy, the answer was often to ask the channel to order more than was needed. This ' channel stuffing' approach no longer works. Especially as many markets have stalled. Product lifecycles are too short, so when the music stops, no one wants to be holding the package, and with collaborative supply chains and improved logistics now common place there is no longer any legitimate need to take much more product than is really required by the end customer.

Power has also shifted to the channel from the vendor or to the visible value add provider (perhaps an independent software or content provider) from the vendor in the

case of alliances. Standards have also predominated such that neither channel or alliance partners are 'locked in' to partnerships. This focus on mutual value add within the network is absolutely crucial and needs to be embedded in the culture through effective internal communications and appropriate reward systems. These should be key supporting elements of any PRM program.

**Build up the ROI picture early to avoid disappointment**!

One other critical factor, before attempting to implement any PRM solution is to determine potential returns on investment.

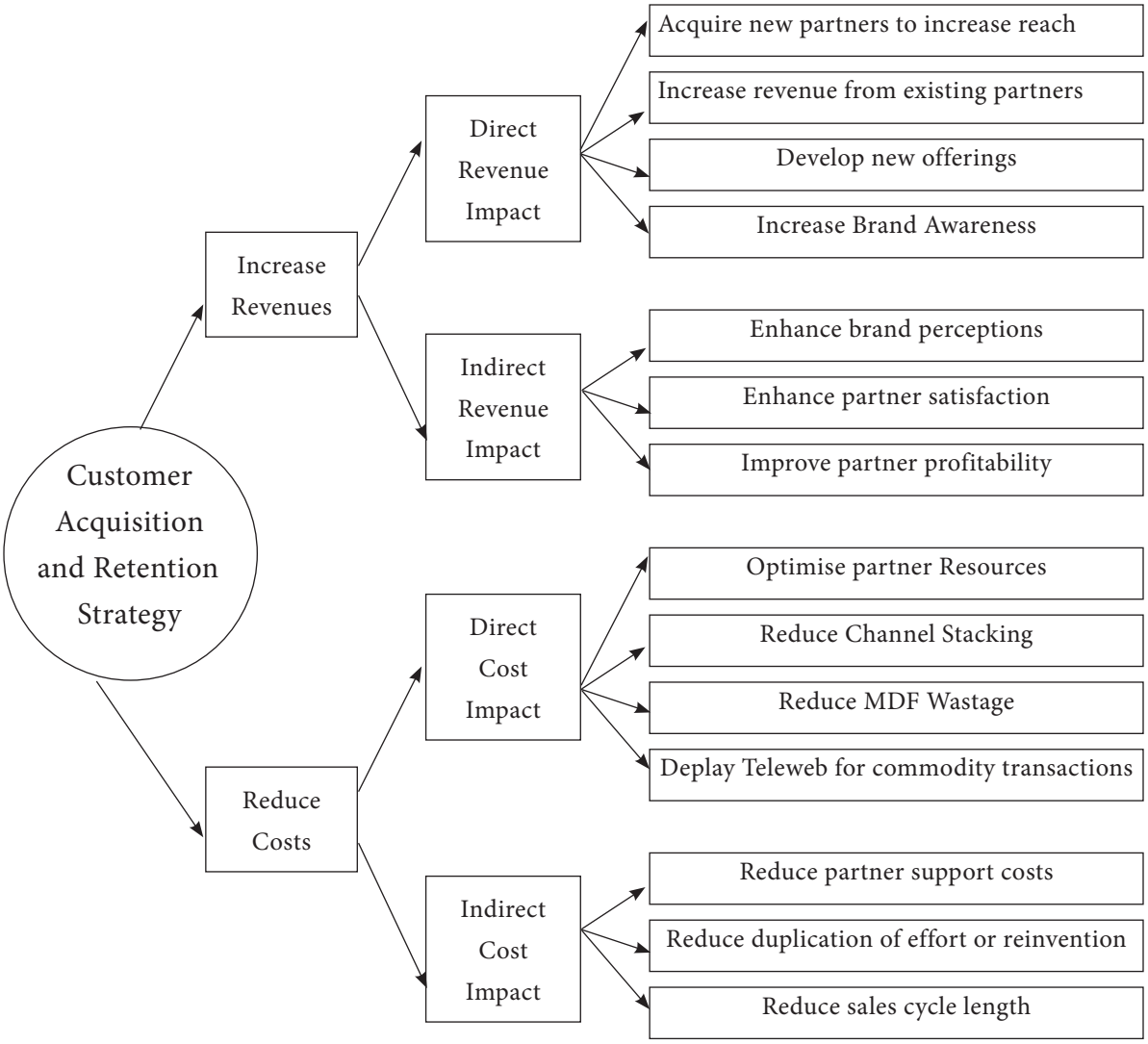
This is where a small multi-disciplinary team can provide support in both understanding the nature of the challenges to be faced and the financial consequences of strategic choices that your firm will face. One of the great disappointments of CRM programs has been their apparent failure to demonstrate any real return on investment. This is partly due to the lemming-like rush to implement software, but also to the lack of a disciplined approach to major projects.

Ensure that ROI is anticipated and used to build the supporting business case for any PRM application implementation or organisational change. The outcome of the competitive advantage audit together with the ROI findings will help in assessing what must be done, and the importance of timing. This leads to the PRM roadmap.

A PRM program may involve many aspects of business across the entire partner relationship lifecycle. It is also certain that it will need to dovetail into existing infrastructure that will be different for each company. By focusing on the high impact aspects, some of which may be easy to implement and others more challenging, and driven by a solid business case, a sensible timeline and focus of activities can be determined that can also be absorbed by the firm and its partners.

Whilst every firm will say its employees are its most important asset, the reality is that most of them are rushing around and have little time to apply creative thinking to solve business problems. One could understand the panic created by sharp competitors seemingly doing everything right whilst we did everything wrong, the real winners out there in the PRM space will be the those who take a step back and think, then act swiftly, rather than those who react or simply create heat. Hence

**Built Return on Investment**




Adapted from a diagram provided by KPHO Consulting

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- Think strategically – however clever you think your competitors are there will always be a source of competitive advantage they have missed, and their calm exterior belies the internal panic that surrounds them. To continue the animal analogies, under the water they are paddling like crazy and are equally starved of customer or market insights.
- Work from the market backwards – understand the ecosystems and potential for your company. Are you a 'Johnny-come-lately' and if so, is there really much potential there for you or would you be better exploring and focusing on alternatives?
- Act decisively with discipline – the window is closing and there is only one chance to get it right.

- Take a hard-nosed approach on ROI. You will no doubt be competing with other internal projects that appear equally worthy.
- Get that competitive advantage audit going to root your decisions in the collaborative and mutually supportive culture that you will need to engender.
- Work with a few of your strategic partners to ensure that they are continually buying in to your vision and its execution. This will create the dynamic for success.

**Self Assessment Questions**

1. What do you mean by a Sales process? What are the forms of a sales activity?
2. Define Sales Force Automation.
3. What is the significance of Sales Force Automation at individual and organizational level?
4. What factors determine the success or failure in the implementation of a Sales force Automation process.
5. Define Lead Management .
6. What are the benefits of Lead Management
7. Highlight the different ways of improving the lead management process.
8. What do you mean by Knowledge Management ?
9. Discuss in detail the critical factors and principles for the success of Knowledge Management .
10. Briefly highlight the significance of Knowledge Management.
11. Enumerate in detail the issues of Knowledge Management .
12. Explain in detail the activities of sharing and documenting the Knowledge in Knowledge Management .
13. What do you mean by Force field Analysis? Discuss in detail the major
14. Components within the core package of FFA.
15. Briefly discuss the features and benefits of FFA.
16. What do you mean by eCRM? Explain its significance in today's competitive and dynamic business environment .
17. Discuss in detail the measures to overcome the real and imagined barriers to

18. Write short notes on PRM and its significance.
19. What are the "partner requirements" and questions to be considered when choosing a right PRM solution?
20. Highlight the relation between ROI and PRM.
21. Elaborate in detail the PRM lifecycle.
22. Write short notes on ERP?
23. What are the advantages and disadvantages of the implementation of ERP.
24. Discuss in detail the meaning of supply chain management and its significance in business
25. What do you mean by Supplier Relationship Management?
26. Enumerate in detail the benefits of SRM?
27. What are the four critical factors to be considered for a successful implementation of an SRM solution.

## CASE STUDY

CRM at ICICI involves increased communication between the virtual universal bank and its customers and prospects, as well as with the group itself. The underlying idea is to enhance every instance of contact with the customer. ICICI believed that a true customer centric relationship can only be accomplished by considering the unique perspectives of every single customer of the organization. Hence the pressing need to put in place a technology enabled CRM solution.

**Questions**

1. How one-to-one marketing can be adopted?
2. Give steps in increasing Enterprise CRM

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## UNIT - 4

# Analytical CRM

### Learning Objectives

*After you go through this unit, you should be able to understand:*

- The concepts of Analytical CRM,
- The importance of managing and sharing customer data Base
- Importance of ethics and legalities of data use,
- The concept of Data Warehousing and Data mining,
- The challenges of tracking with Click stream Data
- The concept of Collaborative filtering.

### Analytical CRM

CRM is a new paradigm for gearing all activities of a firm to customer needs to identify suitable marketing opportunities and to mine the profit potential of a customer over the long term. Analyzing customer relationships from a lifetime perspective is critical for success for an organisation. The problem of developing customer base resides in the following:

- Widening the relationship with customers by acquiring new and profitable customers.
- Lengthening the relationship with customers by targeting existing resources and strengthening the foundation of those relationships.
- Deepening the relationship with customers by transforming minor customers into highly profitable ones. An additional step is increasing the share of sales revenue (and hence the share of wallet), or recognizing cross-selling or up-selling opportunities with current customers and making the right offers.

Achieving these tasks involves extensively analyzing the customer data. This type of analysis is one of the major purposes of Analytical CRM.

To widen the customer relationships, the firm should consider the factors like:

- The kind of customers to be acquired
- The kind of customers who will drive the growth in future and
- The type of new customers, who are likely to be interested in the firm's products.

To lengthen the customer relationships, a firm needs to answer following questions:

- Which customers in particular it want to keep?
- Which customers will drive most of the profits?
- Which customers might switch to the competitors and why?
- Which customers are dissatisfied with the services and products of the firm?

The changed market situation means that knowledge about the value of a customer or a customer segment is decisive for the company's success. Once the firm has this knowledge, this can be used to allocate resources more efficiently to the most desirable customers and to re-engineer the unprofitable ones. Customer information must be kept consistent throughout, and it must be available across all the touch points where the company interacts with its customers. Decisions about how to develop a relationship with customers should be reflected in all interactions and planning with customers.

Analytical CRM is a consistent suite of analytical applications that help the firm to measure, predict, and optimize customer relationships. To address these business issues, analytical CRM includes a sound analytical infrastructure that allows to gather all the relevant information about customers and organise it consistently. Thus, a 360-degree view of customers can be achieved, which then forms the basis for wide-ranging analytical methods that help to measure and build truly interactive, mutually beneficial, and profitable relationships.

Mastering the following is key for a successful analytical CRM solution:

- Capturing all relevant customer information from different sources, channels, and touch-points and then integrating it into a customer knowledge base with a 360° view.
- Applying a comprehensive set of analytical methods to measure and optimize customer relationships and answering all relevant business questions.
- Deploying analytical results to improve the CRM processes, interactions with customers, and business planning with customers.

- Integrating customer value with shareholder value and strategic enterprise management.

**Benefits of Analytical CRM**

Analytical CRM can make a considerable contribution toward providing the answers to numerous questions and thereby support a whole range of business decisions. The analytical capabilities allow a firm to identify new trends in the markets and then to channel the investments in these markets. They also help you gain further insights into customer needs and preferences by identifying patterns to:

1. Acquire new profitable customers.
2. Improve the firm's relationships with existing customers by addressing their individual needs.
3. Optimize cross-selling and up-selling opportunities.
4. Improve customer loyalty and reduce customers' propensity to churn.
5. Analytical CRM also enables to gear all the processes of a firm toward customer-centricity and thereby:
6. Aim the firm's resources at high-value customers and build more profitable customer relationships by:
    - Targeting the investments in marketing, sales, and service.
    - Directing firm's attention and services more effectively toward such customers.
    - Forcing internal efficiencies and process improvements.
    - Automate and personalize customer interactions based on sound customer knowledge.
    - Integrate the firm's overall strategies with its strategies in marketing, sales and service.

With Analytical CRM, a firm can increase profits by as much as 100% by retaining an additional 5% of their customers. By some estimates, it costs four to seven times more to replace a customer than it does to keep one.

## Managing and Sharing Customer Data

Every manager would agree that more and better customer knowledge can bring economic benefits to a company. Some companies are doing impressive things with customer

data. A few even manage to turn some of it into knowledge. But many companies are finding it difficult to manage the customer data. One difficulty is that customer knowledge is widely dispersed around a company. Each business function in an organisation usually has its own interests regarding customer information, its own way of recording what it learns and perhaps even its own customer information system. The disparate interests of departments make it difficult to pull together customer knowledge in one common format and place.

Customer information and knowledge also inspire a high level of politics and passion. The salesperson with valuable customer information on index cards, the service department with valuable information on what customers thinks about new products, the marketing department with highly detailed customer attitudes and behavior from focus groups and surveys - all have some reason to keep control of what they know about customers. Senior general managers, however, generally prefer to make customer knowledge an organizational resource and therein lies the conflict. Another factor making the management of customer knowledge difficult is the fact that there are several different types, each of which must be managed with a different approach. The first type is data-derived customer knowledge that originates in transaction systems. We typically think of this type of knowledge as involving consumers, but it can also be about business customers.

Managing this stuff involves several S's:

*Strategy*: Defining what information is really important and what customer behavior really counts.

*Standards*: Ensuring that "customer" and other related terms mean the same thing throughout the organization.

*Systems*: Allotting sufficient processing power to process all the data.

*Statistics*: Turning data into knowledge through statistical processing.

*Smart people*: Finding smart people to structure and interpret the analysis of customer data.

**Five Ss of managing customer data**

Strategy
Standards
Systems
Smart people
Statistics

Another type of customer knowledge is tacit—unstructured, difficult-to-express knowledge that we observe or sense about our customers. The voice of the market never speaks clearly, and we often have to intuit messages from customers at the sub-rational level. Every good salesperson tries to elicit some tacit knowledge from a customer in the form of body language, facial expressions or other "vibes." Some market research experts now argue that customer opinions about products and marketing messages can best be understood in tacit forms of expression.

Tacit customer knowledge can be just as important to sales and marketing functions as the other types of customer knowledge. The good aspect about tacit knowledge is that much of it can be converted through various means to explicit human knowledge and thus made more permanent and transferable. The bad thing is that doing so is difficult. It requires continual observation, careful analysis of customer behavior and a patient disposition. When managed well and applied to various customer-facing business processes, customer knowledge can increase customer purchase and retention levels, save money by directing marketing efforts at customers who will respond to them, and yield products and services that customers really want in the first place.

**Benefits of Customer Data Management**

Customer data is critical to every business. Accurate customer information enables the firm's sales, service and marketing teams to target specific customers through an in-depth understanding of customers. A thorough and consistent analysis of customer touch points is critical.

*For example consider a retail business*. Retailers capture customer data through an ever-widening array of tools. Customer data is difficult for a retailer to manage due to the sheer volume of customers with constantly evolving personal and transactional information. Data therefore needs to be continually managed for it to remain of quality and use to the business.

Effective data management provides a number of business benefits:

- Increased sales through better knowledge of customer needs
- Improved efficiency of business processes by eliminating duplication and wasted data collection
- Increased compliance and data security through standardisation and centralisation of data.

Other benefits are:

- Generating customer insight
- Segmenting customers
- Building innovation
- Building effective communications &
- Creating loyalty

i. *Generating Customer Insight*

Customer insight is an understanding of consumer behaviour that has the potential to drive mutual benefit. It is the bedrock of any customer-facing organisation and drives long-term growth in shareholder value.

Most of the value that shareholders assign to companies is based on expectations of returns beyond the period for which forecasts exist. A business's pipeline of future cash is driven by improving returns on equity, sustaining growth, reducing uncertainty, accelerating future cash and extending time horizons. Customer insight enables superior business performance against these criteria by creating the basis for compelling differentiation, relentless innovation, the development of strong brands and relationships, faster market penetration and development of the best portfolio of product options.

Most retailers acknowledge that information about consumers is critical to success, but their ways of working are often internally focused, and don't focus on the need for real insight as the primary means of generating demand long term. This lack of recognition of the importance of generating real consumer insight often stems from current business success, or from a focus on local markets disguising the need for consumer insight. However, retailers need to address this. A failure to generate and make use of consumer insight in day-to-day operations will lead to lower shareholder value.

ii. *Segmenting Customers*

Customer segmentation is a basic marketing technique and is at the heart of retailers' marketing strategy and is essential to the way that successful retailers run their business. It is used to drive the profitability of the business by understanding the needs and wants of customers more effectively, and delivering benefit to the customer against each of those needs and wants. Each customer has different needs and is therefore potentially a separate market. One-to-one marketing is a great idea but it may not be economical to market directly

to each customer. Some customers will be more profitable than others and some may not want a relationship at all. Market segmentation divides large, heterogeneous customer groups into smaller, more manageable segments that can be targeted more efficiently. After segmentation, each of the segments can be evaluated and attractive segments targeted. A customer value proposition for the segment can then be developed. Retailers should also be aware that customers, who may look alike, don't necessarily act alike, and therefore it is critical to consider segmentation by customer needs and attitudes as well as by customer characteristic.

iii. *Building Innovation*

Innovation is critical to retailers in today's highly competitive market. Retailers need to use innovation to move a step ahead of competitors, not just in customer-facing activities, but in all areas of the business. Innovation means many different things to different people, though one thing all successful, consistently innovative businesses have in common is a clear innovations strategy aligned with business objectives. Key innovation enablers, which together make up the successful innovations strategy are:

*Receptive culture*: Leadership needs to make innovation a strategic priority and encourage the gathering and sharing of ideas and market data from all areas inside and outside the organisation. The quest for innovation needs to be sponsored and recognised from the top.

*Ideas management*: New ideas must be validated, quantified and assessed for risk before deciding whether to develop. Ideas must be prioritised and the full business impact assessed. New ideas are one thing, successful innovation is another.

*Efficient processes*: Processes must provide a clear implementation approach for the initiative and be continuously reviewed to deliver strategy and measure results.

*Momentum*: Momentum and energy are needed in order to speedily convert an idea into a value-add application that keeps the organisation ahead of the competition. Devolved decision-making and step-by-step implementation creates momentum and dispels uncertainty and anxiety.

*Effective communications*: Effective communication channels ensure that roles and responsibilities are clearly defined, enabling multi-functional teams to leverage expertise and cross-fertilise ideas.

iv. *Building Effective Communications*

A retailer's wide range of produce, typically targeted towards a wide range of audiences, makes effective marketing communications both extremely complicated and vital for success. The retail environment is continually adapting to changing customer demands, market variables and competitor activities. As a result product and service offerings, and pricing and promotional strategies, must be constantly adapted. However, these changes must be effectively communicated, both internally and externally, for them to be successfully implemented and accepted by customers.

v. *Creating Loyalty*

Retailing is all about serving customers - but the very convenience of shopping in physical stores can mean that customers come and go, while the retailer has limited knowledge of the relationship with them. In the current competitive climate, retailers need to develop a long-term relationship with their customers, and create a satisfying shopping experience that keeps them coming back. New retail channels and technologies can offer cost-effective means to track and enhance customer relationships, both emotional and financial.

Any business can reap all these benefits only through efficient and effective management of customer data.

**Best Practices in Managing Customer Data**

Effective customer data management doesn't require a massive master data management platform. Customer Data Management (CDM) is a subset of Master Data Management (MDM) that refers to the practice of synchronizing and standardizing customer data. Effective CDM is not just about having integrated, clean customer data, it's about leveraging data to increase revenue and profitability. Following are the best practices that will help to achieve a return on investment (ROI) from customer data management (CDM):

i. *Automate CDM*: The biggest challenge with CDM is extracting and normalizing customer data from multiple sources. To solve this problem, firms can automate the entire customer data management system.

ii. *Increase organizational visibility and role-based access*: CDM should give employees greater visibility to customers, channels, distributors and stakeholders. Role-based

access to customer data enables functionally appropriate views into customer data and is an important way to optimize customer interactions and operational decision making.

iii. *Centralize CDM by location or division*: Centralizing CDM by location or Division will help the firm to test processes, fix problems and develop best practices.

iv. *Develop data stewardship programs*: Cross-functional data stewardship and establishing ultimate accountability for customer data is as important as technology for CDM. Clearly defined roles and responsibilities and internal cross-functional teams are the critical factors for the success of CDM.

v. *Organizational and executive support*: Getting organizational and executive support is important for CDM. For CDM to be successful, consider it's impact on various departments, prioritize accordingly, and tie CDM to overall corporate goals and strategies.

## Customer Information Database

A customer database is an organised collection of comprehensive information about individual customers or prospects that is current, accessible, and actionable for such marketing purposes as lead generation, lead qualification, sale of a product or service, or maintenance of customer relationships. Database marketing - the predecessor of CRM - is the process of building, maintaining, and using a customer database and other databases (product, suppliers, resellers) for the purpose of contacting, transacting, and building relationships.

Companies collect customer information through customer transactions, registration information, telephone queries, cookie information, and information from every contact with a customer at different touch-points. A customer database includes information about a customer's past purchases, demographics (age, income, family members, birthdays), psychographics (activities, interests, and opinions), mediagraphics (preferred media), and other useful information.

The customer database is the central repository of all of the information pertaining to the relationship of a business and its customers. Since database architecture is not very efficient for analytical applications, CRM uses a data warehouse for storing customer information. Through data mining, marketing statisticians can extract useful information about individuals, trends, and segments from the mass of data. The database stores all information about the customer, such as:

Individual-Related Information

- Name
- Addresses
- Age
- Income
- Spouse
- Children
- Home ownership
- Pets
- Hobbies
- Sports interests

Company-related information:

- Name
- Addresses
- Number of employees
- Revenue
- Standard industry codes (SICs, that define business types)
- Individual buying behaviour
- Site buying behaviour.

The database keeps track of all contacts by/with the customer, including:

Customer-initiated contacts

- Purchase transactions
- Calls
- Comments
- Returns
- Service calls
- Complaints

Company-initiated contacts

- Promotional offers
- Letters

Calls

Personal visits

The following information can be derived from the data stored in the database:

*Recent purchase*: When has the customer last purchased something from the company - a measure of retention.

*Frequency*: The number of purchases the customer has made from the company within a specified time frame.

*Monetary Value*: The amount the customer has spent on purchases from the company, again within a specified time frame.

*Demographic and lifestyle append*: Information about the customer other than purchase transactions, including the customer's age, income, number and ages of children, interests, and hobbies. CRM uses this information to gain a better understanding of what a customer will value about a relationship with the company, which core products or services or benefits will have the most value, and why these benefits are important to the individual.

*Modeling variables*: The weight of the stored variables in predicting the customer's profitability.

**Use of Cust*omer Database***

The behavioural data included in the customer database is used for the following promotional purposes:

*Customer acquisition (identifying prospects)*: One of the ways companies can generate sales leads is by advertising their products or services through advertisements that include a response feature, such as a business reply card or a toll-free phone number. The database is built from these responses. The database can be sorted to identify the best prospects who can then be contacted by e-mail, phone, or personal calls in an attempt to convert them into customers.

*Customer retention (deepening customer loyalty)*: The data is used to identify individuals at risk of attrition (also called churn prediction) so that they can be targeted with special promotional activities. Companies can create interest and enthusiasm in customers by making offers that match their preferences, by sending appropriate gifts, discount coupons, and interesting promotional materials.

*Increasing share of wallet by identifying which customers should receive a particular offer*: Data is used to help companies up-sell and cross-sell their products and services to specific customers for added profit. Companies set up criteria describing the ideal target customer for a particular offer. The database is scanned for those who most closely resemble the ideal type. Targeting precision can be improved over time by observing response rates. An automatic sequence of activities can be set up to follow a sale, for example a 'thank you note' to be followed by a new offer after some time.

*Reactivating customers by making attractive timely offers*: Companies can install automatic mailing programmes (automatic marketing) that send out birthday or anniversary cards, festival shopping reminders, or off-season promotions.

*Avoiding mistakes while interacting with customers*: Different staff members of the company might interact with the same customer separately and provide inconsistent or contradictory information. Staff might fail to recognise a premium customer or somebody related to a premium customer and treat them as ordinary customers, leading to the risk of attrition. Such mistakes can be avoided if the people interacting with the customer access the updated customer profile.

**Capturing Customer Information**

Capturing customer information is the foundation of Customer Relationship Management (CRM) and can spell success or failure for any CRM programme. Data capture can either improve customer relationships or destroy them. Transaction processing systems also collect data but they only provide a mechanical description of the transaction, which in reality is a much richer event—at least from the marketing point of view. For example, a customer order entered in a transaction processing system describes what was ordered and when, and what was the price. But it tells nothing about why and how the customer ordered the product. It contains no information that can be used for up-selling and cross-selling products to this customer. It is not practical to capture all the details of every transaction; and most customers won't like the intrusion into their lives that such data collection entails. The idea is to capture the most useful information and maximise its value.

Most businesses have to deliver their products through intermediaries. This complicates their relationship with customers. Examples of intermediaries include doctors for pharmaceutical companies, agents for insurance companies, wholesalers and retailers for fast-moving consumer goods (FMCG) companies. In such businesses the data collected is not only about customers but also about important intermediaries.

**Building a Customer Database - the Critical Issues**

*Ensuring employee acceptance and implementation*: Company representatives must be fully aware of data protection issues, such as how customer information will be used. CRM literature should include customer rights and how information will be used.

*Explaining data capture to the customer*: A CRM programme must be communicated properly and not as an intrusive data capture effort. It is important and desirable to be honest and informative with your customers and also with your company representatives about how customer information will be used. In many countries it is the law. Explaining how the information will serve the customer and convincing customers about the programme's benefits for them is critical to the success of any CRM programme.

