ICT- ENABLED SERVICES FOR ANAND AGRICULTURAL UNIVERSITY

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ABSTRACT

ICT technology has had an enormous impact on Anand Agricultural University. This paper aimed at ascertaining the ICT-enabled services in Anand Agricultural University, Anand, Gujarat, India. The study employed a case study design. The study found that some services such as Web Site, Web Mail Service, Online Tour Program , Mobile Based Application for Farmers, Online Bill Processing System, internet and internet services were ICT -enabled or driven. The critical constraints to ICT -enabled services include poor funding, inadequate ICT infrastructure and inadequate ICT staff. To address these problems, it was suggested that there should be budget provision for ICT projects and series and that private sector investment should be promoted in university. Based on these findings, some recommendations were made. Anand Agricultural University, as platform for innovation and creativity requires proper understanding of the status of services, project implementation and ICT applications including services that are ICT driven. This understanding will not only improve ICT-enabled services but also provide opportunities for innovative services. This paper provides a framework for understanding the status of ICT-enabled services due to developments in ICT in Anand Agricultural University.

Keywords: *information, communication, technology, services.*

INTRODUCTION

Information and Communications Technologies (ICTs), broadly defined, facilitate by electronic means the creation, storage, management and dissemination of information. ICT is both a vehicle for communication and a means of processing information. ICTs are part of the economic infrastructure that supports global production, trade, investment and capital flows. ICTs are means by which individuals, institutions and organizations network, undertake activities, and participate in the development process at local, national and global levels. Specifically the ICT industry is the main driver of the economies of countries like India and China. Technology is fuelling innovation and productivity, and there are signs of fundamental change in markets and user behavior, as countries move towards a knowledge-based economy.

The Information and Communication Technology (ICT) in this era of globalization has accentuated new modes of knowledge transformation and communication patterns. ICT has opened up uncommon opportunities for developing countries in terms of providing low cost access to information. This is the fastest growing tool of communication ever with the number of users growing from 150 million in 1998 to more than 700 million in 2001 (Brown, 2002). Considering this, use of ICT in agricultural university is of strategic importance in a country like India. ICT have tremendous potential in timely collection of data and distributing it to the potential users even in developing countries, thus, providing low cost access to information.

While the term 'ICT' can be interpreted as including a wide variety of media, ICT is used to denote "the use of computers and the communication systems between computers (Anon, 1999). ICT, however have the potential of getting vast amount of information for Agricultural University in a more timely, comprehensive and cost effective manner. The ICT are becoming more accessible and users can obtain information from various sources, one computer could meet the needs of a large community. These modern technologies offer new and multiple perspectives, such as faster and better-focused access to information. Electronic mail is the most commonly used ICT that has brought a cultural revolution in the way individuals and organizations interact, in terms of time, cost and distance. Another most significant use of ICT is the World Wide Web, which enables user to access

information on millions of computers.

In a broad sense, ICT enabled services can be defined as: "Systems that enable value co-creation through the development and implementation of information and communication technology enabled processes that integrate system value propositions with user value drivers."

METHODOLOGY

ICT enabled services has been implemented as a layered structure having three layers viz., User Interface layer (UIL), Application layer (APL) and Database layer (DBL). Each layer has its own specific functions. Applications are usually broken into logical chunks called "tiers", where every tier is assigned a role. Traditional applications consist only of 1 tier, which resides on the client machine, but web applications lend themselves to an n-tiered approach by nature. Though many variations are possible, the most common structure is the three-tiered application. In its most common form, the three tiers are called presentation, application and storage, in this order. A web browser is the first tier (presentation), an engine using some dynamic Web content technology (such as ASP, ASP.NET, CGI, ColdFusion, JSP/Java, PHP, Perl, Python, Ruby on Rails or Struts2) is the middle tier (application logic), and a database is the third tier (storage).

The web browser sends requests to the middle tier, which services them by making queries and updates against the database and generates a user interface. In a three-tier architecture (also known as a multi-tier architecture), there are three or more interacting tiers, each with its own specific responsibilities (see Fig. 1).

