

# **Dairy Information Services Kiosk and Dairy Portal<sup>1</sup>**

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## **Introduction**

A proof of concept application using Information and Communication Technology (ICT) in the dairy sector was developed by the Centre for Electronics Governance at the Indian Institute of Management, Ahmedabad (CEG-IIMA). The application aims at helping the dairy farmers with timely messages and educating them on the care for their milch cattle and enhance the production of quality milk. It also aims at assisting the dairy unions in effectively scheduling and organizing the veterinary, artificial insemination, cattle feed and other related services. The application uses Personal Computers at the milk collection Centres of the Dairy Cooperative Societies (DCS) having connectivity to an Internet Service Provider (ISP). The application includes two components - a Dairy Portal (DP) and a Dairy Information Services Kiosk(DISK). This paper presents IIMA-CEG's efforts to design and implement the DISK and Dairy Portal.

## **Dairy Information Services Kiosk (DISK)**

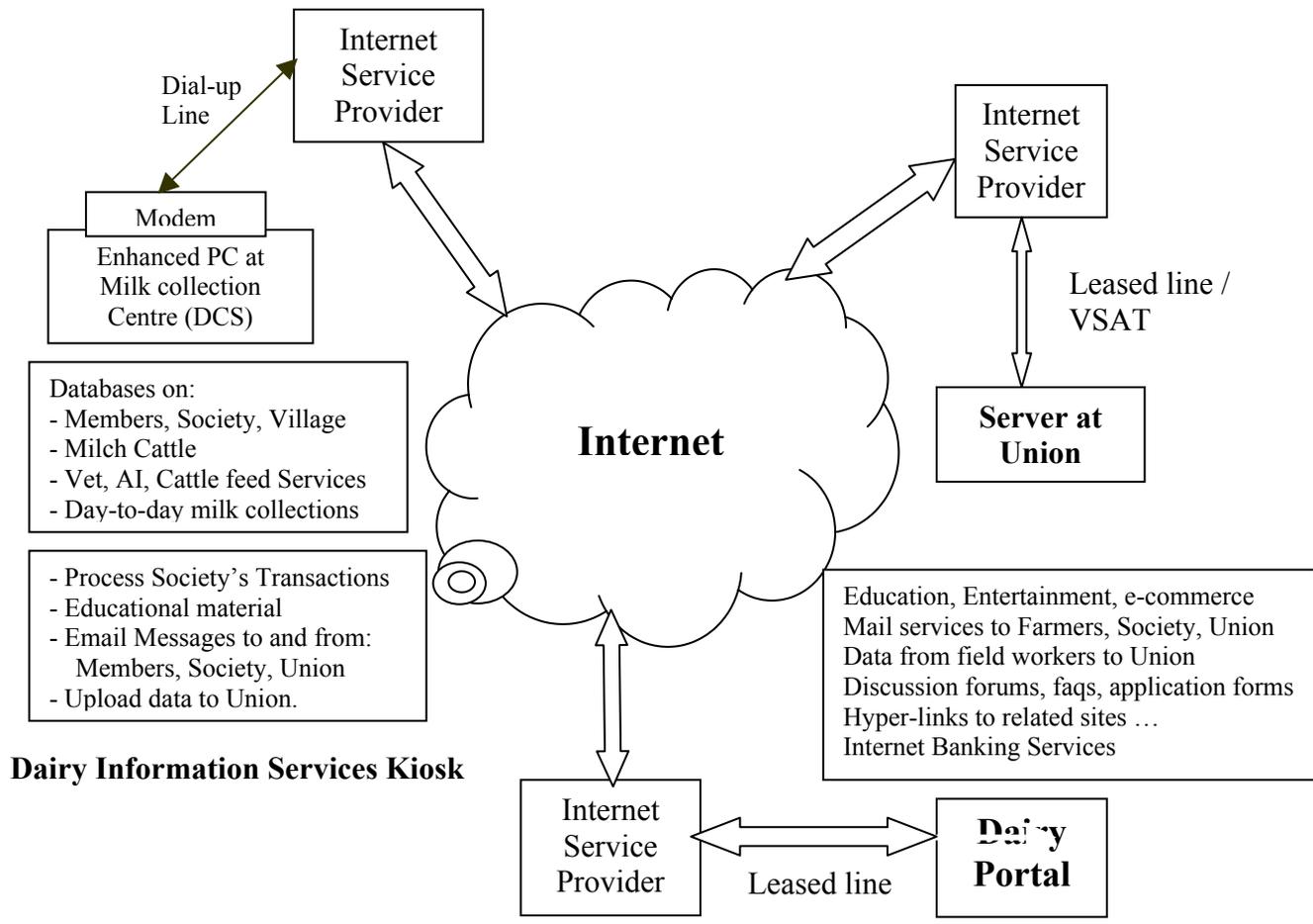
With the initiatives of National Dairy Development Board (NDDB), out of 70,000 dairy cooperative societies in the country, around 26000 are using Electronic Miliko-Testers (EMT) and around 2500 are using the PC connected electronic milko-tester machines (known as Automatic Milk Collection Systems - AMCS). These systems introduced very satisfactory milk collection methods and facilitated immediate payments to farmers based on the quality and quantity of milk delivered [1]. The success of these systems coupled with inexpensive connectivity opportunity offered by Internet, motivated the CEG-IIMA to enhance the PC at the Automatic Milk Collection Systems (AMCS) into a Dairy Information Services Kiosk (DISK) and offer an extensive knowledge and service delivery mechanism through a Dairy Portal. The DISK when used with a Dairy Portal of