*Reiterating programme objectives and benefits and thanking the customer at each communication*: Data capture is just the start. Each subsequent communication to the customer should reiterate programme objectives, reinforce benefits, and thank the customer.

## Ethics and Legalities of Data Use

Business ethics is a form of applied ethics that examines ethical rules and principles within a commercial context, the various moral or ethical problems that can arise in a business setting, and any special duties or obligations that apply to persons who are engaged in Business. Companies can maintain consumers' trust, and their business, by safeguarding personal data.

Customer privacy measures are those taken by commercial organizations to ensure that confidential customer data is not stolen or abused. Since most such organizations have a strong competitive incentive to retain an exclusive access to this data, and since customer trust is usually a high priority, most companies take some security engineering measures to protect customer privacy.

However, these vary in effectiveness, and would not typically meet the much higher standards of client confidentiality applied by ethical codes or legal codes. Since they operate for-profit, commercial organizations also cannot spend an unlimited amount on precautions and remain competitive - a commercial context tends to limit privacy measures, and to motivate organizations to share data when working in partnership. This has led to many moral hazards and outrageous customer privacy violation incidents, and has led to consumer privacy laws in most countries, especially in the European Union, Australia, New Zealand and Canada. Some services, notably telecommunications including Internet,

imply collecting a vast array of information about user's activities in the course of things, and may also require consultation of this data to prepare bills. Telecom data must be kept for seven years in the US and Canada, to permit dispute and consultation about phone charges. Telecom regulation has always enforced a high level of confidentiality on these very sensitive customer communication bills and the underlying records. However, this approach has to a degree been outmoded as other industries also now gather sensitive data. Such common commercial measures as software-based customer relationship management, rewards programs and target marketing tend to drastically increase the amount of information gathered (and sometimes shared). These very drastically increase privacy risks, and have accelerated the shift to regulation, rather than relying on corporate desire to preserve goodwill.

Consumer privacy laws and regulations seek to protect any individual from loss of privacy due to failures or limitations of corporate customer privacy measures. They recognize that the damage done by privacy loss is typically not measurable, nor can it be undone, and that commercial organizations have little or no interest in taking unprofitable measures to drastically increase privacy of customers - indeed, their motivation is very often quite the opposite, to share data for commercial advantage, and to fail to officially recognize it as sensitive, so as to avoid legal liability for lapses of security that may occur.

Consumer privacy concerns date back to the first commercial couriers and bankers, who in every culture took strong measures to protect customer privacy, but also in every culture tended to be subject to very harsh punitive measures for failures to keep a customer's information private.

Today the ethical codes of most professions very clearly specify privacy measures. Modern consumer privacy law in a recognizable form originated in telecom regulation. The data gathering required for billing began to become an obvious privacy risk as well. Accordingly, strong rules on operator behavior, customer confidentiality, records keeping and destruction were enforced on telecom sector in every country. Through the 1970s many other organizations in developed nations began to acquire sensitive data, but there were few or no regulations in place to prevent them from sharing or abusing it. Customer trust and goodwill was generally thought to be sufficient in some nations, notably the United States, to ensure protection of truly sensitive data. But in the 1980s much smaller organizations began to get access to computer hardware and software, and these simply did not have the procedures or personnel or expertise, nor less the time, to take rigorous measures to protect their customers. Meanwhile, via target marketing and rewards programs, they were acquiring ever more data.

Gradually, customer privacy measures alone proved insufficient to deal with the many hazards of corporate data sharing, corporate mergers, employee turnover, theft of hard drives or other data-carrying hardware from work. Talk began to turn to explicit regulation, especially in the European Union, where each nation had laws that were incompatible, e.g. some restricted the collection, some the compilation, and some the dissemination of data, and it was possible to violate anyone's privacy within the EU simply by doing these things from different places in the European Common Market as it existed before 1992. Through the 1990s the proliferation of mobile telecom, the introduction of customer relationship management and the use of the Internet by the public in all developed nations, brought the situation to a head, and most countries had to implement strong consumer privacy laws, usually over the objections of business. In US, there is no national law for data protection. However, there are industry specific regulations. The HIPAA (Health Insurance Portability and Accountability Act) privacy rule for the Healthcare Industry and the Gramm-Leach-Bliley (GLB) acts for the Financial Services sector are two good examples. Citizens can legally waive their rights to personal privacy.

*Privacy legislations across the globe* :

- Canada: Personal Information Protection and Electronic document act, April 13, 2000.
- USA: Health Insurance Portability and Accountability Act (HIPAA) 1996, Children's Online Privacy Protection Act 1998, Gramm-Leach-Bliley Act 1999.
- Europe: Data Protection Directive 1995, Telecommunications Directive 1997.
- Australia: The privacy amendment act, 2000.
- Japan: Guidelines concerning the protection of personal information associated with electronic computer data processing in the private sector, 1989.

**Ethical and Social Considerations of Customer Information Systems**

Key ethical issues in the information age, including the increased ubiquity of computerised databases, are often popularly summarised under the four headings "privacy, accuracy, property, access" (labelled with the acronym P-A-P-A).

- *Privacy*: the ability of people to keep personal information about themselves private and confidential; how the widespread holding of personal information about people impacts on interpersonal relations of trust, autonomy, and dignity;
- *Accuracy*: the quality and accuracy of data/information held in databases, and on which organizations act, assuming the data/information to be correct;

- *Property*: information ownership and control—who owns personal information about an individual, and who has the right to use it, or control its use; and
- *Accessibility:* access of members of society to the social store of information.

The participation of citizens in the ordinary processes of daily life such as shopping, banking, travel, healthcare, and education all result in a data trail about the activities, preferences, and even thoughts of individuals - data collection is embedded in organisational and social processes. Since it is increasingly essential for citizens to use the information technologies to bank, shop, or work, people tend to resign themselves to the loss of privacy. The increasing use of the Internet and electronic commerce brings the collection of personal data into sharp focus, posing particular challenges for privacy and security of personal information. Mere entry of a user to an Internet site triggers the accumulation or use of a user's demographic and psychographic data.

Controversially, some organisations have been involved in using their customer databases simply as assets to be exploited by selling the data to other firms, including marketers. In considering ethical aspects of customer information systems, the P-A-P-A model presents a useful tool for surfacing a range of relevant issues, but it seems inadequate in getting to the core social and political issues. Whilst the model surfaces issues of privacy, accuracy, property rights, and accessibility, the deeper social and political concerns of access, equity, alienation and exclusion remain obscured.

The philosophy of user fees and charges, in an environment where access to information is increasingly reserved for those who have the capacity to pay extends well beyond access to and charges for information. The key access issue in relation to customer information systems does not revolve around who has access to the information held in databases (as suggested by the P-A-P-A model), but how the use of that information by powerful corporate players affects the access of people-especially the poor and disadvantaged - to basic goods and services.

Information systems ethics require a central understanding of how information technologies affect human choice, human action, and human potential. Social integration is an important part of business ethics, and therefore of business responsibility, making it vital that information systems professional recognise that the creation of customer information systems is not a technical issue alone. The ethical implications of customer information systems cannot be considered in a simplistic way. The complexity of interrelations between customer information systems, customer accounting, and the marketing function of organisations, and the ultimate uses of customer databases need to be considered.

**Ethical Issues in Web Data Mining**

The World Wide Web can be seen as the largest database in the world. This huge, and ever-growing amount of data is a fertile area for data mining research. The important ethical issue with data mining is that, if someone is not aware that the information/ knowledge is being collected or of how it will be used, he/she has no opportunity to consent or withhold consent for its collection and use. This invisible information gathering is common on the Web. Knowledge discovered whilst mining the web could pose a threat to people, when, for instance, personal data is misused, or is used for a purpose other than the one for which it is supplied (secondary use). This same knowledge, however, can bring lots of advantages.

Knowledge discovered through data mining is important for all sorts of applications involving planning and control. There are some specific benefits of web-data mining like improving the intelligence of search engines. Web-data mining can also be used for marketing intelligence by analysing a web user's on-line behaviour, and turning this information into marketing knowledge. It should be noted that ethical issues can arise from mining web data that do not involve personal data at all, such as technical data on cars, or data on different kinds of animals. In this section, we shall point out that web-data mining, which involves the use of personal data of some kind, can lead to the disruption of some important normative values. One of the most obvious ethical objections lies in the possible violation of peoples' (informational) privacy. Protecting the privacy of users of the Internet is an important issue.

Informational privacy mainly concerns the control of information about oneself. It refers to the ability of the individual to protect information about himself. The privacy can be violated when information concerning an individual is obtained, used, or disseminated, especially if this occurs without their knowledge or consent.

Privacy issues due to web mining often fall within this category of informational privacy. When information is discovered through web data mining, someone's privacy might be directly violated in the process. When the information is classified and clustered into profiles, and then used for decision-making, people could feel violated in their privacy.

*Possible arguments against the danger of web-data mining*

i Web-data mining itself does not give rise to new ethical issues.

ii There are laws to protect private information, and on-line privacy statements guarantee privacy.

iii As people can refuse to give out information about themselves, they do have some power to control their relationship with private and public organisations. Many individuals simply choose to give up their privacy.

iv The data collected is not of a personal nature, and most web-data mining applications result in anonymous profiles.

v Data mining techniques will provide more accurate and more detailed information, which can lead to better and fairer judgements. So, web-data mining leads to less unwanted marketing approaches.

vi Personalisation leads to individualisation instead of de-individualisation. Most customers like to be recognised, and treated as a special customer. So it is not considered a violation of privacy to analyse usage interaction.

***Possible Solutions***

There are means to solve some problems with respect to privacy in the ethical context of web-data mining. Solutions can be at an individual level and at a collective level. Solutions at an individual level, include actions an individual can take in order to protect himself/herself against possible harms.

For example, using privacy enhancing technologies, being cautious when providing (personal) information on-line, checking privacy policies on web sites etc are the solutions. The solutions at a collective level refer to things that could be done by society (government, businesses, or other organisations) to prevent web-data mining from causing any harm. For example, further development of privacy enhancing technologies, publishing privacy policies, monitoring web mining activities, legal measures, creating awareness amongst web users and web data miners etc are the possible solutions at a collective level. A mixture of technical and non-technical solutions at both the individual and the collective level is probably required to solve some of the problems.

## Data Warehousing

A Data warehouse is an application with a computer database that collects, integrates and stores an organization's data with the aim of producing accurate and timely management of information and support for analysis techniques, such as data mining. It is a repository of an organization's data, where the informational assets of the organization are stored and managed, to support various activities such as reporting, analysis, decision-making, as well as other activities such as support for optimization of organizational operational processes.

An enterprise data warehouse is the sole historical register of virtually all transactions and important operational events that occur in the life of an organization. This data is ultimately stored and cataloged for immediate and future utilization in various forms, such as deployment into some application. It is through these various uses and deployments that this data becomes information, to be potentially exploited for benefit.

Bill Inmon's formal systems definition of a data warehouse is a computer database and its supporting components that is:

*Subject-oriented*, meaning that the data in the database is organised so that all the data elements relating to the same real-world event or object are linked together;

*Time-variant*, meaning that the changes to the data in the database are tracked and recorded so that reports can be produced showing changes over time;

*Non-volatile*, meaning that data in the database is never over-written or deleted, but retained for future reporting; and,

*Integrated*, meaning that the database contains data from most or all of an organisation's operational applications, and that this data is made consistent.

**History of Data Warehousing**

Data Warehouses became a distinct type of computer database during the late 1980's and early 1990's. They developed to meet a growing demand for management information and analysis that could not be met by operational systems. Operational systems were unable to meet this need for a range of reasons:

- The processing load of reporting reduced the response time of the operational systems,
- The database designs of operational systems were not optimised for information analysis and reporting,
- Most organizations had more than one operational system, so company-wide reporting could not be supported from a single system, and
- Development of reports in operational systems often required writing specific computer programs which was slow and expensive.

As a result, separate computer databases began to be built that were specifically designed to support management information and analysis purposes. These data warehouses were able to bring in data from a range of different data sources, such as mainframe

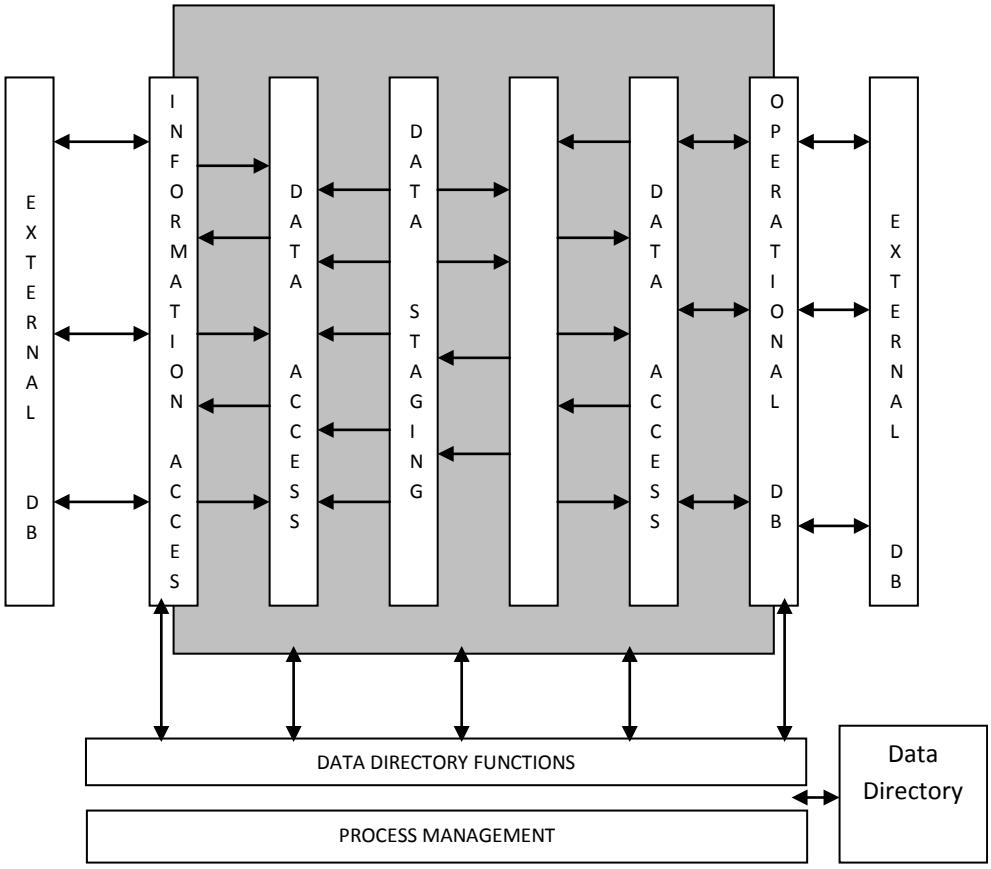
computers, minicomputers, as well as personal computers and office automation software such as spreadsheet, and integrate this information in a single place. This capability, coupled with user-friendly reporting tools and freedom from operational impacts, has led to a growth of this type of computer system. As technology improved (lower cost for more performance) and user requirements increased (faster data load cycle times and more features), data warehouses have evolved through several fundamental stages:

- *Offline Operational Databases*: Data warehouses in this initial stage are developed by simply copying the database of an operational system to an off-line server where the processing load of reporting does not impact on the operational system's performance.
- *Offline Data Warehouse*: Data warehouses in this stage of evolution are updated on a regular time cycle (usually daily, weekly or monthly) from the operational systems and the data is stored in an integrated reporting-oriented data structure
- *Real Time Data Warehouse*: Data warehouses at this stage are updated on a transaction or event basis, every time an operational system performs a transaction (e.g. an order or a delivery or a booking etc.)
- *Integrated Data Warehouse*: Data warehouses at this stage are used to generate activity or transactions that are passed back into the operational systems for use in the daily activity of the organization.

**Components of a Data Warehouse**

A Data Warehouse Architecture (DWA) is a way of representing the overall structure of data, communication, processing and presentation that exists for end-user computing within the enterprise. The architecture is made up of a number of interconnected parts:

- External Database Layer
- Information Access Layer
- Data Access Layer
- Metadata Layer
- Process Management Layer
- Application Messaging Layer
- Data Warehouse Layer
- Data Staging Layer




**Data Warehouse Architecture**

*Data Warehouse Architecture*

i. *External Database Layer*: Operational systems process data to support critical operational needs. In order to do that, operational databases have been historically created to provide an efficient processing structure for a relatively small number of well-defined business transactions. Because of the limited focus of operational systems, the databases designed to support operational systems have difficulty accessing the data for other management or informational purposes. The goal of data warehousing is to free the information that is locked up in the operational databases and to mix it with information from other external sources of data.

ii. *Information Access Layer*: The Information Access layer of the Data Warehouse Architecture is the layer that the end-user deals with directly. In particular, it represents the tools that the end-user normally uses day to day, e.g., Excel, Focus, Access, etc. This layer also includes the hardware and software involved in displaying and printing reports, spreadsheets, graphs and charts for analysis and presentation. There are significant problems in making the raw data contained in operational

systems available to end-user tools. One of the keys to this is to find a common data language that can be used throughout the enterprise.

iii. *Data Access Layer*: The Data Access Layer is involved with allowing the Information Access Layer to talk to the Operational Layer. The Data Access Layer not only spans different DBMSs and file systems on the same hardware, it spans manufacturers and network protocols as well. One of the keys to a Data Warehousing strategy is to provide end-users with "universal data access". Universal data access means that, theoretically at least, end-users, regardless of location or Information Access tool, should be able to access any or all of the data in the enterprise that is necessary for them to do their job. The Data Access Layer is responsible for interfacing between Information Access tools and Operational Databases.

iv. *Metadata Layer*: Metadata, or "data about data", is used not only to inform operators and users of the data warehouse about its status and the information held within the data warehouse, but also as a means of integration of incoming data and a tool to update and refine the underlying Data Warehouse model. Examples of data warehouse metadata include table and column names, their detailed descriptions, their connection to business meaningful names, the most recent data load date, the business meaning of a data item and the number of users that are logged in currently. In order to provide for universal data access, it is absolutely necessary to maintain some form of data directory or repository of meta-data information. In order to have a fully functional warehouse, it is necessary to have a variety of meta-data available, data about the end-user views of data and data about the operational databases. Ideally, end-users should be able to access data from the data warehouse without having to know where that data resides or the form in which it is stored.

v. *Process Management Layer*: The Process Management Layer is involved in scheduling the various tasks that must be accomplished to build and maintain the data warehouse and data directory information. The Process Management Layer can be considered as the scheduler or the high-level job control for the many processes that must occur to keep the Data Warehouse up-to-date.

vi. *Application Messaging Layer*: The Application Message Layer has to do with transporting information around the enterprise computing network. Application Messaging can be used to isolate applications, operational or informational, from the exact data format on either end. Application Messaging can also be used to collect transactions or messages and deliver them to a certain location at a certain time.

vii. *Data Warehouse Layer*: The data warehouse must be organised to hold information in a structure that best supports not only query and reporting, but also advanced

analysis techniques, like data mining. Most data warehouses hold information for at least 1 year and sometimes can reach half century, depending on the business/ operations data retention requirement. In some cases, one can think of the Data Warehouse simply as a logical or virtual view of data. In many instances, the data warehouse may not actually involve storing data. In a Physical Data Warehouse, copies of operational and or external data are actually stored in a form that is easy to access and is highly flexible. Data Warehouses are stored on client/server platforms, but they are often stored on main frames as well.

viii. *Data Staging Layer*: Data Staging is also called copy management or replication management, but it includes all of the processes necessary to select, edit, summarize, combine and load data warehouse and information access data from operational and/or external databases. Data Staging involves complex programming. Data Staging may also involve data quality analysis programs and filters that identify patterns and data structures within existing operational data.

**Advantages of using Data Warehouse**

There are many advantages to using a data warehouse, some of them are:

- Enhances end-user access to a wide variety of data.
- Business decision makers can get the trend reports e.g. the item with the most sales in a particular area / country for the last two years. This may be helpful for future investments in a particular item.
- Increases data consistency.
- Increases productivity and decreases computing costs.
- Is able to combine data from different sources, in one place.
- It provides an infrastructure that could support changes to data and replication of the changed data back into the operational systems.

**Concerns in using Data Warehouse**

- Extracting, cleaning and loading data could be time consuming. But this can be made easy with the help of warehousing tools.
- Problems of compatibility with systems already in place e.g. transaction processing system.
- Providing training to end-users.

- Security could develop into a serious issue, especially if the data warehouse is web accessible.

## Data Mining

*Data mining* is the non-trivial process of identifying valid, novel, potentially useful, and ultimately understandable patterns in data. With the widespread use of databases and the explosive growth in their sizes, organizations are faced with the problem of information overload. The problem of effectively utilizing these massive volumes of data is becoming a major problem for all enterprises. Traditionally, we have been using data for querying a reliable database repository via some well-circumscribed application. While this mode of interaction is satisfactory for a large class of applications, there exist many other applications which demand exploratory data analyses. Data mining techniques support automatic exploration of data. Data mining attempts to source out patterns and trends in the data and infers rules from these patterns. The evolution of data mining began when business data was first stored in computers, and technologies were generated to allow users to navigate through the data in real time.

### Definitions

Data mining, the extraction of the hidden predictive information from large databases, is a powerful new technology with great potential to analyze important information in the data warehouse. Data mining scours databases for hidden patterns, finding predictive information that experts may miss, as it goes beyond their expectations. When implemented on a high performance client/server or parallel processing computers, data mining tools can analyze massive databases to deliver answers to questions such as which clients are most likely to respond to the next promotional mailing. There is an increasing desire to use this new technology in the new application domain, and a growing perception that these large passive databases can be made into useful actionable information.

The term 'data mining' refers to the finding of relevant and useful information from databases. Data mining and knowledge discovery in the databases is a new interdisciplinary field, merging ideas from statistics, machine learning, databases and parallel computing. Researchers have defined the term 'data mining' in many ways.

A few of these definitions are as follows:

1. *Data mining or knowledge discovery in databases, as it is also known, is the non-trivial extraction of implicit, previously unknown and potentially useful information from*

*the data. This encompasses a number of technical approaches, such as clustering, data summarization, classification, finding dependency networks, analyzing changes, and detecting anomalies.*

Though the terms data mining and Knowledge Discovery in Databases (KDD) are used synonymously, there is difference and similarity between data mining and knowledge discovery. Data retrieval, in its usual sense in database literature, attempts to retrieve data that is stored explicitly in the database and presents it to the user in a way that the user can understand. It does not attempt to extract implicit information.

One may argue that if we store 'date-of-birth' as a field in the database and extract 'age' from it, the information received from the database is not explicitly available. But that information is not 'non-trivial'. If one attempts to find out the average age of the employees in a particular company, it can be visualized as a sort of non-trivial extraction of implicit information. The task is surely 'non-trivial extraction of implicit information'. It is a type of data mining task, but at a very low level. A higher level task would be to find correlations between the average age and average income of individuals in an enterprise.

2. *Data mining is the search for the relationships and global patterns that exist in large databases but are hidden among vast amounts of data, such as the relationship between patient data and their medical diagnosis. This relationship represents valuable knowledge about the database, and the objects in the database, if the database is a faithful mirror of the real world registered by the database.*

Consider the employee database and let us assume that we have some tools available with us to determine some relationships between fields, say relationship between age and lunch-patterns. Assume, for example, that we find that most of employees in their thirties like to eat pizzas, burgers or Chinese food during their lunch break. Employees in their forties prefer to carry a home-cooked lunch from their homes. And employees in their fifties take fruits and salads during lunch. If our tool finds this pattern from the database which records the lunch activities of all employees for last few months, then we can term our tool as a data mining tool.

3. *Data mining refers to using a variety of techniques to identify nuggets of information or decision-making knowledge in the database and extracting these in such a way that they can be put to use in areas such as decision support, prediction, forecasting and estimation. The data is often voluminous, but it has low value and no direct use can be made of it. It is the hidden information in the data that is useful.*

Data mining is a process of finding value from volume. In any enterprise, the amount of transactional data generated during its day-to-day operations is massive in volume. Although these transactions record every instance of any activity, it is of little use in decision making. Data mining attempts to extract smaller pieces of valuable information from this massive database.

4. *Discovering relations that connect variables in a database is the subject of data mining. The data mining system self-learns from the previous history of the investigated system, formulating and testing hypothesis about rules which systems obey. When concise and valuable knowledge about the system of interest is discovered, it can and should be interpreted into some decision support system, which helps the manager to make wise and informed business decision.*

Data mining is essentially a system that learns from the existing data. There are two disciplines which address such problems—Statistics and Machine Learning. Statistics provide sufficient tools for data analysis and machine learning deals with different learning methodologies. While statistical methods are theory-rich-data-poor, data mining is data-rich-theory-poor approach. On the other hand machine learning deals with whole gamut of learning theory, which most often data mining is restricted to areas of learning with partially specified data.

5. *Data mining is the process of discovering meaningful, new correlation patterns and trends by sifting through large amount of data stored in repositories, using pattern recognition techniques as well as statistical and mathematical techniques.*

One important aspect of data mining is that it scans through a large volume of data to discover patterns and correlations between attributes. Thus, though there are techniques like clustering, decision trees, etc., existing in different disciplines, these are not readily applicable to data mining as they are not designed to handle large amounts of data. Thus, in order to apply statistical and mathematical tools, we have to modify these techniques to be able efficiently sift through large amounts of data stored in the secondary memory.

**KDD vs. Data Mining**

Knowledge Discovery in Database (KDD) was formalized in 1989, with reference to the general concept of being broad and high level in the pursuit of seeking knowledge from data. The term data mining was then coined; this high-level application technique is used to present and analyze data for decision-makers. Knowledge Discovery in Databases is the process of identifying a valid, potentially useful and ultimately understandable structure in

data. This process involves selecting or sampling data from a data warehouse, cleaning or preprocessing it, transforming or reducing it (if needed), applying a data mining component to produce a structure, and then evaluating the derived structure.