RESULTS AND DISCUSSION

Anand Agricultural University (AAU) was established in 2004 at Anand with the support of the Government of Gujarat, Act No.(Guj 5 of 2004) dated April 29, 2004. Caved out of the erstwhile Gujarat Agricultural University (GAU), the dream institution of Sardar Vallabhbhai Patel and Dr. K. M. Munshi**, t**he AAU was set up to provide support to the farming community in three facets namely education, research and extension activities in Agriculture, Horticulture ,Engineering, Product Processing and Home Science. At present there seven colleges, seventeen Research Centers and six Extension Education Institute working in nine districts of Gujarat namely Ahmedabad, Anand, Dahod, Kheda, Panchmahal, Vadodara, Mahisagar, Botad and Chhotaudepur.

The Directorate of Information Technology at Anand Agricultural University caters the demand for the use of Information Technology for the Anand Agricultural University. Internet, Intranet, ERP, AAU Web-mail, E-Library, CAB Database, J-Gate, Science Direct Personalizing Research, Annual Reviews, Springer Link and Consortium for e-Resources in Agriculture services at Anand Agricultural University have been provided and maintained through Local Area Network (LAN) having broadband connectivity. Some ICT-enabled services for Anand Agricultural University are as follows:

Web Site

Directorate of Information Technology has prepared a Web Site for Anand Agricultural University; the domain name is http://aau.in. This web site includes various aspects and activities of Anand Agricultural University like administration, faculties, colleges, education, and extension, e-library, tender, Right to Information Act etc (see Fig. 2).

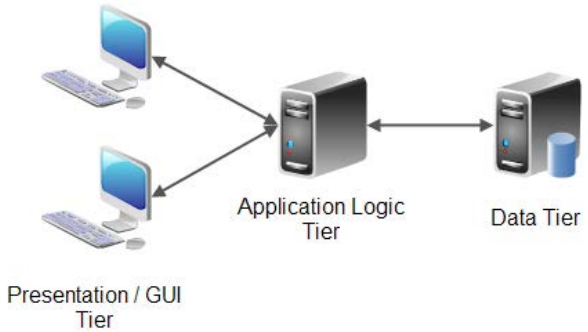

Fig. 1: Three-Tier Architecture
(http://tutorials.jenkov.com/software-architecture/n-tier-architecture.html)

Fig. 2: Home Page of Web Site

Web Mail Service

A web mail service (http://mail.aau.in) has been incorporated in the Web Site enabling the users to read and reply their e-mail from any computer of LAN. There are more than 1594 e-mail users. The web site has been maintained and updated regularly (see Fig. 3).

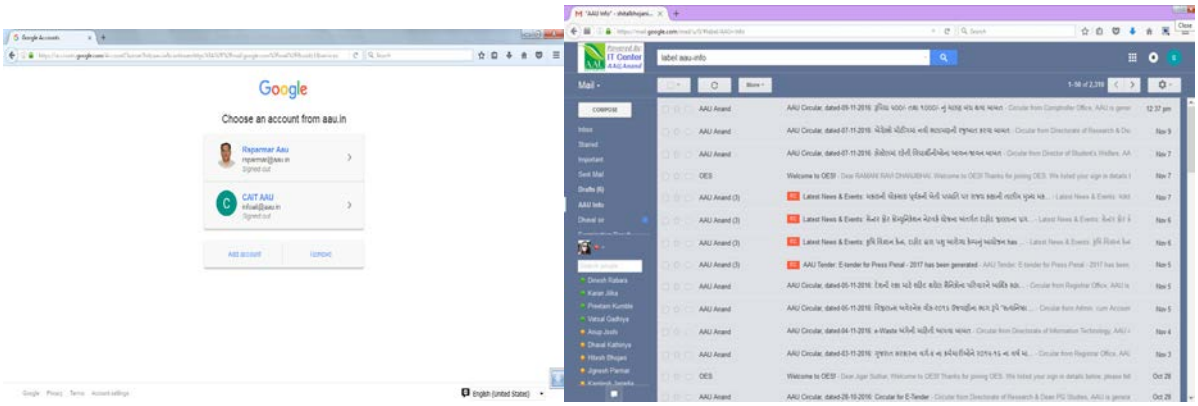

Fig. 3: Home Page of Web Mail Service

Online Tour Program

An online tour program (http://tour.aau.in/signin) is designed to manage the tour program and its schedule. Using this web based User Interface University officers will create tour online and manage their profile and manage the tours. Authorized user is able to do the appropriate operation on tour program like approve and reject. After recommendation from authorized

user it will displays for Approval or at next level recommending user. After successfully created tour, user will get SMS or E-mail. User can see various reports like tentative report, tour list report, TA-DA report, analysis report etc. User can also search the tour program (see Fig. 4).