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the Union, enhances the scope of services that would benefit the farmers as well as the dairy industry [2].

Dairy farmers who are members of the DCS, the dairy farmers, visit the milk collection Centre of the DCS twice a day to deliver the milk. Thus, there exists enormous opportunity to interact with them on the issues related to DCS and union activities. The Figure below pictorially illustrates the concept of DISK and Dairy Portal.



**Figure: Dairy Information Services Kiosk (DISK) and Dairy Portal**

Current developments in ICT enable creation of cost effective solutions that strengthen the exchange of useful information between farmers and the union, in addition to opening a window to the world of opportunities.

Personal Computers have become extremely powerful in terms of their capacity to handle complex data, software and connectivity with the external world. Through regional language and graphic user interfaces, these systems have become user friendly and can even be used by less educated users. Today, several rural areas can also access Internet Service Providers (ISP) through dial-up mode, facilitating internet access. Many enterprises all over the world (including some Indian dairy unions) are making information about their products easily available through a web site, to the interested consumers all over the world, accessing through a simple internet browser.

A large number of organizations are in the process of converting this connectivity opportunity into business benefits. Enterprises are establishing links with suppliers (Business-to-Business: B2B), and with customers (Business-to-Customer: B2C) through the internet medium to minimize the lead times and transaction costs. In addition, this medium is also perceived as an opportunity to understand customers better, enhance the service quality and to introduce the new products and services.

The Personal Computers have been in AMCS at the milk collection Centres to process the data collected by the electronic milko-testers. They have worked flawlessly at several rural societies for more than five years. Local agencies have gained experience and expertise to handle such systems in rural societies. Given this, the Dairy Information Services Kiosk (DISK) software is designed to be installed on the PC at the milk collection Centre of the DCS. The DISK software facilitates creation and maintenance of databases in the regional language of the society. It stores and maintains the databases of cooperative society members, their cattle, artificial insemination, veterinary, cattle feed and other service transactions in addition to the daily milk transactions. Based on this data, the DISK software generates alert as well as routine messages in the regional language, to be given to the farmers when they come to deliver the milk. These messages typically draw the attention of the farmer towards the health and productivity aspects of his milch cattle. In addition, the DISK generates several summary reports for the management of the society.

All the cooperative societies using AMCS have a telephone connection. By subscribing to an ISP operating in the region, the DISK PC (through a *modem* ) can use the existing the telephone line to get access to the internet. Thus, with an ISP subscription and addition of a modem added to the existing hardware, the DCS can access the Dairy Portal and other web sites. Besides facilitating email messaging between members and their friends and relatives, the connectivity allows messaging and data transfers between members and union, and society and union. The DISK software compiles and distributes the messages received by the members. Similarly, the data to be sent to union can be despatched by the DISK to Union either in the form of emails or through the Dairy Portal.

### **Dairy Portal**

The Dairy Portal is designed to provide an interactive dairy information and education channel to the members of the DCS (farmers) and others in the dairy sector. To a large extent, the contents are created and the interaction is facilitated in the regional language as well as English. A toggle button on the main page of the portal facilitates switching between these two languages. The portal can be accessed through just an internet browser (other than operating system and browser, no other software is required on the PC) by any authorized user on the internet.

The Dairy Portal has textual as well as multi-media content useful to the farmers, extension workers, business executives and researchers dealing with the dairy sector. The portal mainly offers services such as education, entertainment, discussion forum, frequently asked questions, data transfers, application forms for submission to various agencies, e-commerce, and e-banking.

On the education front, the portal typically it holds the data on best practices in breeding and rearing milch cattle, feeding and keeping animal healthy, producing high quality milk, care to be taken in buying and selling the cattle, and several other aspects to educate and advise the users. In addition, the portal gives hyper links to other rural education web sites. For example, the prototype portal has provided hyper link to SRISTI (an NGO

working with IIMA) which has documented thousands of rural innovations in multimedia format [3]. Hyper links are also provided to other sites dealing with the dairy sector. The portal also holds audio-visual material aimed at adult literacy using folk songs [4].