Data Mining is a step in the KDD process concerned with the algorithmic means by which patterns or structures are enumerated from the data under acceptable computational efficiency limitations.

***Data Mining Techniques***

Two fundamental goals of data mining are: prediction and description. Prediction makes use of existing variables in the database in order to predict unknown or future values of interest, and description focuses on finding patterns describing the data and the subsequent presentation for user interpretation. The relative emphasis of both prediction and description differ with respect to the underlying application and the technique. There are several data mining techniques fulfilling these objectives.

Some of these are associations, classifications, sequential patterns and clustering. The basic premise of an association is to find all associations, such that the presence of one set of items in a transaction implies the other items. Classification develops profiles of different groups. Sequential patterns identify sequential patterns subject to a user-specified minimum constraint. Clustering segments a database into subsets or clusters.

Another approach is to classify the techniques as:

- User-guided or verification-driven data mining, and
- Discovery-driven or automatic discovery of rules.

***Verification Model***

In this process of data mining, the user makes a hypothesis and tests the hypothesis on the data to verify its validity. The emphasis is on the user who is responsible for formulating the hypothesis and issuing the query on the data to affirm or negate the hypothesis. For example, in a supermarket, with a limited budget for a mailing campaign to launch a new product, it is important to identify the section of the population most likely to buy the new product. The user formulates a hypothesis to identify potential customers and their common characteristics. Historical data about transactions and demographic information can then be queried to reveal comparable purchases and the characteristics shared by those purchasers. The whole operation can be repeated by successive refinements of hypotheses

until the required limit is reached. The user may come up with a new hypothesis or may refine the existing one and verify it against the database.

***Discovery Model***

The discovery model differs in its emphasis, in that it is the system automatically discovering important information hidden in the data.' The data is sifted in search of frequently occurring patterns, trends and generalizations about the data without intervention or guidance from the user.

The manner in which the rules are discovered depends on the class of the data mining application. An example of such a model is a supermarket database, which is mined to discover the particular groups of customers to target for a mailing campaign. The data is searched with no hypothesis in mind other than for the system to group the customers according to the common characteristics found.

***Typical discovery driven tasks***

Discovery of association rules
Discovery of classification rules
Clustering
Discovery of frequent episodes
Deviation detection

i. *Discovery of Association rules*: An association rule is an expression of the form X => Y, where X and Y are the sets of items. The intuitive meaning of such a rule is that the transaction of the database which contains X tends to contain Y. Given a database, the goal is to discover all the rules that have the support and confidence greater than or equal to the minimum support and confidence, respectively. The association with a very high support and confidence is a pattern that occurs often in the database that should be obvious to the end user. Patterns with extremely low support and confidence should be regarded as of no significance. Only patterns with a combination of intermediate values of confidence and support provide the user with interesting and previously unknown information.

ii. *Clustering*: Clustering is a method of grouping data into different groups, so that the data in each group share similar trends and patterns. Clustering constitutes a major class of data mining algorithms. The algorithm attempts to automatically partition

the data space into a set of regions or clusters, to which the examples in the table are assigned, either deterministically or probability-wise. The goal of the process is to identify all sets of similar examples in the data, in some optimal fashion.

Clustering according to similarity is a concept which appears in many disciplines. If a measure of similarity is available, then there are a number of techniques for forming clusters.

The objectives of clustering are:

- To uncover natural groupings
- To initiate hypothesis about the data
- To find consistent and valid organization of the data.

A retailer may want to know where similarities exist in his customer base, so that he can create and understand different groups. He can use the existing database of the different customers or different transactions collected over a period of time. The clustering methods will help him in identifying different categories of customers. During the discovery process, the differences between data sets can be discovered in order to separate them into different groups, and similarity between data sets can be used to group similar data together.

iii. *Discovery of classification rules*: Classification involves finding rules that partition the data into disjoint groups. There are several classification discovery models. They are: the decision trees, neural networks, genetic algorithms and the statistical models like linear/geometric discriminates. The applications include the credit card analysis, banking, medical applications and the like. Consider the following example.

The domestic flights in our country were at one time only operated by Indian Airlines. Recently, many other private airlines began their operations for domestic travel. Some of the customers of Indian Airlines started flying with these private airlines and, as a result, Indian Airlines lost these customers. Let us assume that Indian Airlines wants to understand why some customers remain loyal while others leave. Ultimately, the airline wants to predict which customers it is most likely to lose to its competitors. Their aim is to build a model based on the historical data of loyal customers versus customers who have left. This becomes a classification problem.

iv. *Frequent episodes*: Frequent episodes are the sequence of events that occur frequently, close to each other and are extracted from the time sequences. How close it has to be to consider it as frequent is domain dependent. This is given by the user as the input

and the output are the prediction rules for the time sequences. These episodes can be of three types:

i. The serial episodes which occur in sequence.

ii. The parallel episodes in which there are no constraints on the order of the event types A and B.

iii. The non-serial and non-parallel episodes which occur in a sequence if the occurrences of A and B precede an occurrence of C, and there is no constraint on the relative order of A and B given.

v. *Deviation detection*: Deviation detection is to identify outlying points in a particular data set, and explain whether they are due to noise or other impurities being present in the data or due to trivial reasons. It is usually applied with the database segmentation, and is the source of true discovery, since the outliers express deviation from some previously known expectation and norm. By calculating the values of measures of current data and comparing them with previous data as well as with the normative data, the deviations can be obtained. They can be applied in forecasting, fraud detection, customer retention, etc.

**Types of Data Mining**

A data mining system can either be a portion of a data warehousing system or a stand-alone system. Data sources are very diverse and appear in varied form. It can be textual data, image data, CAD data, Map data or ECG data. Some data are structured and some are unstructured. Data mining remains an important tool, irrespective of the forms or sources of data.

***Types of Data Mining***

Sequence Mining
Web Mining
Text Mining
Spatial Data Mining

i. *Sequence Mining*: Sequence mining is concerned with mining sequence data. In the discovery of association rules, we are interested in finding associations between items irrespective of their order of occurrence. The discovery of temporal sequences of events concerns causal relationships among the events in a sequence.

ii. *Web Mining*: With the huge amount of information available online, the World Wide Web is a fertile area for data mining research. Web mining research is at the crossroads of research from several research communities, such as database, information retrieval etc. Web mining can be broken down into following subtasks:

   a) Resource finding: retrieving documents intended for the web.

   b) Information selection and preprocessing: automatically selecting and preprocessing specific information from resources retrieved from the web.

   c) Generalization: to automatically discover general patterns at individual web sites as well as across multiple sites.

   d) Analysis: validation and/or interpretation of the mined patterns.

iii. *Text Mining*: The term text mining or KDT (Knowledge Discovery in Text) was first proposed by Feldman and Dagan in 1996. They suggest that text documents be structured by means of information extraction or text categorization as a pre-processing step before performing any kind of KDTs. Presently the term text mining, is being used to cover many applications such as text categorization, exploratory data analysis, text clustering, finding patterns in text databases, finding sequential patterns in texts & Information Extraction.

iv. *Spatial Data Mining:* Spatial data mining is the branch of data mining that deals with spatial (location) data. The immense explosion in geographically-referenced data occasioned by developments in IT, digital mapping, remote sensing, and the global diffusion of GIS, places demands on developing data driven inductive approaches to spatial analysis and modeling. Spatial data mining is regarded as a special type of data mining that seeks to perform similar generic functions as conventional data mining tools, but modified to take into account the special features of spatial information.

**Issues and Challenges in Data Mining**

Data mining systems depend on databases to supply the raw input and this raises problems, such as that database tends to be dynamic, incomplete, noisy and large. Other problems also arise as a result of the inadequacy and irrelevance of the information stored.

***Difficulties in data mining***

Limited information
Noise or missing data
User interaction and prior knowledge
Uncertainty
Size, updates and irrelevant fields

i. *Limited Information*

A database is often designed for purposes other then that of data mining and, sometimes, some attributes which are essential for knowledge discovery of the application domain are not present in the data. Thus, it may be very difficult to discover significant knowledge about a given domain.

ii. *Noise and Missing Data*

Attributes that rely on subjective or measurement judgments can give rise to errors, such that some examples may be misclassified. Missing data can be treated in a number of ways—simply disregarding missing values, omitting corresponding records, inferring missing values from known values, and treating missing data as a special value to be included additionally in the attribute domain. The data should be cleaned so that it is free of errors and missing data.

iii. *User Interaction and Prior Knowledge*

Since the KDD process is by definition interactive and iterative, it is challenging to provide a high performance, rapid-response environment that also assists the users in the proper selection and matching of the appropriate techniques to achieve their goals. There needs to be more human-computer interaction and less emphasis on total automation. The use of domain knowledge is important in all steps of the KDD process. It would be convenient to design a KDD tool which is both interactive and iterative.

iv. *Uncertainty*

This refers to the severity of error and the degree of noise in the data. Data precision is an important consideration in a discovery system.

v. *Size, Updates and Irrelevant Fields*

Databases tend to be large and dynamic, in that their contents are keep changing as information is added, modified or removed. The problem with this, from the perspective of data mining, is how to ensure that the rules are up-to-date and consistent with the most current information.

**Data Mining Application Areas**

The discipline of data mining is driven in part by new applications which require new capabilities that are not currently being supplied by today's technology. These new applications can be naturally divided into following categories:

***i. Business and E- Commerce Data***

This is a major source category of data for data mining applications.

*Business transactions:* Business enterprises require necessary information for their effective functioning in today's competitive world.

*Electronic commerce*: Electronic commerce produce large data sets in which the analysis of marketing patterns and risk patterns is critical. It is important to do this in near-real time, in order to meet the demands of on-line transactions.

***ii. Scientific, Engineering and Healthcare Data***

Scientific data tend to be a more complex in structure than business data.

*Genomic data*: Genomic sequencing and mapping efforts have produced a number of databases which are accessible on the web. Finding relationships between these data sources is a challenge for data mining.

*Sensor data*: Remote sensing data is another source of voluminous data. Remote sensing satellites produce large amounts of data. A fundamental challenge is to understand the relationships among this data.

*Health care data*: Hospitals, health care organizations, insurance companies, and the concerned government agencies accumulate large collections of data about patients and health care-related details. Understanding relationships in this data is critical for a wide variety of problems—ranging from determining what procedures and clinical protocols are most effective, to how best deliver health care to the maximum number of people.

*Web data*: The data on the web is growing not only in volume but also in complexity. Web data now includes not only text, audio and video material, but also numerical data.

***iii. Other Applications***

There is a wide range of well-established business applications for data mining. These include customer attrition, profiling, promotion forecasting, product cross-selling, fraud detection, targeted marketing, propensity analysis, credit scoring, risk analysis, etc.

*Housing loan prepayment prediction*: A home-finance loan actually has an average life-span of only 7 to 10 years, due to prepayment.

People prepay loans when they refinance or when they sell their home. The financial return that a home-finance institution derives from a loan depends on its life-span. Therefore, it is necessary for the financial institutions to be able to predict the life-spans of their loans.

This information can be used to fine-tune loan parameters such as interest rates, points, and fees, in order to maximize profits.

*Mortgage loan delinquency prediction*: Loan defaults usually entail expenses and losses for the banks and other lending institutions. Data mining techniques can be used to predict whether or not a loan would go delinquent within the succeeding 12 months, based on historical data, on account information, borrower demographics, and economic indicators.

*Crime detection*: Crime detection is another area where data mining finds application.

*Brand loyalty*: Given a customer and the product he/she uses, we can predict whether the customer will switch brands.

*Portfolio management*: Given a particular financial asset, it is possible to predict the return on investment to determine the inclusion of the asset in a folio or not.

*Customer retention*: Given a database of past customers and their behaviour prior to attrition, a model of customers most likely to leave can be developed. This model can be used for determining the best course of action for these customers.

**Market Basket Analysis (MBA)**

Market Basket Analysis is one of the most common and useful types of data analysis for marketing. It is an algorithm that examines a long list of transactions in order to

determine which items are most frequently purchased together. The purpose of market basket analysis is to determine what products customers purchase together. It takes its name from the idea of customers throwing all their purchases into a shopping cart (a "market basket") during grocery shopping. Knowing what products people purchase as a group can be very helpful to a retailer or to any other company. A store could use this information to place products frequently sold together into the same area. Direct marketers could use the basket analysis results to determine what new products to offer their prior customers.

The strength of market basket analysis is that by using computer data mining tools, it is possible to find out, what products consumers would logically buy together. Once it is known that customers who buy one product are likely to buy another, it is possible for the company to market the products together, or to make the purchasers of one product the target prospects for another. If it's known that customers who buy a sweater from a certain mail-order catalog have a propensity toward buying a jacket from the same catalog, sales of jackets can be increased by having the telephone representatives describe and offer the jacket to anyone who calls in to order the sweater. By targeting customers who are already known to be likely buyers, the effectiveness of marketing is significantly increased. This is the purpose of market basket analysis – to improve the effectiveness of marketing and sales tactics using customer data already available to the company.

**Methodology**

The input to a Market Basket Analysis is normally a list of sales transactions, where each column represents a product and each row represents either a sale or a customer, depending on whether the goal of the analysis is to find which items sell together at the same time, or to the same person. In order to perform market basket analysis, it is necessary to first have a list of transactions and what was purchased in each one. For example, consider the transactions of convenience store customers, each of whom bought only a few items:

Transaction 1: Frozen pizza, cola, milk

Transaction 2: Milk, potato chips

Transaction 3: Cola, frozen pizza

Transaction 4: Milk, pretzels

Transaction 5: Cola, pretzels

Each customer purchased a different basket of items, and at first glance, there is no obvious relationship between any of the items purchased and any other item. The first step of a basket analysis is to cross-tabulate the data into a table, allowing to see how often

products occurred together. For these five convenience store purchases, the table looks as follows:

| | **Frozen Pizza** | **Milk** | **Cola** | **Potato Chips** | **Pretzels** |
|---|---|---|---|---|---|
| Frozen Pizza | 2 | 1 | 2 | 0 | 0 |
| Milk | 1 | 3 | 1 | 1 | 1 |
| Cola | 2 | 1 | 3 | 0 | 1 |
| Potato Chips | 0 | 1 | 0 | 1 | 0 |
| Pretzels | 0 | 1 | 1 | 0 | 2 |

The central diagonal of the table shows how often each item was purchased with itself. Though this is significant for figuring some reliability statistics, it does not show how items sell together. In the first row, out of the people who bought frozen pizza, one bought milk, two bought cola, and none bought potato chips or pretzels. This hints at the fact that frozen pizza and cola may sell well together, and should be placed side-by-side in the convenience store.

Looking over the rest of the table, there is nowhere else that an item sold together with another item that frequently. Hence, this is probably an actual cross-selling opportunity. Compare this to the second row of people who bought milk, one bought frozen pizza, one bought cola, one bought potato chips, and one bought pretzels. It seems milk sells well with everything in the store. There is probably not a good cross-selling opportunity with milk. This makes sense for a convenience store. People often come to a convenience store for the purpose of buying milk, and will buy it regardless of anything else they're looking for.

In the real world, there would usually be more than five products, and would always have more than five transactions to look at. As a result, the distinction between products that sell well together and products that do not would be much sharper. Hence, a market basket analysis of large amounts of data would be performed using data mining software, rather than being done manually.

The results of market basket analysis are particularly useful because they take the form of immediately actionable association rules. These are rules in the form of "if condition then result." For instance, from the above table, we could derive the association rules:

i. *If a customer purchases Frozen Pizza, then they will probably purchase Cola.*
ii. *If a customer purchases Cola, then they will probably purchase Frozen Pizza.*

These rules allow a store to immediately know that promotions involving frozen pizza and cola will pay off. Whether it's placing the cola display right next to the frozen pizza, advertising the two products together, or putting cola discount coupons on frozen pizza boxes, the convenience store will probably be able to increase sales of both items through directed marketing. This is an example of the best kind of market basket analysis result. Market basket analysis occasionally produces inexplicable rules. These rules are not obvious, but also don't lend themselves to immediate marketing use. An example of this type of rule is one hardware store chain's discovery that toilet rings sell very well only when a new hardware store is opened. There is no obvious reason for why do people only need toilet rings when a new store opens. In addition, while the company could offer a sale on toilet rings during new store openings, it's hard to tell whether or not this will be a successful promotion, since it's rather mysterious why they sell better at new openings at all. An inexplicable rule is not necessarily useless, but its business value is not obvious and it does not lend itself to immediate use for cross-selling.

**Merits**

Knowing which products sell together can be very useful to any business. The most obvious effect is the increase in sales that a retail store can achieve by reorganizing its products so that things that sell together are found together. This facilitates impulse buying and helps ensure that customers who would buy a product don't forget to buy it on account of not having seen it. In addition, this has the side effect of improving customer satisfaction. Once they've found one of the items they want, the customer doesn't have to look all over the store for something they want to buy. Their other purchases are already located close-by. World Wide Web or catalog merchants get the same benefit, by conveniently organizing their catalog or Web site so that items that sell together are found together.

Outside of the store environment, basket analysis provides different benefits. For a direct marketer, it is far preferable to market to existing customers, which are known to buy products and have a history with the company. The company already has these people in its database, and knows a significant amount of information about them. After running a basket analysis, a direct marketer can contact its prior customers with information about new products that have been shown to sell well with the products they've already bought. Even when making sales to new customers, telephone representatives can offer buyers of a product discounts on any other products they know sell with it, in order to increase the size of the sale.

Market basket analysis has uses even outside the realm of marketing. It can be useful for operations purposes to know which products sell together in order to stock inventory.

Running out of one item can affect sales of associated items. The reorder point of a product should be based on the inventory levels of several products, rather than just one. Basket analysis can be used in any case where several different conditions lead to a result. For example, by studying the occurrence of side effects in patients with multiple prescriptions, a hospital could find previously unknown drug interactions about which to warn patients.

There are several advantages to market basket analysis over other types of data mining. It is undirected. It is not necessary to choose a product that you want to focus on in order to run a basket analysis. Instead, all products are considered, and the data mining software reveals which products are most important to the analysis. In addition, the results of basket analysis are clear, understandable association rules that lend themselves to being immediately acted upon, and the individual calculations involved are simple.

**Limitations**

Though an useful and productive type of marketing data mining, market basket analysis does have a few limitations.

i. The first is the kind of data needed to do an effective basket analysis. It is necessary to have a large number of real transactions to get meaningful data, but the data's accuracy is compromised if all of the products do not occur with similar frequency. Thus, in the above example, if milk is sold in almost every transaction, but glue only sells once or twice per month, putting both of them into the same basket analysis will probably generate results that look impressive without being statistically significant. Acting on these results might not actually benefit profitability. With only one or two glue customers, the data mining software will be able to very confidently state what sells well with glue. But this may only be true for the one or two customers analyzed. However, this limitation can be overcome by classifying items into a taxonomy.

ii. Market basket analysis can sometimes present results that are actually due to the success of previous marketing campaigns. If the convenience store had always been putting cola discount coupons on the frozen pizza, the fact that cola and frozen pizza sell well together may come as no surprise to them. It does not give any new information, just show that previously existing marketing campaigns are already working. In fact, the previous campaign may even be overshadowing a real relationship. People would normally prefer to buy beer with pizza, but are only buying the cola because of the discount. In this case, the convenience store is missing out on what could be a better promotion.

**Applications of MBA**

i. *Store Layout Changes:* The results of market basket analysis can be used by stores to change their layout in ways that improve profitability. If the basket analysis shows that light bulbs and gardening tools sell well together in a hardware store, the obvious response is to put the light bulbs next to the gardening aisle. By making it most convenient for the customer to buy high-profit items for the store, the store owner can maximize profit. The market basket analysis shows that this tactic will probably work, since customers will already be looking to buy the item. A catalog or web page can also be reorganized so that customers who are likely to buy a certain product have their attention directed to high-profit items.

ii. *Product Bundling*: For companies that don't have a physical storefront, like mail-order companies, Internet businesses, and catalog merchants, market basket analysis can be more useful for developing promotions than for reorganizing product placement. By offering promotions such that the buyers of one item get discounts on another they have been found likely to buy, sales of both items may be increased. In addition, basket analysis can be useful for direct marketers for reducing the number of mailings or calls that need to be made. By calling only customers who have shown themselves likely to want a product, the cost of marketing can be reduced while the response rate is increased.

***Other Application Areas***

Although Market Basket Analysis conjures up pictures of shopping carts and supermarket shoppers, there are many other areas in which it can be applied. These include: Analysis of credit card purchases.

- Analysis of telephone calling patterns.
- Identification of fraudulent medical insurance claims.
- Analysis of telecom service purchases.

Note that despite the terminology, there is no requirement for all the items to be purchased at the same time. The algorithms can be adapted to look at a sequence of purchases (or events) spread out over time. A predictive market basket analysis can be used to identify sets of item purchases (or events) that generally occur in sequence: something of interest to direct marketers, criminologists and many others.

## Click Stream Analysis

The Web Servers which handle traffic on an important site generate, daily, the Log files related to access and navigation paths. These Log files contain a considerable mass of data, which is mostly superfluous or irrelevant in business terms, which are difficult to code and which are unsuitable, in their original form, to be treated analytically with a cognitive objective. On the other hand, these files hide the behaviour of the site "surfer", the interest points, the time spent, the "hesitations" and choices. Click stream analysis (sometimes called click stream analytics) is the process of collecting, analyzing, and reporting aggregate data about which pages visitors visit, in what order and which are the results of the succession of mouse clicks each visitor makes (that is, the click stream).

There are two levels of click stream analysis, traffic analysis and e-commerce analysis. Traffic analysis operates at the server level by collecting click stream data related to the path the user takes when navigating through the site. Traffic analysis tracks how many pages are served to the user, how long it takes pages to load, how often the user hits the browser's back or stop button, and how much data is transmitted before a user moves on. E-commerce-based analysis uses click stream data to determine the effectiveness of the site as a channel-to-market by quantifying the user's behavior while on the Web site. It is used to keep track of what pages the user lingers on, what the user puts in or takes out of their shopping cart, and what items the user purchases.

Because a large volume of data can be gathered through click stream analysis, many e-businesses rely on pre-programmed applications to help interpret the data and generate reports on specific areas of interest. Click stream analysis is considered to be most effective when used in conjunction with other, more traditional, market evaluation resources. Click stream analysis can provide valuable insights to help enterprises know more about the parties with which they do business and thus act more proactively toward meeting their objectives. Specifically, effective click stream analysis can reveal:

- Who is potentially interested in offerings of the company?
- What products are of interest to visitors?
- Where are the sources of referrals?
- When (which season or time of day) are people most likely to be interested in offerings?
- What are the patterns of buying? Do people tend to review new releases or references before perusing product offerings?

Click stream analysis is one of the most universal applications today. All enterprises with a Web presence have access to Web logs that capture Web-site activity. Thus, they have similar information on visitors, referrers (entities that link visitors to your site), user logins, product offerings, Web content, server hits and visits. While enterprises have this information, few take the time to manage and effectively utilize this information; and even fewer use models for integrating this information. While many find value in analyzing click stream information on its own, there is far greater power in integrating this information. For example, if the enterprise integrates customer Web interactions so they become part of each customer's profile, there is more complete and accurate customer information.

The click stream is not just another data source that is extracted, cleaned, and dumped into the data warehouse. The click stream is really an evolving collection of data sources. There are many Web server log file formats for capturing click stream data. These log file formats have optional data components that, if used, can be very helpful in identifying visitors, sessions, and the true meaning of behavior. Because of the distributed nature of the Web, click stream data is often collected simultaneously by different physical servers, even when the visitor thinks that he or she is interacting with a single Web site.

We get click stream data from different parties. Besides log files, we may get click stream data from referring partners or from Internet service providers (ISPs). We also may get click stream data from Web-watcher services. Another important form of click stream data is the search specification given to a search engine that then directs the visitor to the Web site. The other big frustration with basic click stream data is the anonymity of the session. Unless the visitor agrees to reveal his or her identity in some way, we often cannot be sure who he or she is or if we have ever seen the visitor before.

**Challenges of Tracking with Click Stream Data**

Click stream data contains many ambiguities. Identifying visitor origins, visit sessions, and visitor identities is something of an interpretive art.

**i. *Identifying the Visitor Origin***

If we are very lucky, our site is the default home page for the visitor's browser. Every time the visitor opens his or her browser, our home page is the first thing he or she sees. This is pretty unlikely unless we are the Webmaster for a portal site or an intranet home page, but many sites have buttons that, when clicked, prompt the visitor to set his or her URL as the browser's home page. For many Web sites, the most common source of visitors is from a browser bookmark. In order for this to happen, the visitor will have to have previously

bookmarked the site, and this will occur only after the site's interest and trust levels cross the visitor's bookmark threshold.

**ii.** ***Identifying the Session***

Most web-centric data warehouse applications will require every visitor session (visit) to have its own unique identity tag, similar to a grocery store point-of-sale ticket ID. We call this the session ID. The rows of every individual visitor action in a session, whether derived from the click stream or from an application interaction, must contain this tag. The operational application generates this session ID and not the Web server. The most powerful method of session tracking from Web server log records is to set a persistent cookie in the visitor's browser.

**iii.** ***Identifying the Visitor***

Identifying a specific visitor who logs onto a site presents some of the most challenging problems facing a site designer, Webmaster, or manager of data warehousing for the following reasons:

- *Web visitors wish to be anonymous*. They may have no reason to trust us, the Internet, or their PC with personal identification or credit card information.
- *If we request a visitor's identity, he or she is likely to lie about it*. It is believed that when asked their name on an Internet form, men will enter a pseudonym 50 percent of the time and women will use a pseudonym 80 percent of the time.
- *We can't be sure which family member is visiting our site*. If we obtain an identity by association, for instance, from a persistent cookie left during a previous visit, the identification is only for the computer, not for the specific visitor. Any family member or company employee may have been using that particular computer at that moment in time.
- *We can't assume that an individual is always at the same computer*. Server-provided cookies identify a computer, not an individual. If someone accesses the same Web site from an office computer, a home PC, and a laptop computer, a different Web site cookie is probably put into each machine.