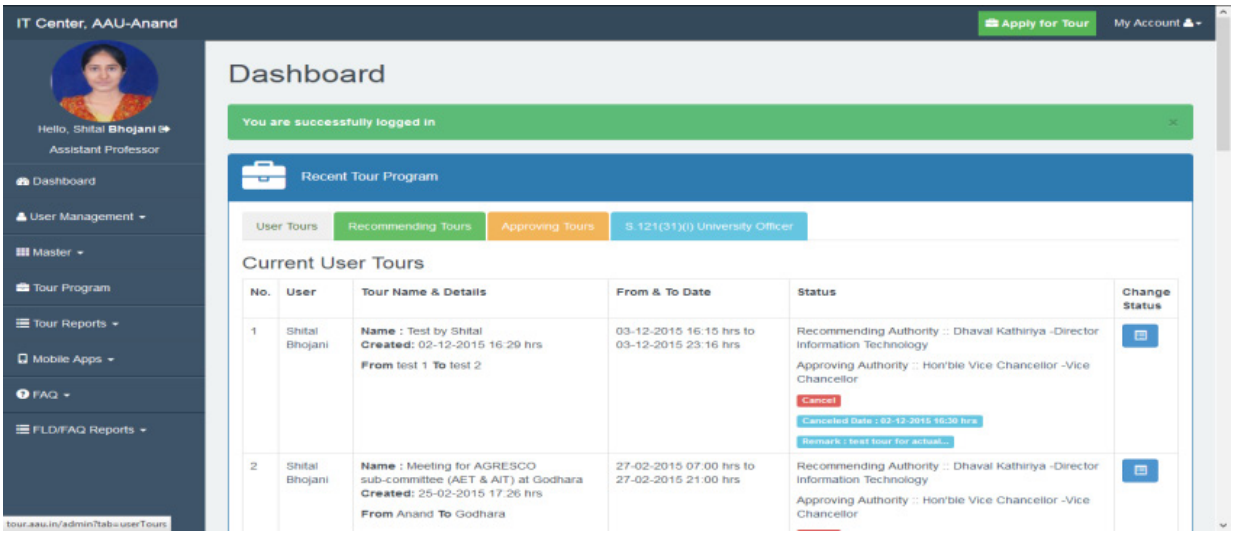

Fig. 4: Dashboard of an Online Tour Program

Online Bill Processing System

The Online Bill Processing System gives financial report of University. The system user (accountant) enters all scheme entry and grant allocated unit wise. Unit wise account officer user enters pay allowances and contingency. System user (accountant) can check bill and pass bill and can also see various report. Admin can generate various report as well as they able to print and export to excel (see Fig. 5).