On the commercial front, the portal provides a platform for putting up announcements for buying or selling cattle. It is also planned to incorporate an e-banking module. It is expected that some banks would come forward to support the direct deposit of the milk payments to the farmers into their accounts and subsequently facilitate withdrawals through smart cards at conveniently located cash dispensing stations.

The portal is created as a two-tier architecture, with database software hosting and maintaining the data and the web server delivering static as well as dynamic the contents. Several technologies are used to create and deliver the contents on the prototype Dairy Portal.

### **Development and Pilot Testing of DISK**

The CEG-IIMA interacted with several experienced managers of unions and NDDDB in developing the initial specifications. Visits to several DCS were undertaken before finalizing the specifications, based on which, the prototype DISK software was developed by the software team at CEG.

Amul Dairy came forward to provide resources to pilot test the DISK. The Uttarsanda DCS was chosen as the first pilot site. The CEG is in the process of pilot testing DISK at couple of other DCS of Amul. To facilitate the testing activity, Amul has deputed a manager to coordinate the pilot implementations.

For assistance in pilot testing, CEG-IIMA involved a local service provider of the AMCS, M/s Shri Kamadhenu Electronics Pvt. Ltd. (SKEPL), Vallabh Vidyanagar for assistance in pilot testing. SKEPL took the responsibility of providing the computer and other hardware support, collecting the master data, and running the DISK software at the DCS.

The initial plan to keep independent PC(s) to host DISK and provide Dairy Portal access, as in the Warna experiment [5] did not prove feasible. The executive committee members of the DCS did not show enthusiasm to work with an additional system. They felt that farmers would appreciate the benefits of DISK and DP, if the new service oriented messages are integrated with their milk bill for which they have to any way stand in queue. It was strongly felt that the farmers may not appreciate the benefits if they have to wait in another queue to get their messages.

Thus, to start with, the existing PC of the AMCS is replaced by a current generation PC having adequate disk space and main memory to support the current version of windows and internet browser software. A modem was also installed on the PC. The DISK software was modified to co-exist with the existing milk collection and billing system. It was also modified to generate and print integrated milk bills in the regional language, incorporating personal messages to farmers on the service activities. It was felt that the system could be expanded with additional workstations subsequently, after the farmers realize the benefits.

The pilot implementation at Uttarsanda DCS started at the cow milk collection station. The data on the members and their cattle were collected and databases were created. CEG members and SKEPL spent several days in creating databases and modifying the milk bill and report formats to ensure that the output is satisfactory and is less time consuming. The Uttarsanda DCS executive committee members and the farmers provided excellent support to both CEG and SKEPL members and DISK was successfully implemented in stand alone mode. The DISK's connectivity with the union and Dairy Portal is being tested. The entire testing and stabilization activity took around three months.

### **Development and Pilot Testing of Dairy Portal**

The Dairy Portal software was also developed at IIMA by the software team of the CEG. Formats and initial contents on several topics were created with the help of experienced

managers and researchers in the dairy sector. The Prototype version of the portal is currently hosted on IIMA's web server and is accessible through a hyper link to CEG's web site ( [www.iimahd.ernet.in/~egov](http://www.iimahd.ernet.in/~egov) ). The "Dairy Portal" button on the CEG's page initiates the portal into operation. The contents on the portal are being maintained currently by the CEG.

The dairy portal was demonstrated at the computer Centre of the CEG to several dairy executives and researchers and their feedback were incorporated. Many visitors expressed desire to use the portal.

Regular use of the portal at the pilot DCS is still to be achieved. The poor quality of telephone line is a bottleneck in getting access to internet and to the Dairy Portal. This problem is likely to be sorted out with the expected improvement of line quality soon.

## **Conclusion**

The CEG-IIMA has invested significant resources in conceptualizing, developing and implementing DISK and Dairy Portal. The Amul Dairy has offered support to pilot test these proof-of-concept products and the results are very encouraging. There is still an unlimited potential to be tapped from the opportunity provided by the ICT application.

The CEG-IIMA is looking forward to the active participation of the dairy unions in hosting and field testing of the portal with larger participation of users from the dairy sector. However, hosting the Dairy Portal requires significant technical as well as domain specific knowledge. The union can engage dairy specialists to interact with all stakeholders in the dairy sector to collect and create the contents relevant to the sector. It also can coordinate with its cooperative societies to put up the material and data relevant to them. Perhaps the role of a central dairy agency like NDDB in creating and maintaining the web pages and data specific to all participating unions may help the unions. Subsequently, when the unions are equipped to manage the contents, each union may enhance its web page into a portal and host it independently.

The ICT applications described above have received encouraging responses from the dairy sector. In these challenging times, such applications are a useful tool at the grass-root level, to reap quantifiable benefits and help reinforce the foundations of the immensely successful and proven milk cooperative movement.

### References

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