**iv.** ***Proxy Servers***

When a browser makes an HTTP request, that request is not always served from the server specified in a URL. Many ISPs make use of proxy servers to reduce Internet

traffic. Proxy servers are used to cache frequently requested content at a location between its intended source and an end visitor. Such proxies are employed commonly by large ISPs. Proxy servers can introduce three problems. First, a proxy may deliver outdated content. Second, proxies may satisfy a content request without properly notifying the originating server that the request has been served by the proxy. When a proxy handles a request, convention dictates that it should forward a message that indicates that a proxy response has been made to the intended server, but this is not reliable. As a consequence, our Webhouse may miss key events that are otherwise required to make sense of the events that comprise a browser/Web site session. Third, if the visitor has come though a proxy, the Web site will not know who made the page request unless a cookie is present. It is important, therefore, to make liberal use of expiration dates and no-proxy tags in the HTML content of your Web site. This will help ensure that we are getting as much data as possible for our warehouse.

**Specific Dimensions for the Click Stream**

Before we design specific click stream data marts, let's collect together as many dimensions as we can think of that may have relevance in a click stream environment. Any single dimensional schema will not use all the dimensions at once, but it is nice to have a portfolio of dimensions waiting to be used. The complete list of dimensions for a Web retailer could include:

Date
Time of day
Part
Vendor
Transaction
Status
Carrier
Facilities location
Product
Customer
Media
Casual
Service policy
Internal organization
Employee
Page

Event

Session

Referral

All the dimensions in the list, except for the last four, are familiar data ware house dimensions. The last four, however, are the unique dimensions of the click stream and warrant some careful attention.

*Page Dimension*: The page dimension describes the page context for a Web page event. The grain of this dimension is the individual page.

*Event Dimension*: The event dimension describes what happened on a particular page at a particular point in time. The main interesting events are open page, refresh page, click link, and enter data. As dynamic pages based on XML become more common, the event dimension will get much more interesting because the semantics of the page will be much more obvious to the Web server.

*Session Dimension*: The session dimension provides one or more levels of diagnosis for the visitor's session as a whole. This dimension is extremely important because it provides a way to group sessions for insightful analysis.

For example, this dimension would be used to ask:

- How many customers consulted our product information before ordering?
- How many customers looked at our product information and never ordered?
- How many customers began the ordering process but did not finish? And where did they stop?

*Referral Dimension*: The referral dimension describes how the customer arrived at the current page. Web server logs usually provide this information. The URL of the previous page is identified, and in some cases, additional information is present. If the referrer was a search engine, then usually the search string is specified. It is not worthwhile to put the raw search specification into our database because the search specifications are so complicated that an analyst couldn't usefully query them. We assume that some kind of simplified and cleaned specification is placed in the specification field.

**Integrating the Click stream Data Mart into the Enterprise Data Warehouse**

Consider the overall design of a series of data marts implemented for a Web-based computer retailer. The data marts correspond to all the business processes needed by this retailer to run its business. The matrix method lists the data marts down the left side of the matrix and the dimensions used by the data marts across the top of the matrix. The cells of the matrix contain Xs if the particular data mart uses a particular dimension. Note that the matrix describes data marts, not individual fact tables. Typically, a data mart consists of a suite of closely associated fact tables all describing a particular business process. A good way to start the design of a series of data marts is to define first-level data marts that are, as much as possible, related to single sources of data. Once several of these first-level data marts have been implemented, then second-level consolidated data marts, such as profitability, can be built that require data from the first-level marts to be combined. Thus the entries in a given row of the matrix represent the existence of a dimension somewhere in the closely associated suite of tables defining a particular data mart.

Following figure shows the completed bus matrix for a Web retailer. The matrix has a number of striking characteristics. There are a lot of Xs. An X in a given matrix column is, in effect, an invitation to the meeting for conforming that dimension. The average data mart uses six to eight dimensions. Some of the dimensions, such as date/time, transaction, status/type, organization, and employee, appear in almost every data mart. The product and customer dimensions dominate the whole middle part of the matrix, where they are attached to the data marts that describe customer-oriented activities. At the top of the matrix, suppliers and parts dominate the processes of acquiring the parts that make up products and building them to order for the customer. At the bottom of the matrix we have classic infrastructure and cost-driver data marts that are not tied directly to customer behavior.

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Supplier Purchase Orders | X | X | X | X | X | | X | | | | | | X | X | |
| Supplier Deliveries | X | X | X | X | X | X | X | | | | | | X | | |
| Part Inventories | X | X | X | X | X | | X | | | | | | X | | |
| Product Assembly Bill of Materials | X | X | X | X | | | X | X | | | | | X | X | |
| Product Assembly to Order | X | X | X | X | X | | X | X | X | | | | X | X | |
| Product Promotions | X | | | | X | | | X | X | X | X | | X | | |
| Advertising | X | | | | X | | | X | | X | X | | X | | |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Customer Inquiries | X | | | X | X | | X | X | X | | X | X | X | X | |
| Customer Communications | X | | | X | X | | | X | X | | | | X | X | |
| Web visitor Click stream | X | | | X | | | | X | X | X | X | X | | | X |
| Product Sales Transactions | X | | | X | X | | | X | X | | X | | X | X | |
| Product Shipments | X | | | X | X | X | X | X | X | | | X | X | X | |
| Customer Billing | X | | | X | X | | | X | X | | | X | X | X | |
| Customer Payments | X | | | X | X | | | | X | | | | X | X | |
| Product Returns | X | | | X | X | | X | X | X | | | X | X | X | |
| Product Support | X | | | X | X | | X | X | X | | | X | X | X | |
| Service Policy Orders | X | | | X | X | | | X | X | | X | X | X | X | |
| Service Policy Responses | X | | | X | X | | X | X | X | | | X | X | X | |
| Employee Labor | X | | | X | X | | X | | | | | | X | X | |
| Human Resources | X | | | X | X | | X | | | | | | X | X | |
| Facilities Operations | X | | | X | X | | X | | | | | | X | X | |
| Web Site Operations | X | | | X | X | | X | | | | | | X | X | |

*Note:* 1. Date & Time, 2. Part, 3. Vendor, 4. Transaction, 5. Status & Type, 6. Carrier, 7.Facilities location, 8. Product, 9. Customer, 10. Media, 11. Casual, 12. Service policy, 13. Internal organization, 14. Employee, 15. Click stream (4 Dimensions).

Web visitor click stream data mart shares the date/time, transaction, product, customer, media, causal, and service policy dimensions with several other data marts nearby. In this sense it should be obvious that the Web visitor click-stream data mart is well integrated into the fabric of the overall data warehouse for this retailer. Applications tying the Web visitor click stream will be easy to integrate across all these data marts sharing these conformed dimensions because the separate queries to each data mart will be able to be combined across individual rows of the report. The Web visitor click stream data mart contains the four special click stream dimensions not found in the other data marts. These dimensions do not pose problem for applications. The ability of the Web visitor click stream data mart to bridge between the Web world and the brick-and-mortar world is exactly the advantage that we are looking for. We can constrain and group on attributes from the four Web dimensions and explore the effect on the other business processes. For example, we can see what kinds of Web experience produce customers who purchase certain kinds of service policies and then invoke certain levels of service demands.

## Personalisation

A role defines a group of activities-and the data and functions corresponding to those activities-carried out by a person to achieve a desired business aim. A role determines how a business process will be carried out and how this process will lead to the attainment of a particular business aim. The roles determine interface layouts, services, information, and applications required for each user. Roles are flexible and can be changed easily. The role concept is extended further by personalisation. Personalisation can determine the page layout, the look and feel of the portal, and even which information users receive and how they receive it. The role concept ensures that the users get the information most pertinent to them, while personalisation means they receive the information in the format most suitable for them. There are three ways to define personalization:

*Personalisation at the administrator level*: Administrators can define personalisation for each user by setting the design of the portal structure for different users. Administrator can define roles, work sets, portal layout, and access methods for different users.

*Personalisation at the user level*: Users can personalise their content within the control limits set by the administrator.

*Automatic personalisation through predictive technology*: Predictive technology allows for automatic personalisation based on user type, browser type, device type, user location (whether inside or outside the firewall), connection bandwidth, and the type of event being handled.

## Collaborative Filtering

Collaborative filtering (CF) is the method of making automatic predictions (filtering) about the interests of a user by collecting taste information from many users (collaborating). The underlying assumption of CF approach is that, those who agreed in the past tend will agree again in the future also. For example, a collaborative filtering or recommendation system for music tastes could make predictions about which music a user should like given a partial list of that user's tastes (likes or dislikes).

### History

Collaborative filtering stems from the earlier system of information filtering, where relevant information is brought to the attention of the user by observing patterns in

previous behaviour and building a user profile. This system was essentially unable to help with exploration of the web and suffered from the cold-start problem that new users had to build up tendencies before the filtering was effective. The first system to use collaborative filtering was the Information Tapestry project at Xerox PARC. This system allowed users to find documents based on previous comments by other users. There were many problems with this system as it only worked for small groups of people and had to be accessed through word specific queries which largely defeated the purpose of collaborative filtering. USENET Net news furthered collaborative filtering such that it was available for a mass scale of users. The system allowed users to rate material based on popularity, which then allowed other users to search for articles based on these ratings.

**Methodology**

Collaborative filtering systems usually take two steps:

- Look for users who share the same rating patterns with the active user.
- Use the ratings from those like-minded users to calculate a prediction for the active user.

Another form of collaborative filtering can be based on implicit observations of normal user behavior. In these systems one will observe what a user has done together with what all users have done and use that data to predict the user's behavior in the future or to predict how a user might like to behave if only they were given a chance. These predictions then have to be filtered through business logic to determine how these predictions might affect what a business system ought to do. It is, for instance, not useful to offer to sell somebody some music if they already have demonstrated that they own that music.

In the age of information explosion such techniques can prove very useful as the number of items in only one category (such as music, movies, books, news, web pages) have become so large that a single person cannot possibly view them all in order to select relevant ones. Relying on a scoring or rating system which is averaged across all users ignores specific demands of a user, and is particularly poor in tasks where there is large variation in interest, for example in the recommendation of music.

Obviously, other methods to combat information explosion exist such as web search, data clustering, and more. More recently, collaborative filtering has been used in e-learning to promote and benefit from students' collaboration.

**Types of Collaborative Filtering**

**i. *Active Filtering***

Active filtering is a method that in recent years has become increasingly popular. This popularity increase is due to the fact that there is an ever growing base of information available to users of the World Wide Web. With an exponentially growing amount of information being added to the internet, finding efficient and valuable information is becoming more difficult.

In recent years a basic search for information using the World Wide Web turns out thousands of results and a high percentage of this information is not effective and — more often than not — irrelevant as well. There are a large number of databases and search engines in the market today to use for searches but a majority of the population is not familiar with all the options available and this is where active filtering comes into effect.

Active filtering differs from other methods of collaborative filtering due to the fact that it uses a peer-to-peer approach. This means that it is a system where peers, coworkers, and people with similar interests rate products, reports, and other material objects, also sharing this information over the web for other people to see. It is a system based on the fact that people want to share consumer information with the other peers. The users of active filtering use lists of commonly used links to send the information over the web where others can view it and use the ratings of the products to make their own decisions.

Active collaborative filtering can be useful to many people in many situations. This type of filtering can be extremely important and effective in a situation where a non-guided web search produces thousands of results that are not useful or effective for the person locating the information. In cases where people are not comfortable or knowledgeable about the array of databases that are available to them, active filtering is very useful and effective.

*Advantages*

There are many advantages to using or viewing an Active collaborative filtering. One of these advantages is an actual rating given to something of interest by a person who has viewed the topic or product of interest. This produces a reasonable explanation and rank from a reliable source, being the person who has come into contact with the product. Another advantage of Active filtering is the fact that the people want to and ultimately do provide information regarding the matter at hand.

*Disadvantages*

There are a few disadvantages of active filtering. One is that the opinion may be biased to the matter. Another disadvantage is that it is a very complex system and that many people may not support or add necessary information to the topic.

**ii. *Passive Filtering***

A method of collaborative filtering that has great potential in the future is passive filtering, which collects information implicitly. A web browser is used to record a user's preferences by following and measuring their actions. These implicit filters are then used to determine what else the user will like and recommend potential items of interest. Implicit filtering relies on the actions of users to determine a value rating for specific content, such as:

- Purchasing an item
- Repeatedly using, saving, printing an item
- Refer or link to a site and
- Number of times queried

An important feature of passive collaborative filtering is using the time aspect to determine whether a user is scanning a document or fully reading the material. The greatest strength of the system is that it takes away certain variables from the analysis that would normally be present in active filtering.

**iii. *Item Based Filtering***

Item based filtering is another method of collaborative filtering in which items are rated and used as parameters instead of users. This type of filtering uses the ratings to group various items together in groups so that consumers can compare them. Manufacturers can locate where their product stands in the market in a consumer based rating scale. Through this method of filtering, users or user groups use and test the product and give it a rating that is relevant to the product and the product class in which it falls. These users test many products and with the results, the products are classified based on the information which the rating holds. The products are used and tested by the same user or group in order to get an accurate rating and eliminate some of the error that is possible in the tests that take place under this type of filtering.

**iv. *Explicit Versus Implicit Filtering***

Within active and passive filtering there are explicit and implicit methods for determining user preferences. Explicit collection of user preferences relies on the evaluator user determining a value for the content based on some form of rating scale.

This creates a cognitive aspect to collaborative filtering. Implicit collection does not involve the direct input of opinion from the evaluator user, but rather they input their opinion through their actions while on the website. This reduces the demand on the user and it reduces variables amongst users

## Summary

*Analytical CRM* is a consistent suite of analytical applications that help the firm to measure, predict, and optimize customer relationships. To address these business issues, analytical CRM includes a sound analytical infrastructure that allows to gather all the relevant information about customers and organise it consistently.

The analytical capabilities allow a firm to identify new trends in the markets and then to channel the investments in these markets. They also help you gain further insights into customer needs and preferences.

*Five Ss of managing customer data* are: Strategy, Standards, Systems, Smart people & Statistics.

Customer data is critical to every business. Accurate customer information enables the firm's sales, service and marketing teams to target specific customers through an in-depth understanding of customers.

Effective data management provides a number of business benefits: increased sales through better knowledge of customer needs, improved efficiency of business processes by eliminating duplication and wasted data collection & increased compliance and data security through standardisation and centralisation of data.

A *Customer database* is an organised collection of comprehensive information about individual customers or prospects that is current, accessible, and actionable for such marketing purposes as lead generation, lead qualification, sale of a product or service, or maintenance of customer relationships.

*Consumer privacy laws and regulations* seek to protect any individual from loss of privacy due to failures or limitations of corporate customer privacy measures. Some organisations have been involved in using their customer databases simply as assets to be exploited by selling the data to other firms, including marketers. Information systems ethics require a central understanding of how information technologies affect human choice, human action, and human potential.

A *Data warehouse* is an application with a computer database that collects, integrates and stores an organization's data with the aim of producing accurate and timely management of information and support for analysis techniques, such as data mining.

It is a repository of an organization's data, where the informational assets of the organization are stored and managed, to support various activities such as reporting, analysis, decision-making, as well as other activities such as support for optimization of organizational operational processes.

*Data mining* is the non-trivial process of identifying valid, novel, potentially useful, and ultimately understandable patterns in data. Data mining, the extraction of the hidden predictive information from large databases, is a powerful new technology with great potential to analyze important information in the data warehouse. Types of Data Mining are: Sequence Mining, Web Mining, Text Mining and Spatial Data Mining.

*Market Basket Analysis* is one of the most common and useful types of data analysis for marketing. It is an algorithm that examines a long list of transactions in order to determine which items are most frequently purchased together.

Knowing what products people purchase as a group can be very helpful to a retailer or to any other company. A store could use this information to place products frequently sold together into the same area.

*Click stream analysis* is the process of collecting, analyzing, and reporting aggregate data about which pages visitors visit, in what order and which are the results of the succession of mouse clicks each visitor makes.

*Collaborative filtering* is the method of making automatic predictions (filtering) about the interests of a user by collecting taste information from many users (collaborating). The underlying assumption of CF approach is that, those who agreed in the past tend will agree again in the future also.

## Self Assessment Questions

1. Define Analytical CRM? What are it's benefits?
2. What are the five Ss of Managing Customer data?
3. What are the benefits of customer data management?
4. What is Customer database? What are it's uses?
5. Define Data Warehouse. What are its components?
6. What is data mining?
7. What are the types of data mining?
8. What are the difficulties in data mining?
9. Define Market Basket Analysis. What are it's applications?
10. What is Click stream analysis?
11. What are the levels of click stream analysis?
12. What are the challenges of tracking with click stream data?
13. What are the types of personalization?
14. Define collaborative filtering.
15. What are the types of collaborative filtering?

**Answer Key**

1. Analytical CRM is a consistent suite of analytical applications that help the firm to measure, predict, and optimize customer relationships. To address these business issues, analytical CRM includes a sound analytical infrastructure that allows to gather all the relevant information about customers and organise it consistently. It's benefits are: Acquire new profitable customers, Improve the firm's relationships with existing customers by addressing their individual needs, Optimize cross-selling and up-selling opportunities, Improve customer loyalty and reduce customers' propensity to churn.
2. Strategy: Defining what information is really important and what customer behavior really counts.
   - Standards: Ensuring that "customer" and other related terms mean the same thing throughout the organization.
   - Systems: Allotting sufficient processing power to process all the data.
   - Statistics: Turning data into knowledge through statistical processing.
   - Smart people: Finding smart people to structure and interpret the analysis of customer data.

3. Effective data management provides a number of business benefits:
    - Increased sales through better knowledge of customer needs
    - Improved efficiency of business processes by eliminating duplication and wasted data collection
    - Increased compliance and data security through standardisation and centralisation of data.

Other benefits are:

- Generating customer insight
- Segmenting customers
- Building innovation
- Building effective communications &
- Creating loyalty

4. A customer database is an organised collection of comprehensive information about individual customers or prospects that is current, accessible, and actionable for such marketing purposes as lead generation, lead qualification, sale of a product or service, or maintenance of customer relationships.

Data in the customer database is used for the following purposes:

- Customer acquisition (identifying prospects).
- Customer retention (deepening customer loyalty).
- Increasing share of wallet by identifying which customers should receive a particular offer.
- Reactivating customers by making attractive timely offers.
- Avoiding mistakes while interacting with customers.

5. A Data warehouse is an application with a computer database that collects, integrates and stores an organization's data with the aim of producing accurate and timely management of information and support for analysis techniques, such as data mining. It is a repository of an organization's data, where the informational assets of the organization are stored and managed, to support various activities such as reporting, analysis, decision-making, as well as other activities such as support for optimization of organizational operational processes. A Data Warehouse Architecture (DWA) is a way of representing the overall structure of data, communication, processing

and presentation that exists for end-user computing within the enterprise. The architecture is made up of a number of interconnected parts:

- External Database Layer
- Information Access Layer
- Data Access Layer
- Metadata Layer
- Process Management Layer
- Application Messaging Layer
- Data Warehouse Layer
- Data Staging Layer

6. Data mining is the non-trivial process of identifying valid, novel, potentially useful, and ultimately understandable patterns in data. Data mining, the extraction of the hidden predictive information from large databases, is a powerful new technology with great potential to analyze important information in the data warehouse.

7. Types of Data Mining are:

   - Sequence Mining
   - Web Mining
   - Text Mining and
   - Spatial Data Mining

8. Difficulties in data mining
   - Limited information
   - Noise or missing data
   - User interaction and prior knowledge
   - Uncertainty and
   - Size, updates and irrelevant fields

9. Market Basket Analysis is one of the most common and useful types of data analysis for marketing. It is an algorithm that examines a long list of transactions in order to determine which items are most frequently purchased together. The strength of market basket analysis is that by using computer data mining tools, it is possible to find out, what products consumers would logically buy together.

Market Basket Analysis finds application in following areas:

- Store Layout Changes
- Product Bundling
- Analysis of credit card purchases.
- Analysis of telephone calling patterns.
- Identification of fraudulent medical insurance claims and
- Analysis of telecom service purchases.

10. Click stream analysis (sometimes called click stream analytics) is the process of collecting, analyzing, and reporting aggregate data about which pages visitors visit, in what order and which are the results of the succession of mouse clicks each visitor makes.

11. There are two levels of click stream analysis, traffic analysis and e-commerce analysis. Traffic analysis operates at the server level by collecting click stream data related to the path the user takes when navigating through the site. E-commerce-based analysis uses click stream data to determine the effectiveness of the site as a channel-to-market by quantifying the user's behavior while on the Web site.

12. Challenges of tracking with click stream data are:

    i. Identifying the Visitor Origin
    ii. Identifying the Session
    iii. Identifying the Visitor
    iv. Proxy Servers

13. There are three ways to define personalization:

    *Personalisation at the administrator level*: Administrators can define personalisation for each user by setting the design of the portal structure for different users. Administrator can define roles, work sets, portal layout, and access methods for different users.

    *Personalisation at the user level*: Users can personalise their content within the control limits set by the administrator.

    *Automatic personalisation through predictive technology*: Predictive technology allows for automatic personalisation based on user type, browser type, device type,

user location (whether inside or outside the firewall), connection bandwidth, and the type of event being handled.

14. Collaborative filtering (CF) is the method of making automatic predictions (filtering) about the interests of a user by collecting taste information from many users (collaborating). The underlying assumption of CF approach is that, those who agreed in the past tend will agree again in the future also.

15. Types of collaborative filtering are:

    i. Active filtering
    ii. Passive filtering
    iii. Item based filtering and
    iv. Explicit versus implicit filtering

****

## UNIT - V

# CRM Implementation

### Learning Objectives

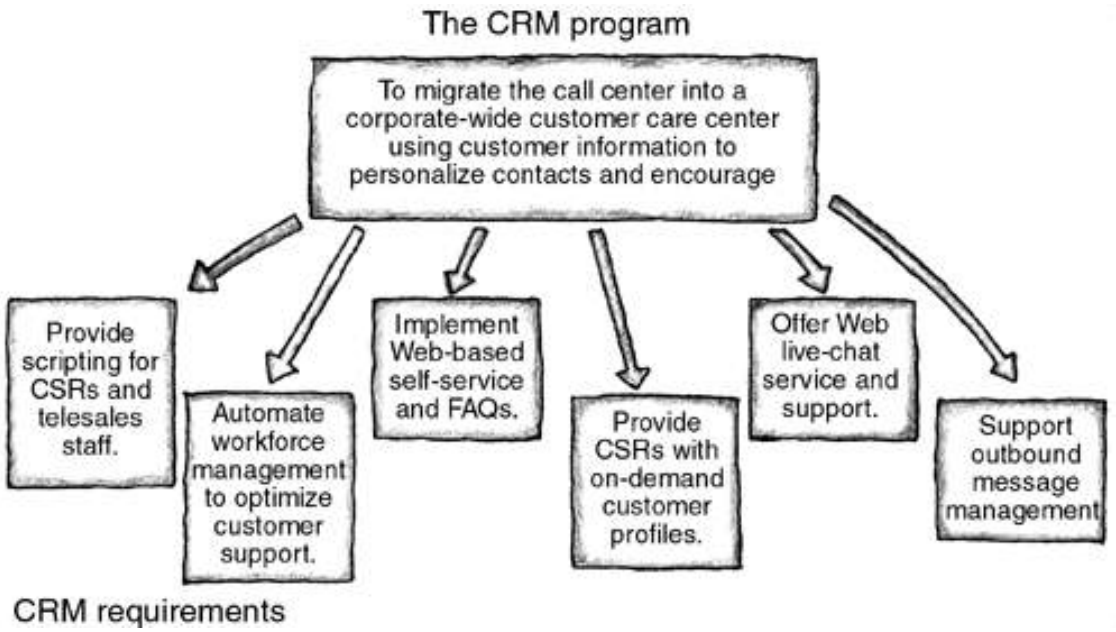
*After you go through this unit, you should be able to*

- Define success factors of CRM,
- Understand CRM tools
- Manage customer strategies
- Understand CRM development team

### CRM Implementation

CRM is usually a corporate program made up of many projects. For CRM point solutions that deliver finite functionality, one well-run project might be enough. Each CRM project should focus on implementing at least one defined requirement. Whatever the complexity, CRM development should be evolutionary and multi-tiered. Figure describes a departmental CRM program and its associated requirements.

**CRM Program and Requirements**



Understanding the complexity of your CRM program is critical to planning your CRM project. For instance, if CRM is an enterprise initiative, there could be dozens or even hundreds of discrete requirements across the corporation, rendering project-planning orders vastly more complex.

If, as in Figure, the program is departmental, each requirement will eventually be deconstructed into a number of different functions, revealing its inherent complexity and the development resources it will require.

## Scoping and Prioritizing CRM Projects

Biting off all the requirements listed in Figure would not only be dangerous; it could sabotage a company's entire CRM initiative. After you list your CRM requirements and have a good idea of their required functionality, the CRM business sponsor or steering committee can actually cast them into discrete projects.

Surprisingly, many CRM sponsors and project leaders forget this step and move straight toward trying to deliver the sum of all listed requirements in one fell swoop. Without scoping and prioritizing CRM projects, project managers lack overarching direction for prioritizing development activities, and application developers are free to arbitrarily add and change functionality during development. The results are usually disastrous. A scoping activity ensures that CRM projects are defined based on discrete requirements and are circumscribed around delivery expectations.

Requirements can evolve into individual projects based on demand urgency or perceived value or based on implementation complexity.