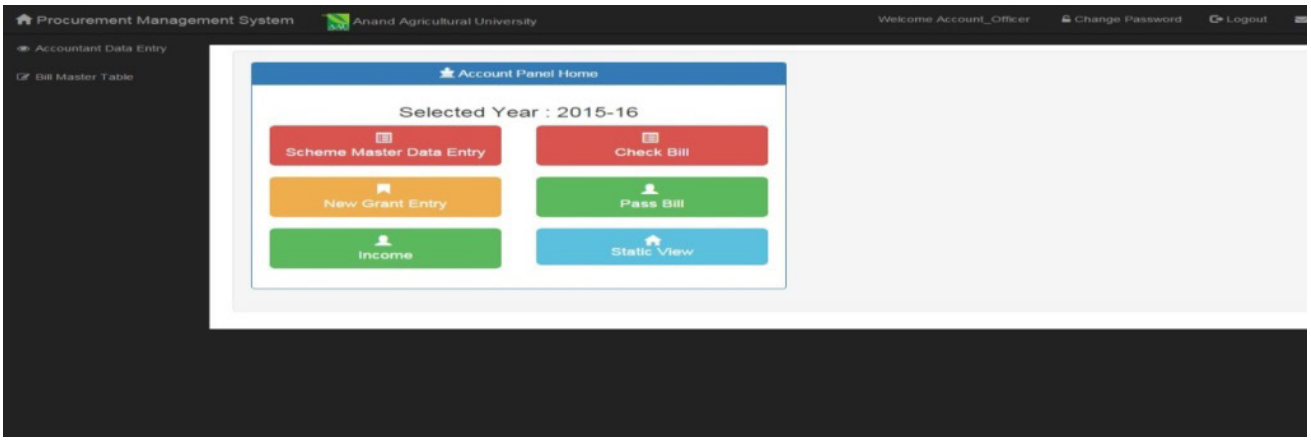

Fig. 5: Account user functionality

Mobile Based Application for Farmers

The mobile based application system (http://ikhedut.aau.in) gives the information of farming and animal husbandry for farmers. Farmers can ask question related of crops and animal husbandry and scientist give their answer. Farmers can download the application from Google Play apps and they can see this application offline when and where required. Admin can create various categories (see Fig. 6).

Fig. 6: Home page of Mobile Based Application

Document Management System

The Document Management system (http://172.16.31.232/DMS_AAU) manages the document version hierarchy within the department/university. The system is based on the departmental authority levels. User can manage different versions of any document. User can search and download any version document. The system can have admin module and user module. Admin can manage all the activities for the system. User can print and download the different kind of reports as per their needs (see Fig. 7).

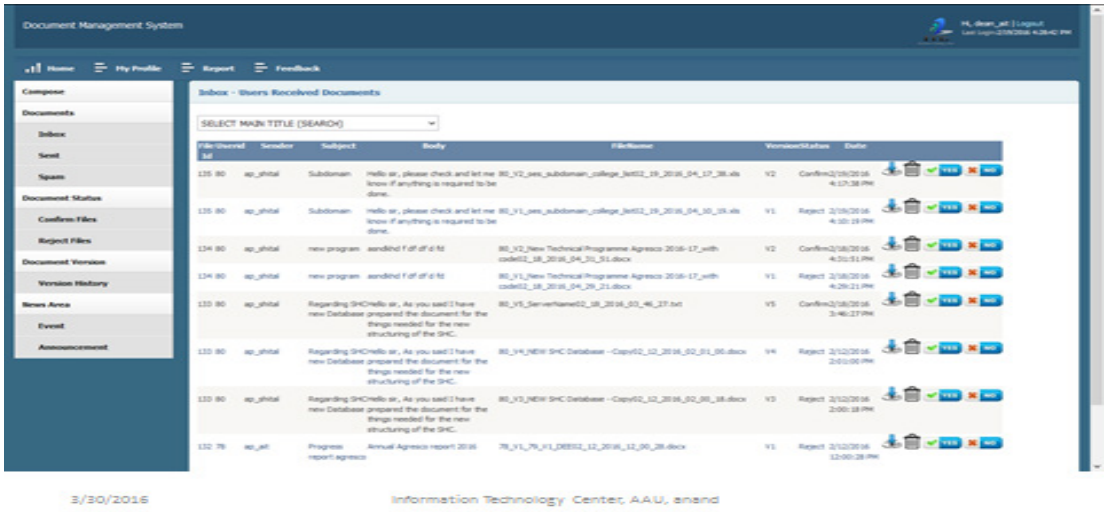

Fig. 7: Dashboard of Document Management System

CONCLUSION

- Over the past decade, access to ICT in agricultural university has grown rapidly, a development enabled by changes in technologies, policies, and markets.
- Technological innovations and policy reforms over the past decade have opened opportunities for the agricultural university, which has been critical to the expansion of access.
- The increase in ICT access and use has been accompanied by some important issues and constraints. Anand Agricultural University has to adapt policies and regulations to the rapid changes in technology and market structure.
- ICT now make it possible to collect and leverage huge amounts of critical data at minimal costs—thus making agricultural university operations more insight driven, and potentially more productive and efficient.
- Innovative use of ICT in the agricultural university service will deliver better value for users by creating efficiencies through integration, consolidation and sharing of common infrastructure, systems and resources.

- Adoption and facilitation of ICTs will increase productivity, improve the relationship between scientists, students and farmers and will deliver social and economic benefits for agricultural university.
- Integrated services and increased data sharing will drive significant efficiencies; will facilitate insight driven decision making; will increase openness and transparency between agricultural university and the farmers; and will provide a much higher user experience and quality of service.

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