In the case of demand urgency, the customer support department might be overburdened. Thus the requirements pictured in Figure might be prioritized in the following way:

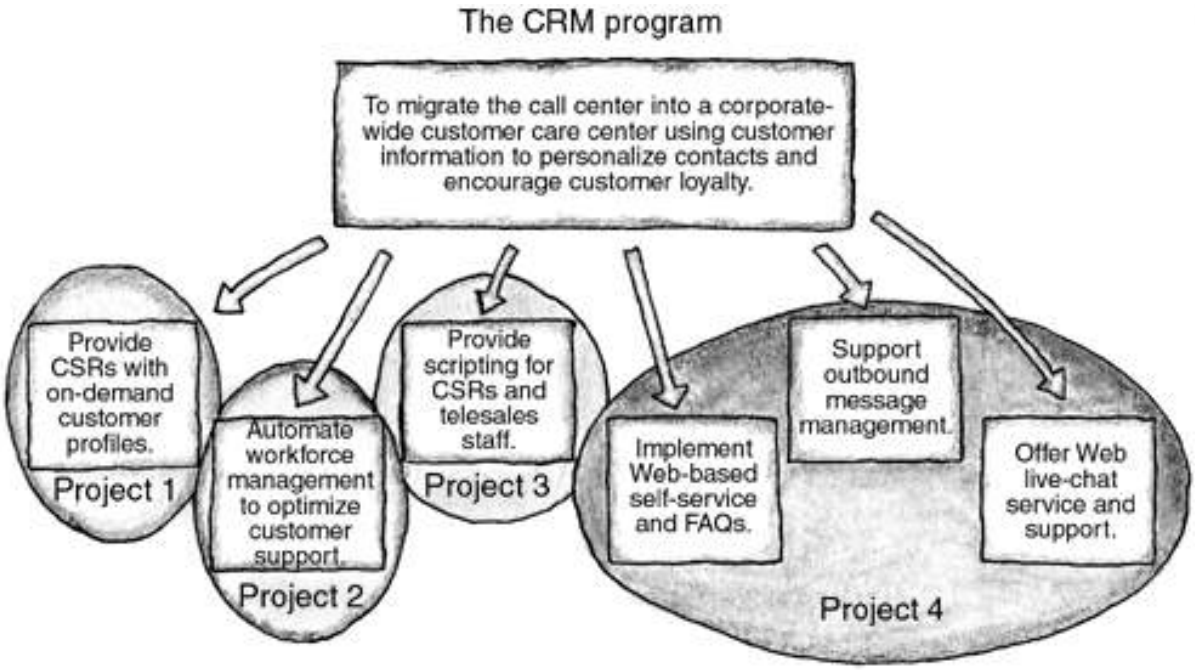
1. Implement Web-based self-service and FAQs.
2. Offer Web live-chat service and support.
3. Support outbound message management.
4. Automate workforce management to optimize customer support.
5. Provide CSRs with on-demand customer profiles using existing data.
6. Provide scripting for CSRs and telesales staff.

If, on the other hand, implementation complexity is an issue, and the company needs a CRM "quick win," the following prioritization might make more sense:

1. Provide CSRs with on-demand customer profiles using existing data.
2. Automate workforce management to optimize customer support.
3. Provide scripting for CSRs and telesales staff.
4. Implement Web-based self-service and FAQs.
5. Support outbound message management.
6. Offer Web live-chat service and support.

Of course, politics figures into the decision on how to prioritize CRM projects. After all, if your customer-support vice president and call-center director are fighting over whether external data is necessary for really understanding customers, you might want to steer clear of providing CSRs with customer profiles until the issue is resolved—no matter how happy it would make the CSRs. Although formally rating the political landmines of every project could be overkill—not to mention highly subjective—knowing the political baggage that accompanies each potential project can serve as a tiebreaker.

When prioritized, a CRM requirement—or specific sets of related requirements—can be defined as an individual CRM project as shown in Figure




**Delineating CRM Projects**

Notice that in Figure the Web-related development has been grouped into one project. This decision was based on practical reasons—specifically, the ongoing challenge of finding available Web-development staff within the company—as well as the estimated development complexity. Projects 1, 2, and 3 are all minimally related and can each leverage existing technologies and skill sets within the company.

Who should scope a CRM project? Ideally, business representatives and development staff should discuss each requirement and estimate its value-to-complexity ratio—the higher the value and the lower the complexity, the better—with the goal of prioritizing delivery on an ongoing basis.

Most CRM scoping activities focus on delivering initial applications in order to hand over a "quick win" to the business. Applications with a high value-to-complexity ratio should rise to the top, and others can be prioritized accordingly.

The complexity metrics will vary according to the availability of your company's existing technology and staff resources. For instance, companies that already have robust customer databases won't rate customer profiling to be as complex as those who must start from scratch.

To correctly scope a project, simply rating its functional complexity is not enough. Ideally, you should understand the following:

- Specific technologies that will be involved in implementation
- Necessary skills to implement the project
- Number of staff members projected to work on the project
- Number of consultants needed to supplement in-house skills
- Realistic time frame necessary to deliver the first release
- Organizational boundaries and potential political issues

Scoping a CRM project prior to launching development mitigates the risks. For one thing, it's much easier to develop an accurate project plan that reflects realistic resource requirements, tasks, and time frames. Justifying headcount requests to management based on the project's true scope is also easier. Finally, hiring becomes more straightforward, because the true skills necessary to develop the CRM system are clearer than they would have been if you had simply gone straight to implementation. In fact, failure to thoroughly scope IT projects is one of the principal reasons behind many of their failures.

## A CRM Implementation Roadmap

Even with the most straightforward CRM products, there's no such thing as cookie-cutter CRM. Development approaches can differ according to a company's approved development lifecycle, staff expertise, and IT standards.

Despite the possible differences in CRM implementation techniques, the following proven CRM development success metrics should define every CRM development project:

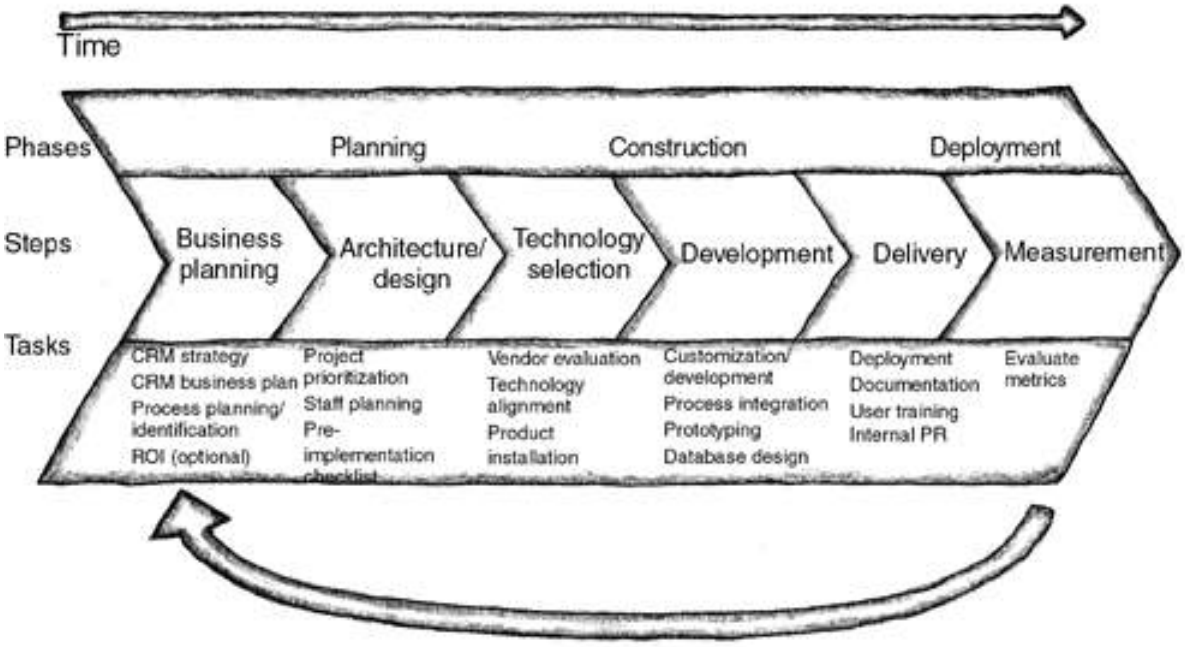
- *Incremental development.* Incremental or "building block" development means the company receives a defined amount of new CRM functionality on a regular basis. This is due not only to the inherent complexity of most CRM projects but also to the cultural issues surrounding its deployment (few organizations can absorb multiple major functional and process changes at once). Incremental CRM "releases" create a perception among business stakeholders and management of ongoing value. The alternative to incremental development is the "big-bang" approach of delivering a major new system and accompanying business changes all at once. The big-bang scenario almost always includes unpleasant surprises.

- *Requirements-driven development.* This means developers who are creating or customizing CRM functionality have an understanding of the overarching business requirements driving CRM, as well as the necessary functionality. Developing against requirements eliminates the notorious phenomenon of "scope creep" and ensures that users get what they're expecting.

- *Continuous user involvement.* Many CRM teams fall into the trap of involving business users at the beginning and end of CRM but rarely in the middle—during its development—where it's often critical. This means end users evaluating proofs of concept, validating data and business rules, weighing in on the contents of CRM training, and reviewing new screens or functionality prior to CRM deployment. It also means establishing regular communications between development, the business stakeholders, and the CRM business sponsor.

- *Implementation process rigor.* Even with other CRM best practices in place, such as comprehensive requirements and an enthusiastic business sponsor, CRM development must be planned and executed around a structured development process. This is to ensure that the PMO and project managers can anticipate and accurately scope various development activities. A sound development roadmap also ensures that programmers focus less on the implementation process and more on the actual delivery of valuable CRM functionality.

Figure illustrates a CRM development roadmap that applies some of this structure.




**A CRM Implementation Roadmap**

Within the three main project phases—planning, construction, and deployment—the CRM roadmap features steps that contain a number of fixed and variable tasks:

### Business Planning

CRM business planning involves many of the steps. The most critical activity at the planning stage is defining CRM's overall objectives—be they at the department or enterprise level—and delineating the requirements of each one. At the enterprise level, CRM business planning can involve the documentation of a corporate CRM strategy and the definition of the corresponding programs within it. At the department level, it can simply mean establishing the boundaries of a new CRM application.

At minimum, the business-planning phase should include the documentation of high-level CRM business goals in the form of a strategy document or business plan. This document will be leveraged at CRM's inception to gain executive consensus and sponsorship. It will be useful as a focal point for requirements-driven development and—after the CRM project has deployed an application—as a way to measure its results.

Part of business planning should identify the critical customer-focused business processes CRM will impact. Where they are straightforward, you might decide to redesign

these processes as part of the planning activity. More often than not, companies planning their CRM projects realize that rather than simply automating existing business processes, they are defining those processes for the first time.

Depending on funding and sponsorship requirements, CRM business planning might optionally include ROI estimation or cost-savings projections.

**Architecture and Design**

The need to plan CRM architecture and to design an implementation strategy is what makes business sponsors and project leaders shudder and go straight to technology selection hoping for a miracle. The architecture and design step is painful, but it's worth it.

This step identifies the business processes the CRM product will support. It involves listing the specific functions that will need to be implemented—and how—ultimately giving you a good idea of CRM's impact on the organization and various technologies.

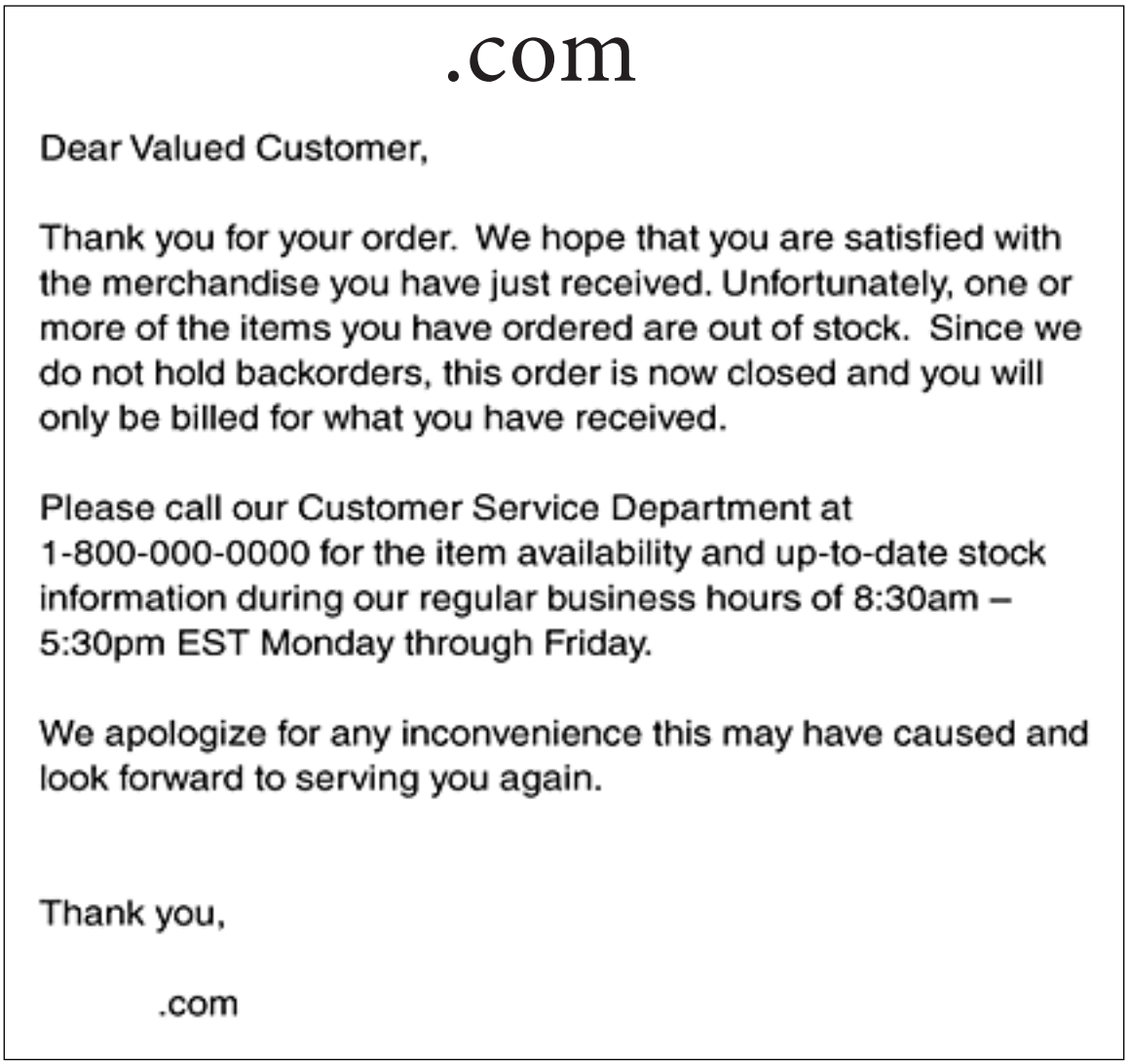
Inventorying the range of corporate areas CRM will affect, as well as those that will affect CRM, is a critical activity. At the end of this step you should be able to answer the following two questions:

1. What technologies and processes do we have in place that will be impacted by CRM?
2. What do we need that we don't have today in order for CRM to work?

Relative to existing technologies, try to project CRM's impact on your current systems. Your IT organization should be willing to do this—and in return it won't be blindsided by CRM after it's been developed. Impact analysis can mean listing current systems—for instance, you might need to know a bit about your company's existing call center operational system before you can understand how candidate CRM technologies will link to it. Indeed, a range of existing technologies, from ERP systems to current marketing automation technologies to handheld computers, are likely to be touched by CRM.

After the system impact of CRM is well understood, an IT architect can draft a CRM architecture illustrating the appropriate linkages. Integrating corporate systems that exchange data—even if the data isn't formatted consistently—is known as enterprise application integration (EAI). It's a truism of business that different corporate systems store and use data in different formats. The term EAI denotes the integration of often disparate corporate systems that routinely exchange or share data. This means moving data between systems, as well as transforming that data so these systems can understand it.

The letter depicted in Figure is from an online retailer that is doing neither CRM nor EAI.



.com

Dear Valued Customer,

Thank you for your order. We hope that you are satisfied with the merchandise you have just received. Unfortunately, one or more of the items you have ordered are out of stock. Since we do not hold backorders, this order is now closed and you will only be billed for what you have received.

Please call our Customer Service Department at 1-800-000-0000 for the item availability and up-to-date stock information during our regular business hours of 8:30am – 5:30pm EST Monday through Friday.

We apologize for any inconvenience this may have caused and look forward to serving you again.

Thank you,

.com

**Neither CRM nor EAI**

This letter was included in a product delivery and represents a veritable smorgasbord of CRM don'ts. The first one is that the company's online ordering system is obviously not linked to its inventory system. (The fact that the company happens to be a high-profile dot-com with an edgy Web site and slick e-mail marketing campaigns is not evident in its post-sales customer support.) The customer should have been notified of the out-of-stock items at the time of the order, not upon delivery of the remaining items.

The company might believe that, had the customer known that not all of the items she ordered would be in stock, she would not have placed the order at all. Perhaps some of the out-of-stock items the customer wanted were in some way related to the items that showed up on her doorstep. Or perhaps the company intends to link its various operational

systems together but hasn't had the time. Either way, this company has successfully achieved these detrimental outcomes:

- Sending its "valued customer" a form letter and thus not differentiating her
- Putting the onus on the customer to follow up on the desired items
- Failing to provide similar levels of sales and service. (Notice the company's customer service hours. If the customer lives on the west coast, she only has around 5 available hours to contact the company by phone—but she can still shop on the Web at any hour!)
- Losing a "valued" customer

EAI is important to CRM because, no matter how successful a new marketing campaign or how polite the (albeit mass) marketing message, if internal systems cannot share data, vital business knowledge could be lost and customer service undermined. If the company truly had EAI, its inventory system could alert its customer support system when the desired items came back in stock, allowing a CSR to notify the customer and make a sale. It is for this reason that many companies undertake EAI as a preparatory step toward CRM.

For new CRM functionality, you'll also need to understand what data to consider. For each business requirement, one or more data requirements will result. For instance, if survey data is to be incorporated into customer profiles, which specific data elements should be collected? Will you need to collect external data such as third-party house holding information or competitive intelligence data? Of the data collected, what should be displayed to CSRs, to marketing staff and what systems will deliver that data?

A significant part of defining data requirements involves addressing the actual meaning of certain data definitions. Is there consensus across the business that the term "revenue" means booked revenue, or might it imply billed revenue? Does a "new customer" have the same attributes in the sales organization as in customer support? To many in IT, documenting data definitions smacks of cumbersome metadata management and documentation projects. However, it's more about simply gathering consensus and enforcing consistent business terminology, whatever form that takes. If information is indeed a corporate asset, consistent and sustainable data definitions are essential.

When you've completed an impact analysis, you can begin prioritizing projects according to business requirements and staffing your development projects, as we discussed earlier in this chapter.

### Technology Selection

CRM technology selection can be as simple as choosing an off-the-shelf product or as complex as a comprehensive evaluation of various CRM systems integrators or ASPs. If you've bitten the bullet during architecture and implementation design, understanding CRM's impact on existing systems and its requirements for new functionality, you should be in good shape to align any candidate CRM product to your existing IT environment.

### Development

Development involves the construction and customization of the CRM product, using specific product features. But CRM development is more than programmers assuming center stage and writing code; it involves the integration of business processes with the chosen CRM product.

By this time, you will have already identified the key CRM business processes. Process integration means that CRM technology you've just selected integrates into these business processes. (The converse—merging business processes into the CRM product's features—forces the product to in effect define or change those processes, thereby diluting them until they are no longer optimized.)

Process integration involves ensuring that identified business processes are tested with users to ensure not only that the business processes work, but also that technology features can be leveraged in order to refine them. In other words, technological capabilities should improve, not compromise, customer-focused business processes.

For instance, a campaign management product allows segment managers the opportunity to refine a mailing list before the campaign is launched—something they've never been able to do—thus refining the existing process. The same product might also allow a campaign director to monitor a campaign's success rate as it's being executed. If the first thousand prospects have been unresponsive, the manager can cancel the campaign rather than allowing it to proceed, adding another valuable option to the campaign execution process.

Refining business processes during development means iterative prototyping: from time to time programmers demonstrate interim functionality to business users. Thus business users can monitor product development and test CRM functionality during—not after—implementation.

End-user feedback about CRM functionality and desired changes can be flagged and incorporated into the CRM deliverable to ensure that resulting functionality conforms to requirements and meets user expectations.

Of course, development mostly involves technical work and thus might also include such tasks as database design, data cleansing and integration, and integration with other corporate systems. The integration step can easily be underestimated, because the CRM system might need to feed data to and pull data from other systems, such as call-routing systems or existing sales force automation (SFA) tools.

### Delivery

The delivery step is often overlooked or lumped into development. Basically it means leveraging the corporation's IT infrastructure to dispatch the resulting CRM software to the business users who need it. In the case of a new Web-based sales-force automation tool, the application might be announced via an e-mail message that contains a link to the new CRM Web site. If the CRM system is client-server based, it will need to be installed on individual workstations.

Often, new CRM functionality simply supplements an existing operational system and is not considered a new standalone system. For instance, a contact center representative might now see a "screen pop" displaying a customer profile when the customer calls in. In such cases, business users might not even be aware of the new feature before it appears.

In both cases, user training is paramount. Before a salesperson begins using a new SFA package to schedule meetings or a CSR tries interpreting a customer's profile, she should be trained not only in using the new functionality but also in changing the way they work so they can take maximum advantage of it. Often, a customer-facing representative having new or improved customer knowledge can alter the way she interacts with the customer. For this reason, CRM training should incorporate introductions to new business processes as well as new technology.

CRM delivery can also include user guides, job aids, and other documentation, as well as online or Web-based help to encourage users to make the most of the new CRM functionality.

Some companies go so far as having CRM sharing meetings to introduce the business at large to a new or pending system, and CRM business sponsors hold periodic update meetings, filling in various organizations and key staff members on CRM's progress.

## Measurement

The measurement step brings the CRM roadmap full-circle as it evaluates CRM usage in order to refine CRM requirements. Many companies forego ongoing CRM measurement; such companies are confident they won't have to answer for their CRM expenditures. But can you truly claim your CRM program is a success if no measurements are in place to prove it?

In most cases management expects regular updates on programs in which they've invested heavily, and CRM is expensive. Savvy business sponsors define CRM success metrics as a result of the initial justification of CRM, and measure the successes after CRM has been deployed. For instance, if your new CRM system automates workflow to communicate widget defects to your R&D department, you might consider tracking the decrease in product defects and a corresponding increase in customer satisfaction for customers who have widgets. This measurement can include value quantification—such as lower support costs due to fewer support requests—and thus prove return on investment.

Another way to measure CRM's success is to evaluate how well it has solved existing business problems. If you established success metrics when you created your CRM business plan, supplement them over time by correlating them to actual results. Documenting success metrics along with their actual measured improvements is a valuable way to track and quantify tangible CRM business benefits, as illustrated below:.

**CRM Success Measurement**

| CRM Success Metric | Desired Improvement | Measured Improvement(6 months) | Measured Improvement(12 months) |
|---|---|---|---|
| Reduction in the time required to generate customer name-and-address lists for targeted mailings. | Campaign list generation to take 1 day or less. | Campaign list generation takes 3–5 hours. | Campaign list generation takes 1–4 hours. |
| Ability to make product recommendations to customers during support request (online or phone-based). | Recommendations result in cross-selling improvement rates of 8 percent or higher. | Customer support cross-selling increase of 6 percent. | Customer support cross-selling increase of 10 percent. |

| | | | |
|---|---|---|---|
| Electronic distribution of customer sales reports to sales management. | Elimination of sales staff responsibility to produce weekly and monthly reports, generating a productivity increase of 5–10 percent. | 11 percent increase in sales productivity and reduction of one full-time administrative position. | 12 percent increase in sales productivity. |
| Reduction in time spent analyzing data to correct contradictory customer data from sales and provisioning systems. | Elimination of need for data correlation by implementing centralized customer database. | None—database pending. | Elimination of data correlation, resulting in redeployment of two full-time data analysts. |

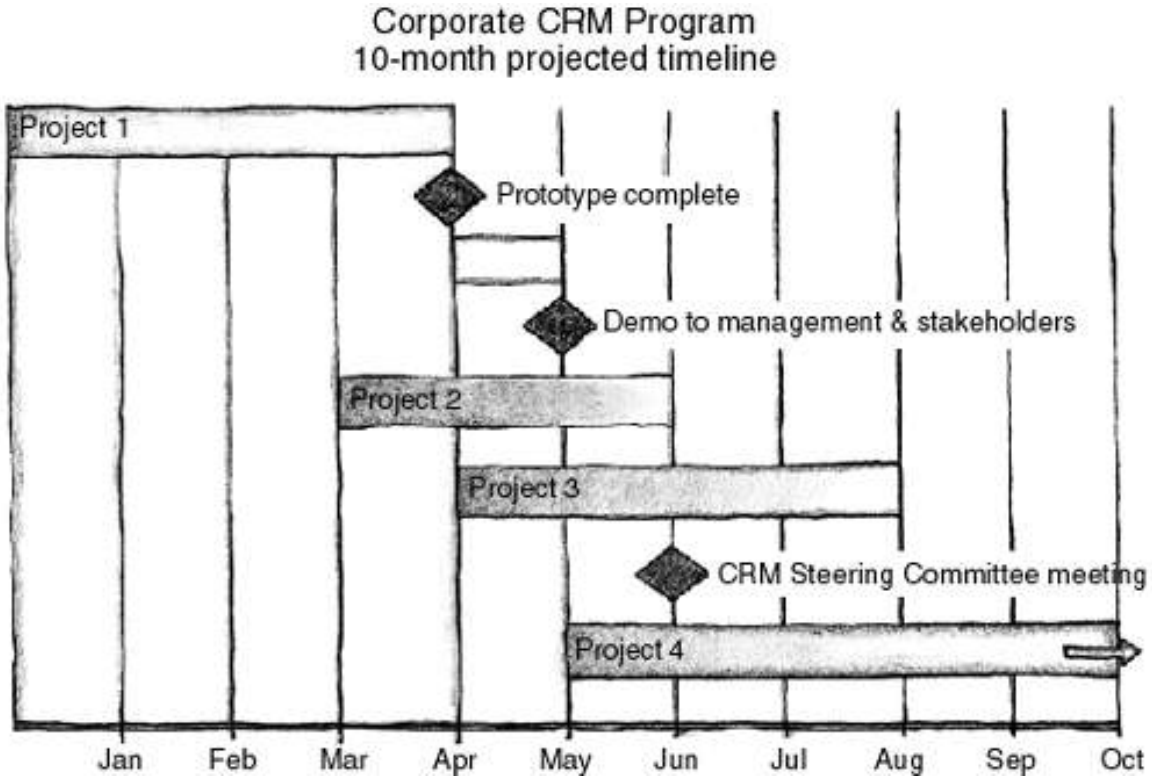
Improvement is usually gradual as users become familiar with new technology and business processes. An effective CRM program delivers ongoing improvements as it's adopted more widely throughout the company. The 12-month measured improvement column represents the rate of improvement since the launch of the CRM program and illustrates this incremental gain.

Measurement also includes the incorporation of user feedback to improve CRM usability and business effectiveness. As the CRM implementation roadmap shown in Figure illustrates, CRM measurement loops back around to further CRM business planning, allowing the company and its lines of business to continually refine CRM requirements and identify new CRM opportunities at the same time. If you incorporate measurement and feedback into the planning cycle, CRM will deliver new and better functionality, resulting in small victories that add up to improved customer value.

**Putting the Projects Together**

After you've identified your CRM projects, your PMO or project managers can agree on an overall CRM timeline that will be enhanced and supplemented as the business uses CRM and customers begin experiencing the benefits. The projects identified in Figure can become components of an overall CRM program timeline, as shown in Figure.

The solid boxes at the beginning of each project connote the fixed amount of time allotted for the business-planning phase. This phase includes project scoping; thus project durations might change after business planning is completed. Each project will have its own development-project plan reflecting more specific tasks and resources.




**CRM Program Timeline**

A visual timeline like the one in Figure is not only effective in managing expectations about each project's forecasted delivery time frame; it can also become the basis for a CRM program document in which the project manager or development team leader can include individual project plans, requirements documentation, and specific CRM functions and features, either as a physical document or as part of your company's web-based knowledge management infrastructure. Thus managers and stakeholders can access up-to-date information about current CRM activities.

**A CRM Implementation Checklist...for Failure**

Consider the sins a checklist of what not to do if you want to enter the pearly gates of CRM nirvana.

*Sin Number 1*

*Failure to define a CRM strategy.* Simply defining what CRM means to your company is difficult enough without gathering consensus on a corporate-wide strategy. Companies routinely misinterpret business requirements and thus underestimate the complexity of CRM. Even if gathering consensus on what CRM means to the business and what it should

deliver takes longer than you would need to simply begin development, take the time. It'll save you time and money in the end.

*Sin Number 2*

*Failing to manage staff expectations.* Many firms apply rigor to planning and development but forget about deploying the CRM system to the business. The CRM rollout in which an IT liaison sends an e-mail to sales staff announcing training for the new sales-force automation package is doomed before it's even delivered. Business users must be stakeholders from the inception of the CRM project, from planning through development and through to deployment. Anything else risks alienating potential end users, an irrevocable situation.

*Sin Number 3*

*Failure to define success.* What is CRM success and how do we know when we've achieved it? Even CRM business sponsors who understand the differences between CRM's various applications don't differentiate between increased cross-selling and improved profitability. Define discrete success metrics—they'll be different for increasing customer profitability than for improving customer satisfaction—and then measure against them. If you don't, there could actually be business successes that aren't rightfully attributed to CRM.

*Sin Number 4*

*Hasty ASP decisions.* Companies haven't yet sorted out the advantages and disadvantages of the ASP model. Large companies assume ASPs serve only small markets and dot-coms that lack significant IT infrastructures. Small to mid-size firms assume ASPs are too costly, despite potential cost savings. Many companies are even underestimating their in-house resources and skill sets and jumping blindly onto the ASP bandwagon. Don't be one of them. Understand the pros and cons of the ASP model, and make a decision based on your business and functional requirements.

*Sin Number 5*

*Failure to improve business processes.* The proverbial mistake of "paving the cowpath" applies here: CRM should not simply overlay archaic corporate policies. It should instead formalize and automate nimble, customer-focused business processes. Be willing to drastically modify and continue to refine your business processes, and make sure your

CRM technology incorporates these process modifications. And don't fall into the trap of hoping your new CRM tool will do this work for you. Processes should be defined from the customer's perspective, not the technology's.

*Sin Number 6*

*Lack of data integration.* Chapter 6 painted the picture of stovepipe CRM systems and the danger they can lead to if allowed to perpetuate. Effective customer-focused decision-making means understanding each customer across her various touchpoints and beyond your immediate knowledge of her age, income, preferred channel, or sales territory. The difficult truth is that customer data exists in multiple systems on a variety of technology platforms across your company. Finding, gathering, and consolidating this data isn't easy, but it's absolutely crucial.

*Sin Number 7*

*Failure to continue socializing CRM to the enterprise at large.* Companies who have delivered nothing less than revolutionary customer-facing improvements via CRM often rest on their laurels. CRM is an ongoing process, and success breeds success. Consider establishing an "internal PR" job function to communicate with executives and decision-makers who might determine ongoing funding, as well as to the various lines of business who might leverage the functionality and data to further their own customer focuses. Proselytizing CRM successes should not only be practiced but should be formalized and updated via regular newsletters, status meetings, or an internal Web site. Don't be shy about initially promoting CRM. If your customers experience improved service and your sales and marketing staffs generate more effective leads, it won't be long before CRM starts promoting itself.

## How to Plan for CRM Success

CRM has become known not only for amazing successes, but also for the numerous documented failures. Although the media has been flooded with case study after case study of corporate America and its love-hate relationship with CRM, little attention has been given to the underlining themes of most unsuccessful projects: lack of a true diagnostic study and an improper setting of expectations.

Successful CRM programs boast the common denominators of participation from all levels of management and personnel, understanding of current business challenges, detailed examination of infrastructure and information system capabilities, business process review,

data availability, and project ownership. Such factors not only create for a better software program, but also have been known to actually improve overall business operations.

## People Do Make the Difference

Like any solid business operation, successful CRM projects hinge on a clear understanding of objectives, myriad operational and administrative factors, and participation by those persons affected by the results. However, a CRM project is frequently declared a failure before the software is even implemented due to lack of any comprehensive diagnostic approach or input from the affected players concerning the expectations of the project. Such a scenario is destined to fail since many companies relegate the CRM project merely to a software purchase made by the IT staff without a true analysis of systems and processes.

A definition of current challenges, as well as a thorough understanding of the practices currently in place, is crucial. As such, a true diagnostic study for a CRM program begins by interviewing key individuals to gain a broader picture and understanding of the issues and processes. By soliciting feedback from individuals representing all segments of your organization, you can create an automation system that meets the needs of your entire team.

It is common to find that a manager's primary objectives relate to business operations and their ideas for technology tell another story. In this scenario, it is evident that management believes the IT department is better able to select "tools" for the user. This is dangerous, because unless properly understood, the business and technology can later be at odds. Therefore, it is important to understand the management thought process, business challenges, and objectives, as well as provide a base level of understanding as to the impact of software selection. The discussion also should evolve into a basic review of CRM to dispel any myths or misconceptions about the buzzword, as well as the agreed upon results they expect from a CRM solution. An up-front agreement of goals establishes a "contract for success" for the project.

What many fail to embrace is the importance of the educational and soul-searching process with upper management extending beyond one meeting. It is necessary to set up additional interviews with managers on a one-on-one basis to focus on questions or individual hot buttons. Such data gathering is crucial to the results, to ensure that all objectives — from management to potential users' — are incorporated into the solution. Further, management's objectives are typically high level and provide the umbrella under which all other "requests" gathered from interviews will fall. If the other requests cannot be

linked somehow to management's umbrella, it is reasonable to question their validity in the first phase of CRM implementation requirements.

### Infrastructure or Information Systems Capabilities

Although incorporating infrastructure and information systems is an obvious step in a CRM diagnostic process, correlating these areas with functionality is widely overlooked. While the IT experts easily offer a technical view of the CRM process — to include operating systems, databases, storage devices, networks and more — they are not always given the opportunity to worry about functionality, nor do they always possess the appropriate business focus that will create the optimal infrastructure. Further, since IT departments are typically understaffed, CRM becomes just another project on the list of things to do. The result is software that may fit technically with the infrastructure and architecture, yet it lacks any correlation with management objectives or business processes.

It also is common for the IT group to be charged with supporting the CRM system. However, most IT teams do not have the necessary background to effectively deal with supporting the CRM applications from a user perspective. Although they possess the expertise and should be expected to manage technical support, management of the administration of the system requires close interaction between the users of the system and the functionality provided — a problem if the IT team does not have the expertise necessary to manage the business process. As such, a balance of key issues relating to the technical capabilities of both hardware and software are crucial to smooth integration, but should not be the driver of selecting a solution.

### Don't Forget the Processes You're Automating

While many CRM ventures actually begin with a review of objectives and securing buy-in from management, sometimes a project falls short of actually understanding the business processes the software is intended to automate.

Process review is an art in itself and a stage that typically garners willing participation. After all, people love to tell you what they do. Crucial to success at this stage, however, is the method of phrasing questions to gain an understanding of the real problems experienced in the ranks. Beyond automating realistic and applicable business processes, this stage allows the team to develop user ownership of the system. It is surprising how many companies forget to ask the users of a system their opinion until the software has been purchased and they are expected to use it. Speaking directly with intended users that actually live these business processes on a daily basis allows for the delicate balance of objectives from management and users.

## Garbage in, Garbage Out

This old adage is certainly true for CRM and many companies simply do not have good customer information beyond what is stored in their accounting or billing systems. Although this data may be valuable from an accounting perspective, it does not contain information specific to the salesperson or enhance the selling process. Likewise, client listings found in personal information programs, departmental databases, and spreadsheets — even handheld devices — are typically good sources of information from a sales representative's perspective, but because these are individuals databases, they lack the corporate focus required of a centralized CRM database. While both of these data sources provide a partial starting point, they are disconnected. This means that the data from one representative does not associate with another representative's data, which in turn doesn't relate to the accounting database. Attention to capturing accounting data and determining the best method for meshing it to the representatives' data should be given early in the diagnostics process to ensure information can be properly gathered, as well as linked to the back office accounting system.

Regardless of the captured data and its original source, it is crucial that a database of some sort is inserted or imported into the CRM program. Simply creating a database shell without data with the intent of the sales staff adding their information once the software is launched is asking for failure. Experience shows that a sales team is more likely to embrace a CRM system if their data is already stored and ready for their use.

## Project Ownership Crucial to Success

With a complete diagnostics study complete, it is crucial to once again stress the importance of project ownership. To be clear, project ownership does not necessarily refer to the intended users or the IT department. While input from these teams is crucial and relevant, project ownership must belong to executive and high-level management if the project is to succeed.

Truly great CRM projects are not easy and the strongest solutions are usually a result of fighting through a variety of stumbling blocks and challenges. After all, a thorough diagnostics approach should not simply automate; rather, it should uncover and attempt to resolve business process challenges and dynamics for the greater good of the business. Only with a strong management sponsor to serve as the link between the implementation team, users, and management will you develop more than an off-the-shelf software solution. Such a representative or team becomes the voice to develop, articulate, and then remind your company about the reasons for embarking on the CRM program in the first place.

## The CRM Development Team

CRM is big. It has captured the attention and imagination of corporate executives. Marketing VPs are betting their jobs on it, CIOs are asking their staffs to formulate CRM policies, and CEOs are creating job roles such as "Chief Customer Officer" that not only embrace CRM but depend on it.

Hopefully by now your company has adopted a customer-focused strategy and is putting in place the inevitable customer-focused programs and accompanying organizations. This often means organizational change: product managers have become "segment managers," spearheading customer segments irrespective of the products and services within them, and CSR job definitions are being continually modified as companies better understand customer channel usage and interaction preferences.

In addition to the broader organizational and cultural changes that accompany an evolving customer focus, CRM calls for specific implementation roles and responsibilities. In many cases, these job roles are new; in others, existing functions play key parts in CRM development.

Table lists the core job functions within a CRM development team. Make sure you've accounted for each of these roles before embarking on a development project, and understand the skills from both inside and outside the company might be necessary to fill these positions.

**Core CRM Development Roles**

| Job Role | Description |
|---|---|
| Business Sponsor: | The business sponsor might serve across a single CRM project or across the entire program. His main role is to establish the vision, articulate overall goals and objectives, set the tone for the project team, and serve as a tiebreaker for implementation issues. The business sponsor often funds the initial CRM application. The more departments CRM spans, the greater the level of authority the sponsor should have. |
| CRM Steering Committee: | For cross-functional or enterprise CRM initiatives where implementation must be prioritized, a committee of decision-makers familiar with the "pain points" CRM can address should convene on a regular basis to provide new requirements, prioritize proposed improvements, and communicate key corporate initiatives. |

| | |
|---|---|
| Implementation Project Manager: | This person's job is to ensure that the requirements defined by the business sponsor and steering committee dictate the functionality to be implemented. The implementation project manager oversees the day-to-day implementation activities, tracks status, and updates the business sponsor on current issues. |
| Lead Developer: | The lead developer should manage the technical development and customization of the CRM product as it relates to the requirements. She should participate in CRM technology selection (see Chapter 8) and hire the appropriate developers to implement the CRM toolset. |
| Database Developer (and team): | The database developer should lead the necessary data integration, regardless of whether it is operational or analytical CRM. Often this means working with the company's data warehouse and its development team. In other cases, an understanding of key company source systems and how to capture their data is mandatory, requiring a separate team of database administrators and data "extraction" experts. |
| Front-end Developer (and team): | Depending on the chosen CRM product, programming is needed to develop or customize the end-user interface. |
| Subject matter experts (SMEs): | Critical to CRM success are subject matter experts—usually businesspeople from the department slated to use the CRM system after it's in production (for instance, a CSR or a sales manager). SMEs usually have strong ideas of what CRM should and shouldn't provide and should participate regularly in the development and testing of a CRM product. |

Depending on the breadth and complexity of your CRM program, the job roles listed in Table can also participate in CRM development.

**Optional CRM Development Roles**

| **Optional Job Role** | **Description** |
|---|---|
| Director of e-Business: | Your company might have a separate division dedicated to e-business that—despite the goals of CRM—must be involved to ensure the integration of, for instance, Web-based customer services with new CRM functionality. |

| | |
|---|---|
| Director of Data Warehousing: | If your company already has a data warehouse, you're ahead of the game. Existing data, development processes, source system knowledge, and metadata can all be used to get a jump-start on CRM development. Development teams might consider sharing resources in order to integrate the data warehouse as the de facto CRM analysis platform. |
| Chief Information Officer (CIO): | Due to the strategic nature of many CRM initiatives, it's politically if not technically wise to get approval and visibility from the CIO, who can usually facilitate activity with the IT department to ensure the appropriate systems and data resources. The CIO can also help socialize CRM as a corporate information resource. |
| Vice President of Strategic Planning: | In large companies, where this position exists, the Vice President of Strategic Planning should be able to share with the CRM team new business areas or product offerings the company expects to move toward, acquisition and partnership strategies, or existing products and services the company expects to abandon. |
| Chief Privacy Officer: | A new position in most companies, the Chief Privacy Officer should be able to provide details on corporate or regulatory policies regarding the use of customer data. |

Each of these job roles can play an important part in CRM success, but simply understanding available skill sets can take you a long way in ensuring you can supplement your CRM team with outside help if necessary.

Of course, such responsibilities as executive sponsor and the CRM steering committee should be filled by staff members having history with the CRM-related need, pain, or problem, as well as the authority to make decisions.

There are roles in CRM, however, particularly in technology implementation areas, where external experts should be leveraged. Consider the following questions as you decide whether to beef up your current staff with outside help:

- *How well do we know the CRM vendor's development environment?* It might serve you well to bring in an expert from the vendor's professional services staff or from a partner-integrator to provide knowledge transfer as development gets underway.
- *Are there critical one-time-only tasks that need completion?* For work that isn't likely to be repeated, such as configuring the data, a good consultant can shave days or even weeks off a project.

- *Are we comfortable that our requirements are well defined?* Sometimes an objective third party can find the "holes" in your requirements definition. This can help you avoid false starts—which could be a bargain at twice the price.
- *Can we get started with our existing staff?* It's often true that by the time you hire and train a full-time resource, a consultant could have jump-started a critical task and the entire project could be that much farther along. Everyone would rather hire permanent staff members who have skin in the game, but don't let principle usurp progress. Be willing to focus on the value of time to the business, and invest accordingly. This might mean hiring consultants who can hit the ground running.

Another important consideration in CRM staffing is the existence of a corporate program management office (PMO). First made popular by the aerospace industry, where complex projects were the norm, the PMO deconstructed a multifaceted system into manageable chunks involving repeatable tasks such as requirements definition, software coding, design, testing, validation, and software packaging. Each project chunk had its own project manager, goals, budget, and deliverable. Usually stationed in the IT organization, the PMO is dedicated to running corporate programs such as CRM so project teams can concentrate on succinct deliverables while the PMO ties them all together.

CRM programs are business integration projects whose scope is often corporate-wide (similar to enterprise ERP or supply chain management initiatives). Because CRM is driven by business requirements and involves the integration of business processes with technology and data, its complexity and organizational reach is usually greater than the straightforward application. The PMO formalizes tried-and-true practices that can be applied to CRM implementation. This not only ensures consistency across projects in a program but can also provide consolidated status reporting, often to executives, affording a level of visibility CRM could never otherwise generate.

## CRM Measurement

In order to understand CRM measurement, we must first define CRM. Definitions abound. Many vendors, consulting firm, and even companies, build their own definition of CRM partially mindful of how other are defining the term. Because of this, while definitions are diverse, the market seems to have coalesced along three "kinds" of definitions:

1. Technology centric
2. Customer lifecycle centric
3. Strategy centric

Technology centric definitions of CRM evolve out of the need for vendors to position their particular product, which often automates just a portion of the CRM problem, in the best or broadest possible light. These definitions include the use of technology within them. For some of these definitions, CRM is nearly synonymous with technology.

Customer lifecycle definitions evolve out of the need for CRM practitioners to describe a new business capability, or a new arrangement of capabilities, that focuses on the customer lifecycle, not the product lifecycle. The customer lifecycle, often described somewhat differently, has four phases:

1. Attracting
2. Transacting
3. Servicing and supporting
4. Enhancing

In the attraction phase, a customer becomes aware of the product or company, develops interest and tries to understand the product or company. In the transacting phase, the customer has moved to the next level of commitment and decided to procure a product or service. In the service and support phase, the customer requires the company's assistance installing, using or servicing what was procured. In the enhancement phase, the customer may be thinking about purchasing additional products or services. For the majority of companies, especially larger ones, the parts of the companies that interact with the customer throughout this lifecycle are separated from each other and not optimally coordinated or integrated. The customer lifecycle definition of CRM often describes CRM as the ability to seamlessly interact with or market to the customer across this lifecycle. Strategy centric definitions look primarily to free the term CRM from any technology underpinnings and to a lesser extent from specific customer management techniques. These definitions describe CRM as a technique to compete successfully in the market and build shareholder value.

## The Purpose for CRM Measurement

The reasons companies measure customers is obvious. In order to manage effectively, one must measure. Businesses have long since measured financial performance with traditional financial measurement tools: profit and loss statements, balance sheets and cash flow statements. These measurement frameworks suffer from limitations; they measure past activities and are "lag" versus "leading" indicators While these principles have influenced some CRM practices today, many businesses look at measurement in less theoretical terms.

With that in mind, three main uses for CRM measurement systems are:

1. To influence or validate decision making
2. To guide ongoing activities or tactics
3. To predict future states

***Influencing or Validating Decision Making***

Companies implement CRM measurement very differently based on their internal decision making styles. As companies make decisions about customer strategies, they look to customer measurement to help influence specific decision makers or the decision making process or validate initial ideas about how to manage customer relationships.

These styles break down into five categories:

**Hard ROI Approach**

In this approach, companies develop a return-on-investment model that seeks to deliver actual cash benefits to the company. These approach identifies cost savings, provable productivity improvements, or well tested revenue generation opportunities.

**Intangible Benefits/Assets**

In this approach, so-called softer benefits or intangible assets are identified and quantified. For example brand equity or knowledge capital are two forms of intangible assets that companies do try to measure and quantify and correlate to future company performance.

**Competitive Assessments**

This approach measures how competitors are interacting with customers and decisions are made to either seek parity or exceed a competitor's capabilities.

**Value-Driven**

This approach measures economic value delivered to and/or derived from a customer. This style involves building a model of customer value exchange. Instinct and experience This approach uses manager's individual experiences and intuitions about what CRM solutions to execute that may or may not be informed by additional facts. Many companies

frequently adopt more than one style. The styles adopted, consciously or not, shape how the company will measure customer activity. The company's business model, approach to the market and history of measuring customers also influences which of the measurement styles seem more appropriate or expedient for the company.

## CRM Measurement Frameworks

As discussed earlier, how a company measures its CRM activities depends on who is doing the measuring and what activities are being measured. Below are the common CRM measurement frameworks:

1. Brand-building
2. Customer equity building
   a. Customer behavioral modeling
   b. Customer value management
3. Customer-facing operations
   a. Marketing operations
   b. Sales force operations
   c. Service center operations
   d. Field service operations
   e. Supply chain and logistic operations
   f. Web site operations
4. Leading indicator measurement
   a. Balanced scorecards
   b. Customer knowledge management

## Brand-Building

The goal in brand building is to carefully manage a company's name, brands, slogans and symbols, otherwise known as brand equity. Various models (and criticisms) of brand equity have been published over the years. The main challenge lies in how to quantify this important intangible asset. According to David Aaker brand equity is broken into the following components:

**Brand loyalty**: This is a measure of the attachment a customer has to a brand. How likely is a customer to switch to another brand?

**Brand awareness:** This is the ability of a potential customer to recognize or recall a brand as a member of a product category.

**Perceived quality**: This is the customer's perception of the overall quality of a product or service with respect to its intended purpose and considering alternatives.

**Brand associations:** This is anything that is linked, in the mind of the customer, to a brand. The association also has a level of strength. An association can be a celebrity or person, a life style, a geographic area, various product attributes, some customer benefit, a particular application or use and any other intangible concept.

Brand loyalty can be measured quantitatively in a number of ways. So can brand awareness through surveys and interviews. Many qualitative techniques are used to generate measures for perceived quality and brand associations.

Companies can look at brand building as if they were managing an asset. Brand equity can be calculated by removing from operating earnings attributed to a brand the cost of capital, taxes and risk and then determining the value of the remaining number as a discounted cash flow extending out five or more years. By treating brand value as an asset, investments in brand building can be measured and more easily compared with other corporate investments, the value of the brand and the performance of the investments can be tracked and the performance of specific brand activities can be monitored. Measuring brand value can get complex. Boston Consulting Group's brand value creation (BVC) approach looks at dozens of variables concerning different aspects of a brand and various competing brands and determining how significant each variable is to the brand's value. This approach uses cross correlation analysis, cluster and factor analysis and linear regression to build the brand value model.

The authors state that this approach helps companies understand what consumers value most and how well brands deliver it. Complexity also lies within each brand equity component Aaker describes. Brand awareness has been discussed in depth over the past 40 years yielding plenty of measures such as brand awareness (unaided and aided), brand recall, purchase intention, brand preference and willingness to pay. In addition, brand equity components have relationships between each other. For example, high brand awareness can positively affect perceived quality. Brand equity as a measurement framework can also encompass traditional and easier to determine measures such as market share, sales volume, and the number of customer inquiries, customer and customer retention, among others. Many managers eschew the more formal and rigorous brand equity measures in favor of measures that are more easily derived. There are different ways to think about company or

brand awareness. Their technique, called the Attention Scape, helps managers understand what kind of attention they are getting from customers (or employees, suppliers, etc). Data is collected through survey techniques and plotted along three scales:

1. Front of mind / back of mind attention
2. Voluntary / captive attention
3. Attractive / aversion attention

Competitors can be plotted along these axis and companies can develop strategies to reposition themselves relative to their competitors' attention profile.

## Customer Equity Building

Recently much has been written about the benefits of looking at customers as the key asset, rather than the brand as the key asset. Companies have historically measured products and brands and focused on eliminating unprofitable products from their portfolio. This approach, while seemingly a correct one, fails to account for the multi-product effect on customers and can actually cause a "profitable product death spiral" in which weeding out unprofitable products causes initial customer defections, which causes additional products to become unprofitable, which causes further elimination of unprofitable products and so on. The focus should be changed from unprofitable products to unprofitable customers.

### Customer Value Management

Different approaches exist for measuring customer value. Four approaches are considered here: customer equity management, customer value analysis, loyalty monitoring, and customer satisfaction. Customer equity management, is the most encompassing of the approaches.

### Customer Equity Management

The three main components to customer equity:

### Value Equity

The customer's objective assessment of the utility of the brand, with quality, convenience and price satisfaction as key components.

**Brand Equity**

The customer's subjective and intangible assessment of the brand beyond its objectively perceived value. Key components include the customer's awareness of the brand, customer's attitude towards the brand and how the customer perceives the brand's social ethics.

**Retention Equity**

The customer's tendency to stick with the brand above and beyond the customer's objective and subjective assessments of the brand. Key components include loyalty, special recognition, affinity, and community and customer knowledge-building programs.

Each of these areas of customer equity require measurement and the authors identify some preliminary drivers of each area of equity that can be measured.

**Customer Value Analysis (CVA)**

CVA compares price and quality (or value) of a product against competitors. The purpose of this analysis is to determine how changes in price, value or quality can affect market share and as such, this framework provides a linkage between a company's customer facing activities with overall corporate performance. One form of this analysis compares two competitors in a grid with two axes:

Relative cost and relative product and service quality.

Since each product or competitor's scores for price (relative competitive price or RCP) and quality (relative total quality or RTQ) are expressed as relative percentages (for example, between 90% and 110%) of each other. If one company changes price or quality in its product, the position of both company's products will change on the map. In essence, this map tries to show how customers perceive the product relative to a competitor and how price and quality perceptions will affect their choice in Purchasing. Most of the analysis work is in determining the components to quality, although depending on the product and category, price can have several components that require analysis as well. When performing this analysis, perceived price (or price satisfaction) and perceived quality are the key measures versus actual price and quality. Surveys are a primary means of capturing CVA data. Frequencies and sampling can vary depending on how dynamic the customer base and competitive environment are and how frequently internal processes within the company change.

CVA fits inside of a comprehensive framework call Customer Value Management (CVM). CVA is the information component of customer value management. CVM has a strategic component that helps companies answer 4 basic questions:

1. Where are we now?
2. Where do we want to go?
3. How do we want to get there?
4. Are we there?

CVM also has a continuous improvement component or an operational component that helps companies understand the root cause of delivery failures, improve the value delivery systems, enhance team development across all improvement initiatives and establish customer recovery or intervention programs to keep and enhance profitable customers and shed unprofitable ones. The four basic steps for establishing and monitoring a CVM measurement system are:

1. Identify strategic priorities in the context of customers and products.
2. Conduct qualitative research to get a comprehensive understanding of the ways customers think about value
3. Conduct surveys that will provide data for analysis so that the company can determine what from the customer's perspective are the 3-4 key benefits of the 10 or 12 benefits for each product. These surveys need to be specific to customer segments.
4. Monitor the value proposition with a limited subset of questions. CVM proponents feel the method addresses limitations within the customer satisfaction survey approach.

Customer satisfaction scores lack linkage to key internal performance metrics and may be unrepresentative of how customers really evaluate product and service purchase decisions. The customer satisfaction framework is older and widely adopted in North America while the customer value framework is newer and being adopted by leading edge companies. CVM is the latest evolutionary version of voice-of-the-customer initiatives with conformance quality as the first followed by the customer satisfaction and then the customer loyalty paradigm.

## Loyalty Monitoring

Frederick F. Reichheld's writings on loyalty (not just customer loyalty, but employee and shareholder loyalty as well) are widely cited with the CRM world as a framework for

measuring the effect of customer-facing activities. This measurement framework helps companies look at the customer base along a longitudinal axis. The central notion is that if a company can cause fewer customer defections, the long-term effects on company performance would be significant. Customer loyalty data, then, serves as a predictor of financial performance. For example a 5% increase in customer retention rate can have between a 30% and 95% impact on customer net present value and a similar impact on corporate profits. To perform the analysis, companies need to collect defection data, sales data and gross profit, marketing and expense data in a way that can be attributed to customers. This data needs to be analyzed by *customer cohort* (grouping customers into periods of acquisition. For example, all customers acquired in 2002 would be in the 2002 cohort and reported on). This type of analysis helps identify and manage loyalty problems pertaining to a specific acquisition period. Customer-facing activities can then be tailored to customers based on their loyalty. There are two key loyalty measurement documents: a customer balance sheet and a customer value flow statement. The balance sheet looks like this:

**Customer category Number % of Revenue NPV**

Beginning Balance

+ New customers
+ Gainers
- Decliners
- Defectors

**Ending Balance**

The term *new customers* refer to customers acquired. The term *gainers* refers to customers who bought more in this period. *Decliners* refer to those who bought less and *defectors* refer to customers who left.

The customer value flow statement captures the following information about a company's customer and some of its key competitors:

- Price Quality drivers Retention
- Share of wallet Gain Yield
- New customer NPV Current customer NPV Defector NPV
- Average profit per customer Average revenue per customer

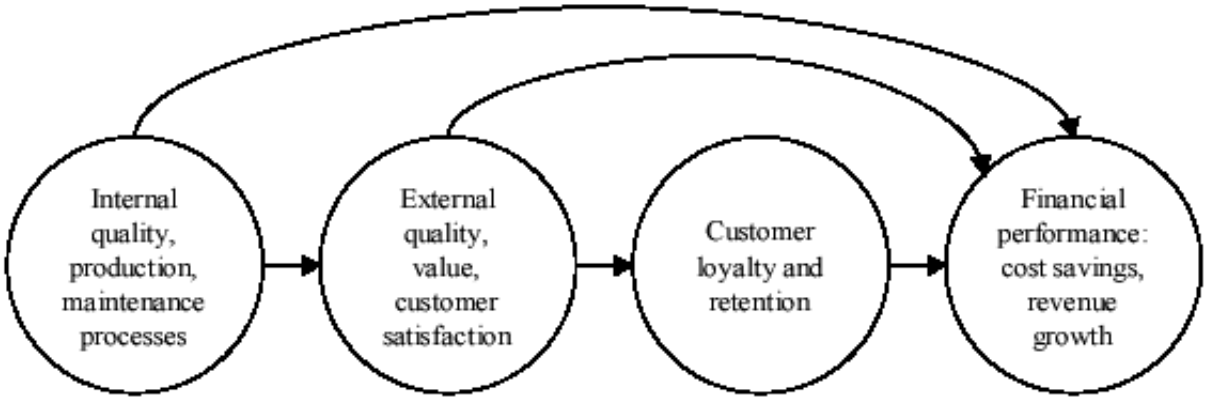
The gain rate is the ratio of new customers to the current customer base. The yield rate is the percentage of customers who actually convert to buyers, or sign up. The use of an acquisition/defection matrix that shows how many customers defect from one company's brand to another. To collect defection data, understand what are the components of quality and service from a customer's perspective, and enumerate which measures will represent the company's value proposition's success (in addition to the measures discussed here), requires ongoing customer surveying and other qualitative research techniques with their concomitant data collection approaches.

**Customer Satisfaction**

For the past several decades, businesses have been determining customer satisfaction to help improve their customer-facing activities and predict and improve financial performance. Customer satisfaction, then, is an antecedent to some form of loyalty behavior. Customer satisfaction has been defined as a "satisfactory post-purchase experience with a product or service given an existing pre-purchase expectation," There is a model for customer satisfaction in which satisfaction is an antecedent to repurchase behavior and has several antecedents as well. The most important antecedent is prior experience that "serves as a 'memory bank' of all the previous experiences with a product or service." Several factors can influence prior experience, such as the customer's demographic characteristics, their level of personal expertise, the nature of the competition, advertising and PR influences, and the evolution of technology. Along with prior experience, customer desires and expectations, the perceived product or service performance and ease of evaluating that performance are all antecedents to a mental process customers go through to compare what was expected and what was delivered. This "disconfirmation/confirmation/affirmation" process, in which expectations are not met, met or exceeded can be visualized as a sigmoidal function. As "perceived performance exceeds expectations, satisfaction increases but at a decreasing rate." As performance falls short of expectations, satisfaction decreases at a faster rate than it does for exceeding expectations.

Satisfaction is an antecedent to repurchase behavior, but the relationship between the two is mediated by several factors including the industry structure and life cycle, switching barriers, channel structure, complaint management and relationship management. Within this model are a host of measures companies need to collect. Before data collection can be done however, the company must design a survey instrument. The challenge is to formulate a customer satisfaction survey that balances internal company-process issues with external customer needs issues. When designing this survey, companies can use a variety of qualitative data collection techniques to determine the product or service characteristics and attributes to survey. Once designed, surveys are distributed through a variety of

channels: face-to-face, mail, fax, e-mail, web and phone. Standard data analysis and data mining techniques are then employed to understand the represent the survey data. The linkage between customer satisfaction and financial performance is often cited as the weak link in the customer satisfaction discipline. Attempts have been made to resolve this by linking customer satisfaction with some notion of product or service quality and customer loyalty and retention. A model for doing that is pictured in Figure.




To implement this financial causal model, argue for a cyclical process that starts with identifying the overall purpose (strategy and planning), moves to building the "lens" of the customer (qualitative research), which moves to building the quality-satisfaction-loyalty survey which moves to performing data analysis which then moves to making decisions before starting all over again.

Customer value analysis concepts have also been linked to customer satisfaction to address some of the inherent limitations in the customer satisfaction paradigm. The following are the differences between the paradigms:

- Customer satisfaction is a reaction to value received. Customer value determination tries to capture the relationship between the product, the user and their goals in a specific use situation. Satisfaction measures the gap between expected and actual product performance. Satisfaction measures and customer value determination complement each other.

- Satisfaction measures are historical. They measure what has been delivered. Both the customer value paradigm and the customer satisfaction paradigm build out, through qualitative techniques, a model of how customers perceive value. The satisfaction paradigm applies to model to value that has been delivered. The customer value paradigm is not tied to post-delivery measures. Customer value can be measured before, during and after consumption whereas satisfaction is measured after consumption.

The problem with many implementations of satisfaction surveys is that what is being measured are attributes of a product from a company's perspective rather than how the customer arranges their hierarchy of values in the context of specific use situations. This can cause companies to be measuring correctly but measuring the wrong thing.

Researchers and practitioners within the CRM, marketing and customer satisfaction circles have argued among themselves as to which approach: loyalty, satisfaction, value, quality or some other attribute is what matter most. The CVA crowd looks at CVA and CVM as the successor to the customer satisfaction paradigm. Customer satisfaction practitioners have expanded their model to resemble the CVA/CVM model.

In some respects, the debate is pointless, since nearly every paradigm tries to establish a sequence of causal relationships at three levels:

1. Company behavior towards customers
2. Customer behavior in total (including factors outside of the company's direct control)
3. Financial results derived from changed customer behavior

The debate is about how to arrange the various nodes in the influence diagrams to model, more accurately, the causal linkages. The risk in all measurement paradigms is not so much inaccurately measuring, but in measuring irrelevant things.

**Customer Behavioral Modeling**

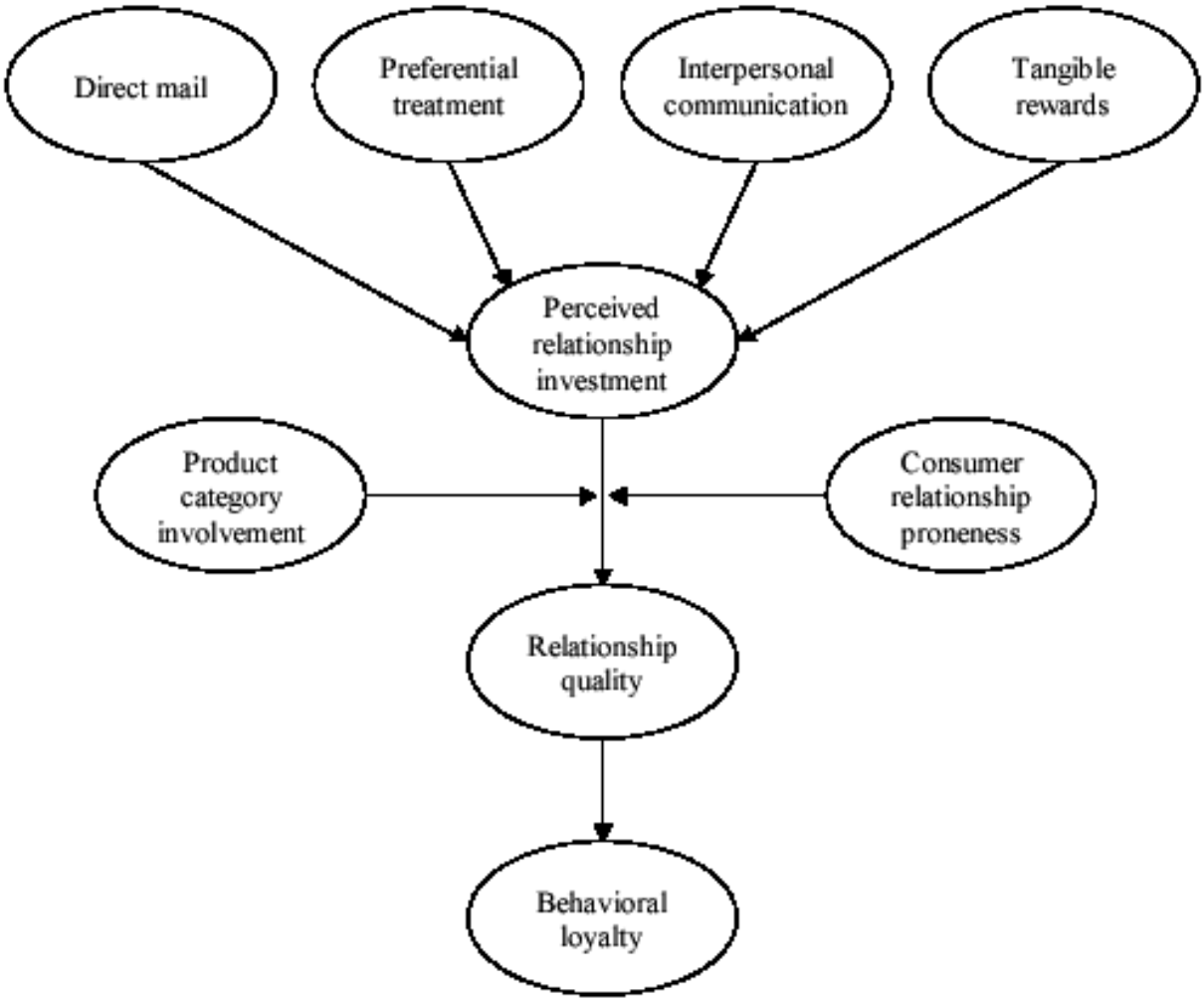
Embedded within brand-building and customer equity measurement frameworks is some form of a customer behavioral model. These models try to explain one or more customer behaviors by describing the antecedents on that behavior and the level of influence each antecedent has. The reason customer behavioral modeling is discussed separately here is that the market research literature is rich with studies that do not necessarily try to tie customer behavior to financial performance or company responses.

Instead, the research simply wants to understand customer behavior better more or less removed from specific company goals, objectives or performance. In addition, researchers are focusing on new concepts to link to customer behavioral loyalty.

An example of this kind of model with its appropriate measurement issues is shown in figure given below. Here it is probed as to how different relationship marketing tactics impact customer perceptions of relationship investment by the retail company. Through predominantly qualitative techniques, including surveys, interviews and focus studies, the

authors established measures and collected data to understand how each of the relationship marketing tactics did or did not affect purchase behavior.

While this example is very research-oriented, companies can use these kinds of measurement techniques to understand customer loyalty behavior in depth. This detailed level of explanation can be useful for critical customer interactions, especially where the type of product, service or customer experience is unique to the company and no relevant research is applicable.




These types of measurement frameworks abound in the academic literature and are usually cloaked in veils of secrecy within the few companies that perform this type of research. The vast majority of companies, especially mid-sized and small companies, never go to this level of analysis to understand customer behavior. This measurement framework requires a robust qualitative research capability that is refreshing the data and revising the behavioral model frequently as markets and customer behaviors change.

**Customer-Facing Operations**

Most, if not all or traditional CRM and customer transaction software, collect all kinds of basic data regarding customer facing activities. These operational CRM systems automate customer facing activities and in doing so, collect information on employee and customer behavior. For most companies deploying CRM technology, these are the only kinds of CRM measurements they make.

## Marketing Operations

Software that manages marketing operations lets companies plan, schedule, execute and track their marketing campaigns. Several key metrics from the marketing automation function include:

**Reach** - How many potential customers have been reached by the campaign.

**Response rates**- What percentage of the total campaign population responded to the campaign.

**RFM** Stands for recency, frequency, monetary value. This is a calculation for scoring a customer based on past behavior. The recency of past interactions (purchases), the frequency of that type of interaction and the monetary value of those interactions are added together, with specific weighting applied. This composite score is used to predict likely involvement with a campaign.

**Conversion rates**- What percentage of the total campaign population bought something or completed an activity (enrolled in a sweepstake, for example) as a result of the

campaign?

**Customer acquisitions costs**-How much did the company spend to acquire a new customer?

**Average customer interaction costs**-The total cost for interacting with a customer as part of a campaign divided by the number of interactions. Useful for comparing costs of interacting with customers across multiple media.

**Attrition, churn**- How frequently do customers terminate the relationship by opting out, stop purchasing or choose a competitor. Share of wallet, share of requirements How much of the customer's total budget for purchases within a product category do they make with a company.

**Average order size**-The average amount spent by a customer per order. Many companies have goals of increasing average order size through marketing.

**Category involvement**-The amount of money a customer spends or interest a customer shows within a product category. Customers with high involvement in a product category frequently buy more than those with low involvement.

## Sales Force Operations

This CRM area is perhaps the most mature. Companies have been deploying sales force automation solutions long before CRM became a popular buzzword. The rise of sales force automation (SFA) software parallels that of the portable and laptop computers and the handheld devices.

Measurements in sales force operations focus on tracking leads as they develop into sales, measuring performance of individual sales staff members and teams, monitoring the sales performance of products, reviewing the impact training has on performance, and the cost of sales. Some measures include Sales quota The amount of sales each sales representative, team, product or product category has committed or is assigned to solicit.

### Close Percentage

This metric goes by many names. The purpose of the metric is to score a lead with a percentage that it is likely to turn into a sale. As sales personnel work with the customer to answer questions, exchange information, prepare legal contracts and so on, the percentage is changed up or down. Customer score Not only are leads scored, but customers are too. By scoring a customer, companies can develop a model that helps them predict which customers are likely to purchase their product or service. Many attributes (size of the company, geographic location, level of access into the company, level of cultural, industries the customer serves, size of budget for the solution being sold) can go into scoring a customer. In this regard, customer scoring is similar to a segmentation exercise. However, many sales teams score customers within a segment and the scoring is often subjective. Sales expenses This metric includes all expenses related to the sale, such as travel, entertainment, printing, shipping, use of other internal resources, 3rd party expenses, etc.

### Close Rate

The percentage of sales leads that convert to sales. This is often tracked at the sales representative, team, customer segment and product/product category level. Sales totals The total number of sales represented by all leads. This metric is often multiplied by the

close percentage for a weighted sales leads number. This metric is used to predict future sales.

### Sales Lost

The number (or percentage) of sales lost, broken down by reasons, which can include loss to a competitor, loss of customer funding, and many other reasons. Training impact Companies use different techniques to detect the impact of sales training on the sales force, including sales staff surveys on training effectiveness and comparisons in other sales metrics pre- and post-training.

### Cross-Sell Rate

The percentage of sales totals that include items that were not specifically requested but recommended by the sale force or through marketing. Number of calls The number of calls made by a sales representative or sales team. This can be broken down by new account calls and existing account calls. Number of new customers How many new customers have been added during a period of time.

## Service Center Operations

With the increased use of phone technology to handle incoming phone calls and manage outbound sales calls, companies have long housed those resources into a single functional group called the call center, service center or interaction center. Much has been written about call center and service center operations, revealing a host of measures, some of which are listed here.

### Call Counts and Duration

The number and duration of calls either received or sent, often broken down by call type, which is input by the call center representative after completing the call.

### Average Hold Time

The amount of time a customer has to wait before being served by an agent.

### Abandonment Rate

The number of calls abandoned expressed as a percentage of the total calls.

These are customers who hang up while waiting for an agent or get disconnected.

**Average Abandonment Time**

The average time a caller waited before abandoning the call.

**Adherence**

The amount of time the agent is "in their seat" ready to take calls, expressed as a percentage of the total time the agent is scheduled.

**Wrap-Up Time**

The amount of time, after the call is completed, the agent needs to complete administrative tasks related to the call.

**Average Cost Per Call**

The sum of all costs for running the center divided by the number of calls received.

**Average Talk Time**

The amount of time the agent spends on the call talking to a customer.

**Average Handle Time**

The sum of the talk time and the wrap-up time.

**Agent Utilization**

The amount of time agents spend on calls versus other internal tasks, expressed as a percentage of available time.

**Blocked Calls**

The number and percentage of calls that receive a busy signal and could not even get to the automatic call distribution system (ACD).

**Service Level**

A goal for call center performance. A widely used format for the goal and values is for a call center to answer 80% of the calls within 20 seconds.

**Call Quality**

Companies have devised ways to monitor the quality of a call and the agent's abilities. Scores can include vocal intonation, friendliness, promptness, knowledgeableness, and adherence to procedures.

With the heavy emphasis on internal metrics associated with call efficiency, companies have instituted balanced call center reporting that combines efficiency scores with effectiveness scores (like call quality).

## Field Service Operations

Field service operations include a host of post-sales activities, including: warranty and service contract management, scheduling and dispatching field service agents, service call routing for inside service, problem tracking and resolution management, service inventory management, managing the logistics of part fulfillment and replenishment. Measures are less standard than call center measures but can cover a wider variety of areas.

**Response Time**

Amount of time it takes a service agent to respond

**Completion Time**

Amount of time it takes a service agent to resolve a customer's problem. Repair fulfillment time The amount of time it takes to deliver a requested part or service needed for a repair.

**Service Level**

This metric is similar identical to the call center metric when applied to inbound phone calls. It includes additional measures when applied to all support calls.

**Customer Satisfaction Score**

Many companies routinely survey their customers after a service call to verify satisfaction. Service call priority Service calls are frequently prioritized to comply with service contracts or warranty terms or to indicate the importance of the request.

**Supply Chain and Logistic Operations**

Frequently discussed as separate and distinct from CRM, supply chain management and logistic functions are significant areas of interest for CRM practitioners. Customers consume physical and digital products. How quickly and efficiently these products flow through the value chain is of importance, especially when the time it takes a product to be delivered is a key component of improving customer satisfaction and driving customer value.

As more products allow for mass customization, more of these measures will be tied to specific customers. While most of the measures within supply chain operations and systems refer to suppliers, some of these measures may have applicability for understanding customer behavior.

Some of these measures include:

**Fill rate** The number of items ordered compared with items shipped. Fill rate can be calculated on a line item, SKU, case or value basis.

**On time ship rate** What percent of orders where shipped on or before the requested ship date. On time ship rate can be calculated on a line item, SKU, case or value basis.

**Performance to promise** What percentage of orders where shipped on or before the promised ship date. In some cases, some items may be on back order or delayed for whatever reason. This metric captures the overall conformance with promised ship dates.

**Backorders** The number (or percentage) of unfulfilled orders.

**Customer order cycle time** The average time it takes to fill a customer order.

**Cash to cycle time** The number of days between paying for raw materials and getting paid for the product by the customer.

**Supply chain cycle time** The total time it would take to satisfy a customer order if all inventory levels were 0.

**Perfect Order Measure** The error-free rate of each stage of an order. Error rates are captured at each stage (order entry, picking, delivery, shipped without damage, invoiced correctly) and multiplied together. Upside flexibility The ability of a supplier to meet additional demand requirements

**Web site operations** With the advent of the Internet, companies have launched web sites for a variety of purposes including, marketing, sales and support. Because of the heavy use of marketing on the Internet, web site operational measures include many marketing operations measures. Some are:

**Visitor count** How many people have visited a web site.

**Unique visitor count** How many unique people have visited a web site. This measure does not doublecount users who visit a site multiple times in a period. Web sites can have difficulty in accurately determining unique visit counts, especially for those visitors who have chosen not to identify themselves by not registering with a site (anonymous users), visitors who use multiple machines to visit a web site, and visitors who disable cookies in their browser preventing the system from anonymously identifying them.

**Page hits** How many pages have been downloaded from a site, or how many times a single page has been visited in the site.

**Duration Total time** a visitor spent on a page or a site.

**CTR Click-through rate**. What percentage of visitors clicked on a banner ad or other form of internet marketing to visit the advertised web site.

I**mpressions** How many visitors viewed a page that contained an advertisement of some kind.

**Registered users** How many visitors registered with the site.

**Breakage** What percentage of visitors started interacting with a site (for example, by starting a survey or purchasing a product), but chose not to complete the interaction.

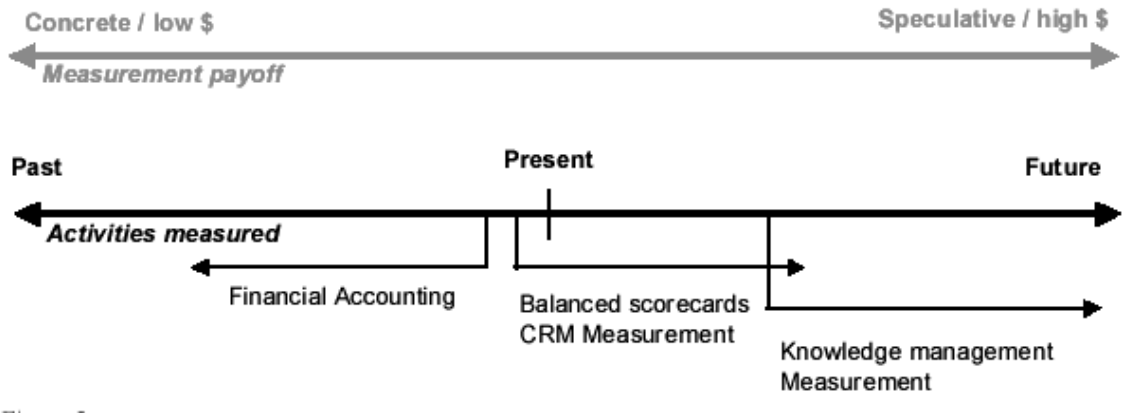
**Click stream** Not a measurement per se, but a source of many measurements. The click stream is the sequential history of all interactions with a visitor on a web site usually stored within log files in the web server. This behavioral data is used to derive page hits, visitor counts, counts of images and advertisements viewed, etc.

Most of the measures within a web site are designed to review the health of the web site. However with the wealth of customer information embedded within the click

stream data, many CRM software products include the ability to tie these measures to other off-line customer measures, such as loyalty measures, survey responses, etc. Despite the highly measurable nature of web site traffic, many companies have significant problems with this framework. Based on interviews with 51 business-to-business and business-to-consumer web site managers at Global 3,500 firms, Forrester Research, Inc. reports three key areas of concern. One, the structure of the web site reporting doesn't lend itself well to understanding customers. Second, the measurement tool providers lag behind users needs. Third, cross-channel tracking and measurement is practically non-existent.

## Leading Indicator Measurements

A leading indicating measurement is a predictor of future financial performance. Many companies look to CRM systems to provide the right leading indicator outputs so that the business can adapt to changing conditions sooner. While most of the measurement frameworks discussed can be leading indicator measurement frameworks, the two main paradigms here are either deliberately designed to be such (balanced score cards) or have no other real historical analysis use (knowledge management).




The figure above depicts the relationship between time and payoff for measurement frameworks. Financial accounting systems measure activities that have happened in the past (e.g., last quarter's financial performance). Balanced scorecards and CRM measurement systems tend to measure activities occurring now that lead to, through the causal links identified, future financial performance. Measuring knowledge management is more speculative because the process of generating knowledge will impact activities not yet conceived.

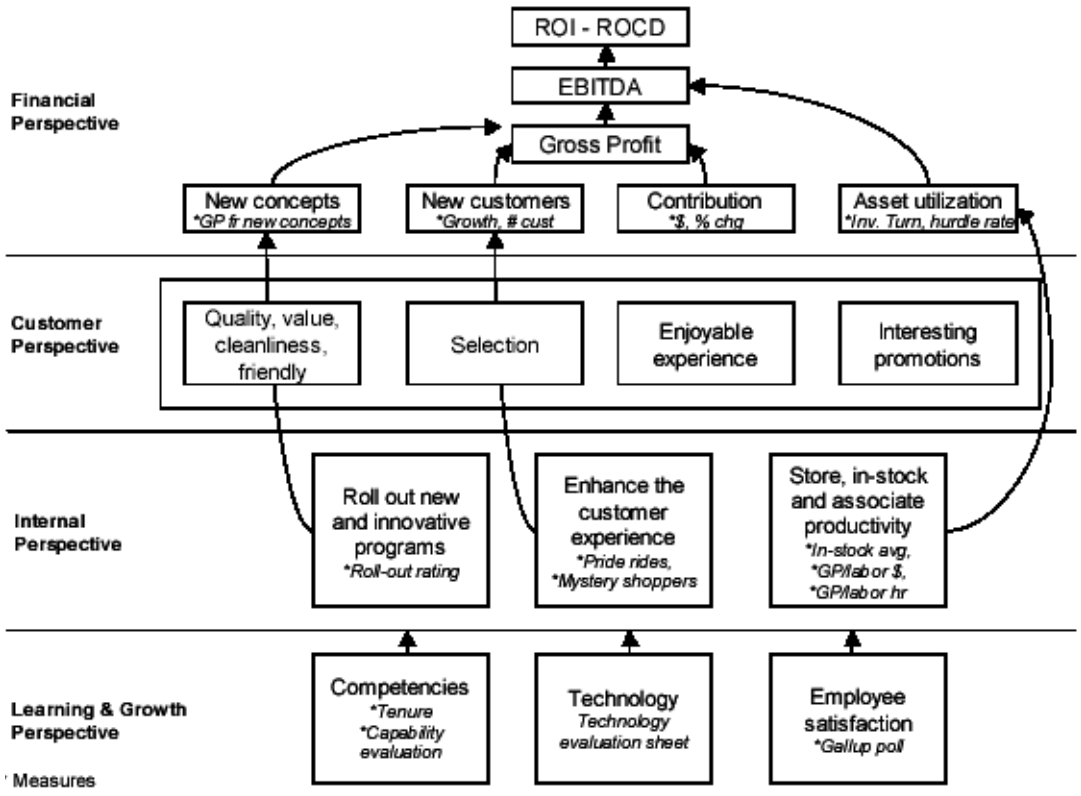
### Balanced Scorecards

Introduced by Robert S. Kaplan and David P. Norton in 1992, balanced scorecards are in widespread use among Fortune 1000 companies. At the time, the authors were

seeking to find a way to report on leading indicators of a business's health rather than lagging indicators, which they felt conventional financial accounting measures were. Exclusive reliance on financial measures was causing organizations to do the wrong things. The measures included in the balanced scorecard are derived from the company's vision and strategy. The balanced scorecard is broken down into four sections, called perspectives:

The financial perspective The strategy for growth, profitability and risk from the shareholder's perspective. The customer perspective The strategy for creating value and differentiation from the perspective of the customer. The internal business The strategic priorities for various business processes that create customer perspective and shareholder satisfaction. The learning and growth perspective The priorities to create a climate that supports organizational change, innovation and growth.

Within each section, companies identify key measures and discover and map the causal linkages between measures and overall company performance. Typically, learning and growth objectives have a causal relationship with the internal perspective, the internal processes and programs. In turn, the internal perspective has a cause-effect relationship with the financial perspective (for example, if an internal manufacturing process, when changed, produces cost savings) and can have a cause-effect relationship on the customer perspective. Overall value flows upwards from the learning and growth perspective to the financial perspective. The following Figure depicts an example of a balanced scorecard for a retail company.



CRM systems can serve as the source for data within each of the perspectives. External customer-focused measures can be used to populate the customer perspective. Internal CRM efficiency measures could be used to populate the internal perspective. CRM knowledge management measures could be used to populate the learning and growth perspective. Despite the wide adoption of the balanced scorecard, problems exist. First, it is not always possible or it may take too long to prove through statistical means the causal linkages between perspectives measures. Second, the scorecard is reliant on performance measures from a variety of sources that must be reliable and timely. Poor data quality or misuse of the data is diminishing the usefulness of the balanced scorecard. This problem is not unknown to CRM either. Gartner reports the number one reason CRM fails is that data is ignored or is of poor quality.

## Customer Knowledge Management

CRM systems can collect an enormous amount of data about customers. As pointed out earlier, the inability to use that data is proving to be a big stumbling block for CRM. Interestingly, very few companies actually measure their ability to create, manage and communicate customer knowledge. One of the reasons for lack of measurement is the fact that CRM data is widely dispersed across business functions. Each function has its own interests regarding customer information and its own ways of formatting and structuring the data. This makes it difficult to pull the data together.

Davenport distinguished between several types of customer knowledge:

- Quantitative, data-driven knowledge found in transactional systems
- Knowledge derived from interactions with people including: experiential observations, comments, lessons learned, qualitative facts, etc.
- Tacit knowledge which is unstructured and difficult to express and must be converted to explicit knowledge When it comes to customer knowledge, companies can (and a few do) measure three aspects pf customer knowledge:
    1. The value customer knowledge has (intangible asset measurement)
    2. The process by which it is produced and consumed (knowledge management operations)
    3. The quality of the knowledge or data (data quality)

One study, documented examples of real-world measures used throughout the process of implementing knowledge management. The authors identified five stages of knowledge management:

Stage 1 - Enter and advocate

Stage 2 - Explore and experiment

Stage 3 - Discover and conduct pilots

Stage 4 - Expand and support

Stage 5 - Institutionalize

Stage 1 Measurement proved critical for stages three and four but was found present in all but the first stage. Measures in this study are asset and operational measures.

Stage 2 measures pertain to interest within knowledge management and fall into three categories: anecdotal data around war stories, success stories, etc., quantitative data around the growth of the knowledge management initiative, and qualitative data extrapolated from the anecdotal data. However, in this stage companies are formulating their knowledge management strategies.

Some measures in this stage include:

- The number of sponsors recruited as champions and project sponsors
- The number of appearances in from of decision makers and the response received
- The amount of corporate funding

The size of the gap between current state knowledge management measurement and desired state

- Measures against a benchmark
- Measures of cultural readiness

Stage 3 measures have more rigor and definition with the focus on proving business value. Some measures in this stage include:

- Hard and soft business value derived from each pilot
- Time spent per hit (to distinguish between a quick review and rejection of data versus actual comprehension or use)
- Hits per user
- Frequency of site visits
- Percentage of total hits that are from repeat visitor
- Qualitative data concerning knowledge-sharing, knowledge value, team work, rewards, recognition and other organizational and cultural issue

- Identification and measuring of communities of practice
- Costs of capturing and creating knowledge
- Costs of ongoing knowledge management project management
- Project management effectiveness Within

Stage 4, companies have adopted knowledge management within the organization and measures increase in robustness. Examples include:

- Knowledge flow in an out of a community
- Feedback (amount and quality) that flows in and out of a community
- Surveys to determine how employees value knowledge management
- Maturity measures to determine If the knowledge management process is ad-hoc or optimized

Stage 5 is a continuation of stage 4 and measures are not used to prove value. Instead they are used to check progress monitor the continued evolution of the culture.

Another approach to measuring knowledge involves measuring the flow of communications between people. "An organization's data is found in its computer systems, but a company's intelligence is found in its biological and social systems," he argues. Kreb's approach involves using surveys and observation to uncover the formal and informal communication links between people and groups within a company to uncover the social links within and across the boundaries of the organization.

Link frequency is scored and visually depicted in a network diagram that clearly shows the nature of the linkages. Another way to measure knowledge management is to understand not only the production and communication of knowledge but also its consumption. Knowledge turnover is a term used to describe how knowledge moves between understanding and action in four distinct phases:

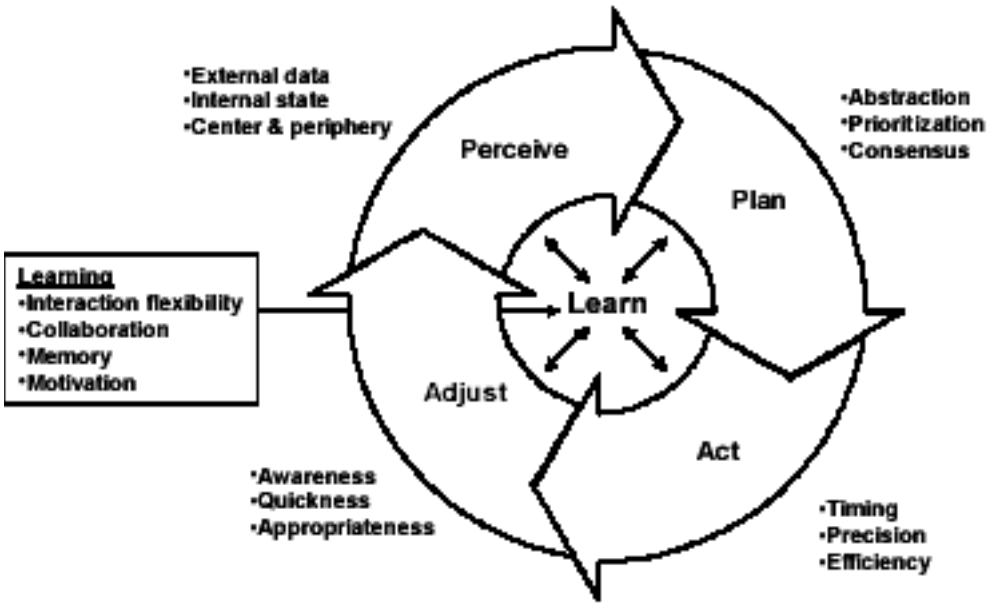
Perceived Involves analyzing data, merging different types of data, building models, authoring with new information.

Plan Involves prioritizing, communicating and developing a plan of action based on information perceived.

Act Involves executing the plan derived from the information perceived correctly and

## Changing the Company's Behavior in the Market

Adjust Involves measuring how much the planned execution generated had the desired effect and adjusting the execution, mid-stream if possible.




Knowledge is externally derived in this scheme in the perceive and adjust phase and is internally generated within the plan and adjust phases. Knowledge within this flow is communicated and retained ( above figure). One "knowledge turnover" is the completion of one perceive->plan->act->adjust cycle. This measurement schemes quantifies the collection and use of knowledge without regard to its inherent value. However, as measurements of actions based on knowledge collect data, the indirect or direct value of the knowledge can be derived.

### Implementing CRM Measurement

If one includes the full breadth of what can be measured with CRM technology and approaches, CRM measurement is frighteningly difficult. Despite the successes that are described in various books, publications, vendor web sites and CRM industry portals, no company is systematically and consistently measuring customer facing activities across the breadth and depth of the organization and customer base.

In fact, recent evidence is mounting that the vast majority of CRM initiatives are failing to produce results. So many impediments, technical and human, lie ahead.

Nearly every measurement framework, at its core, relies on the principle of causality. Lower level measures "roll-up" into a higher-level measure based on some reasoned causal relationship. As CRM measurement frameworks become more complex, the causal linkages become more difficult and time consuming to map, maintain and more importantly, to prove. Clearly some balance has to be struck between simplicity and complexity, between identifying causes and taking immediate action.

If the field of CRM measurement is complex, it is because the sum total of interactions between customers and companies are complex. If one considers this field as a region in space, or better still, an ocean, which is opaque, the problem becomes clear. In order to find fish, one needs more than one's eyes.

One needs some tools to find and catch fish. The same is true for finding a region of customer behavior that would be useful to understand and exploit: one needs tools designed to find that small area of useful information in the vast opaque sea (apparent entropy). When customer behavior is fluid due to a dynamic and changing market, existing tools designed to find significant patterns of customer behavior cannot be calibrated on old data or assumptions. The tools must evolve as the market evolves. A company's ability to perceive the market must be as fluid as its ability to adapt to or shape the market. In complex, dynamic markets, it is quite conceivable that known causal linkages between layers within a company's working theories of customer or market behavior can be invalid or worse still, be correct but irrelevant. When it comes to measuring something as dynamic as customers, most measurement frameworks need continual reassessment and recalibration.

At the other extreme are non-causal measurement schemes in which successful solutions proceed without establishing the causal linkages between related or rolled-up solutions. In some (most?) companies, this is the default approach to measuring successful initiatives. Lack of enterprise-wide coordination between various initiatives can lead to conflicting, redundant and sub optimal solutions. In this Darwinian model, however, successful CRM solutions are advanced, unsuccessful programs are weeded out and the company does receive some benefit. In fact, one could, in theory, design a measurement system that measures competing CRM programs on operational measures to help the company weed out what shouldn't be done. Key concepts from successful programs can be shared and cross-pollinated across multiple teams. Proving causal linkages between human (customer or employee) behavior and business success can be dispensed with or downplayed. Instead, surviving programs and the key concepts behind them, however cross-pollinated they have become, represent the "causal" linkages "explaining" behavior or "predicting" performance. Anecdote rules. The key concepts, which inform new CRM programs, are more like memes, units of cultural information that successfully spread throughout the

company. No one engineers a comprehensive behavioral model around customers nor does anyone engineer how customer knowledge is created. Is this a valid measurement approach?

Perhaps. If speed of adaptation is important, companies may not have the time to identify the right measures and the right causal relationships, which may take months or years to develop, as it sometimes does for balanced scorecard methods (Smith, 2001). Are causal measurement models better than correlated or non-causal ones at finding useful patterns? Perhaps, but the real issue is whether the measurement system is finding the right knowledge in timely way. While a non-causal CRM measurement system can detect conditions that provide opportunities quickly, determining the right business response will require some root cause analysis for diagnosing and fixing customer problems.

Time becomes the pivotal variable. All the things that can and should be measured across the enterprise regarding customers, be they value creation, value delivery or customer insight activities, can be compared to that opaque sea. While the business can cast its net (its measurement system) to find fish (useful knowledge) where the fish usually swim, all sorts of things can cause the fish to swim in other hidden waters. Overly developed and non adapting measurement systems are like the persistent fisherman casting his or her old nets in the same place, waiting for the fish that may never return. In this regard, the sea of activity between a company and its customers and within itself as it serves customers, is that sea of complexity. The theory of measurement advanced here is neutral on this question of causal versus non-causal customer knowledge.

Investing in identifying causality is a decision that folds within the framework offered here and will be influenced by many factors. The CRM practitioner that complained that CRM stands for "can't really measure" was most likely responding to the cost of identifying causality that made proving CRM investments more difficult.

How does a business go about consistently measuring that field of complexity in a way that will detect new and unseen patterns? Most companies assume that this can be engineered in a predictable way. Some argue that it can't. At best, a business can create an adaptive internal environment that seems best suited for detecting and acting upon this field of dynamic complexity. It is argued that the mainstream thinking about knowledge management that says knowledge is stored within the minds of individuals in tacit form and has value only when extracted as explicit knowledge, is wrong. Knowledge assets lie in the "pattern of relationships between its members." Knowledge is "the act of conversing and new knowledge is created when ways of talking, and therefore patterns of relationship change." Customer knowledge comes about through interactions between people within the company. The mainstream thinking about knowledge management is too simplistic.

"Knowledge management is not just a matter of managing information. It is … deeply social in nature and must be approached by taking human and social factors into account," The most important aspects of a knowledge management system is that it becomes a knowledge community; a place where people can encounter and interact with others who discover, use and manipulate knowledge.

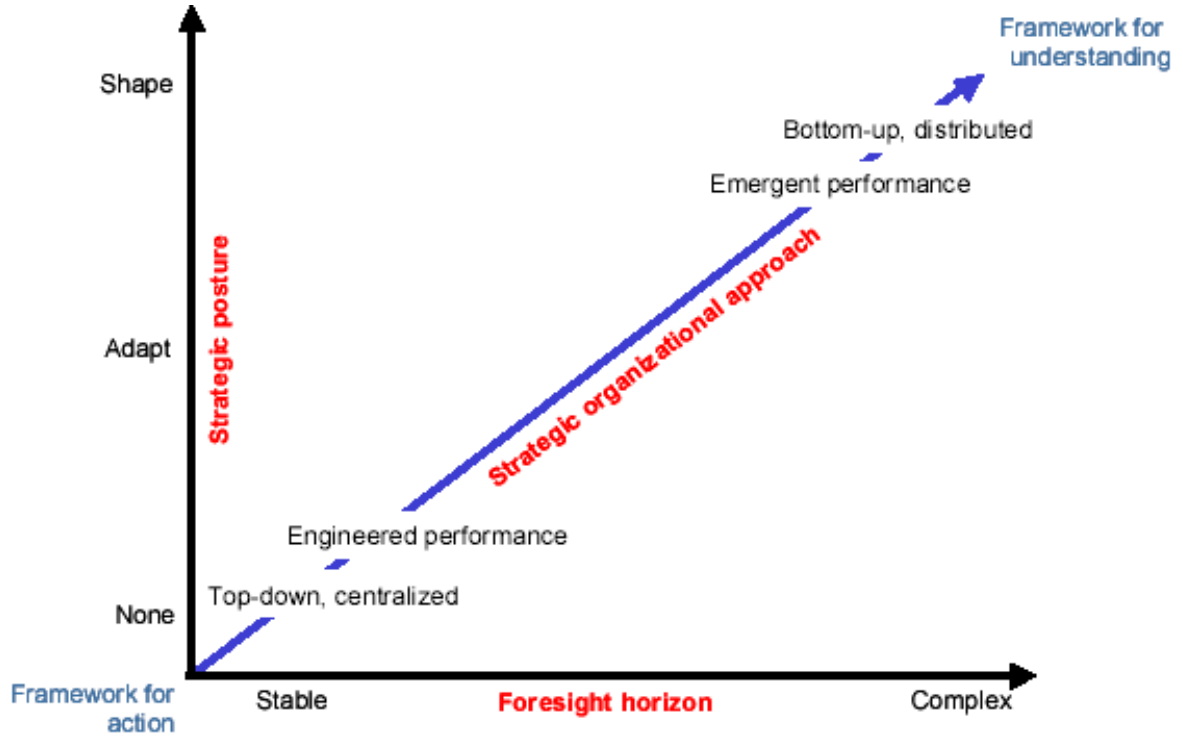
The non-deterministic way that strategy can unfold into business success through people. In this paper, the authors describe how, in complex, dynamic market conditions, business strategy shifts from management attempting to control a process of interactions by the players (or agents) involved, to control being redistributed among agents themselves to pursue a more dynamic "bottom-up" approach. In this model, agents in the market pursue and form "generative relationships" with each other. These relationships are perceived as creating value for the agents involved. How agents perceive themselves, products and services in the market and generative relationships is re-examined and reinterpreted as the agents themselves understand and describe the market space.

Another way of thinking about this knowledge management debate is to pose a question. For companies that deploy CRM systems, which contributed most to the benefits derived from the CRM system:

- Establishing strong causal linkages within the measurement model deployed or in use?
- The use of CRM technology for some efficiency or effectiveness gain?
- The socialization of the measurement framework within the culture of the company?

In extremely fluid market conditions, it seems unlikely that businesses can identify, in time, key causal linkages in customer and employee behavior when all the agents involved are reinterpreting and redefining how they conceive of products, services, customers and relationships. When the nouns are fluid, do the verbs make sense?

In actual practice, businesses combine both approaches measurement and strategy. In many cases, successful market strategies are executed locally and often without upper management knowledge and control. In time and as market conditions stabilize, these distributed pockets of control can inform and shape overall strategy for a more traditional top-down approach through performance measurement and control systems. These measurements and systems must support top-down and bottom-up communication and feedback to support learning. The figure given below depicts the relationship between the competing concerns of overall strategy posture (shape, adapt or do nothing), market volatility within the planning horizon and organizational approach.




This debate between engineered-knowledge-in-the-artifacts versus emergent-knowledge-in-the-human network is a key issue for CRM measurement. For CRM measurement frameworks to be successful, companies need to understand and refine their vision of how knowledge should be structured, communicated and socialized within the organization to influence results within required time frames.

### Attributes of a CRM Measurement Framework

What we need now are some attributes that help us understand what constitutes the key dimensions of a measurement approach. Measurement frameworks can have three attributes or vectors that describe them:

1. Field breadth
2. Field depth
3. Field tractability

The term field here is defined as those customer-facing and customer-impacting activities to be measured that can include processes within the company, among its suppliers and certainly with its customers. Each of these vectors competes with each other for management funding and attention. Field breadth refers to how much of the total set of activities needed to be measured are actually measured. Are all customer segments, product categories, business processes measured? Field depth refers to how granular is

the measurement approach. Systemic? At the customer segment level? At the customer level? How far are sub-attributes broken down? How frequently is data measured? Field tractability refers to how explainable and provable is the CRM measurement framework employed. With these attributes in mind, here are the principles companies should consider for establishing the proper measurement framework:

1. The measurement framework designed must cover the field width, depth and tractability in a cost effective manner that meets the company's strategic goals. Tradeoffs between these vectors will ensue to address the cost of measurement and applicability to meeting strategic goals.
2. The measurement framework designed must consider the level of stability or complexity within the market or within the enterprise. The more complex and volatile the market, the more adaptive and timely the measurement framework needs to be.
3. The measurement framework needs to be able to function with partial and incomplete measures. It is impossible for companies to measure everything at once. A starting point must be had. One can be determined by restricting any combination of field breadth, depth and tractability.
4. For highly complex markets, the measurement framework itself will evolve, perhaps rapidly. The measurement framework needs to be either self adapting or measured in some way (meta measurement) so that it can be reconstituted as needed. This requires a different knowledge management approach and organizational model than most companies possess. Analogies from the complexity sciences provide some future directions for thinking about adaptable measurement systems.

**Conclusion: The Complexity of CRM Measurement**

The trends sweeping us along into this era of CRM have their roots midway through the 20th Century. Postmodernism is replacing modernism. One of the key conditions of postmodernism is the reversal, in importance, between production and consumption.. Consumption, which makes up the three-quarters of the U.S. economy, now has privileged status instead of production. "consumption becomes the means through which individuals define their self-images." And the marketing discipline is the primary institution reinforcing this trend.

Consumer behavior theories built on the consistency and orderliness of consumer behavior are being obviated, the authors argue. Global competition and new technologies ensure that as soon as customer behavior is on the "verge of stability and explainability, new

products and services are introduced to destabilize the consumer behavior model so as to create competitive openings for challengers."

Traditional variables that have been used to predict or explain consumer behavior are now lacking, the authors say. It not just that "consumers frequently change their self-concepts, characters and values, but they often subscribe to multiple … value systems and lifestyles." This problem is not simply restricted to business-to-consumer companies. The business buyer within a company is also a consumer and is affected similarly. In addition, business-to-business companies need to understand consumer behavior as much as the retail company.

With all this hand wringing, is it that customers are becoming segments of one? Are all the recent trends of targeted marketing, micro-segmentation, 1:1 marketing, mass-customization and CRM a response to this fractional, relativistic consumer mindset or is the new consumer mindset a reflection of these recent trends? In the competitive business world, it doesn't matter which is the cause of the other. Consumers and businesses are quickly changing and showing no signs of slowing. Our measurement frameworks need to catch up. The multiplicity of frameworks for measuring "all things customer" from the strategic to the operational is supremely challenging the CRM practitioner. These new customer-facing capabilities will take time to build out. This is not surprising since companies have had 150 years of industrialization and the modern project to perfect product-facing capabilities.

Change begins with knowing. Companies today need to implement more sophisticated ways of measuring this complex and diverse field. Technology will continue to drive these new measurement approaches.

**Self Assessment Quiestions**

1. Briefly explain prioritizing in CRM.
2. Who should scope a CRM Project?
3. Elaborate in detail the CRM Development success metrics.
4. Explain in detail planning, construction and deployment in a CRM project.
5. Briefly explain CRM delivery system.
6. Elaborate in detail the CRM program timeline.
7. How do you plan for CRM success?
8. "Garbage in, Garbage out", Explain.
9. Explain in detail the CRM Development team.

10. Elaborate in detail the job roles that participate in CRM development.
11. What is the purpose of measuring CRM.
12. Explain in detail the CRM Measurement frameworks.
13. Write short notes on Customer value Analysis.
14. Briefly highlight the relation of Balanced Scorecards in CRM.
15. What are the attributes of a different CRM Measurement Framework?
16. Explain in detail the complexity in CRM Measurement.

## CASE STUDY

The express services industry has been recently baptized. The market leader of yesteryears India Posts, by virtue of its monopoly status had a run of the market. It wallowed in the luxury of not doing anything new that would rock the boat the British left it, as it were. I t was the unorganized sector to begin with, that identified the unmet need of the customers and introduced in the Indian customer to what is now recognized as the express industry.

The birth of the express industry has been the turning point for India Posts. One would have expected that an organization with such reach and legacy as only has, would have made the first move. But it was not to be.

In the mean time, India Posts had its knee-jerk reactions of first stiffing competition, attempting to meet competition if at least half heartedly and they finally resigning to the competition. But after a lot of prodding and introspection in the true making of a sleeping giant, has woken up and is evolving strategies to meet the challenge of competition in the new world.

### Questions

1. What could be the CRM practices and strategies India Post should adopt in the current scenario?
2. Recommend strategies for tomorrow?

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