

YOUTH PARLIAMENT OF PAKISTAN (PILDAT)

Report by Standing Committee on IT and Telecommunications



Presented by

Omair Najam

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Table of Contents

1	Acknowledgement	3
2	Introduction.....	4
3	3G and 4G : Future of Pakistan.....	5
	Introduction	5
	Some Facts.....	6
	India	7
	Afghanistan.....	7
	US Policy and Achievements	8
	Pakistan Current Status.....	8
	Advantages of 3G and 4G.....	9
	Recommendations and Conclusion.....	10
4	Scope and usage of E-Medicine in Pakistan	12
	Introduction	12
	Concept of e-medicine in Pakistan	13
	Reduce costs of medical care	14
	Advantages of E-medicine in Pakistan	15
	Points to be addressed to implement the telemedicine	15
5	Use of Information Technology in Taxation.....	17
	PRAL (Pakistan Revenue Automation Limited)	17
	PaCCS Software.....	19
	Recommendations.....	19
6	Prospects and role of IT in Agriculture Sector in Pakistan.....	21
	Agricultural Sector in Pakistan	21
	Information Technology.....	23

Role of IT in Agriculture	23
Limitations to implement IT induced agriculture in rural areas.....	25
Possible solution of the problems in spreading IT induced agriculture in rural areas.....	26
Conclusion	26
7 Use of Enterprise Resource Planning	27
Computerized Maintenance Management System (CMMS).....	27
Introduction	27
CMMS Scope and Usage.....	28
Selecting the Right CMMS.....	31
Factors for CMMS Selection	31
Factors Influencing Implementation Success.....	31
Benefits Of Implementing CMMS	31
Pakistan Scenario and Utilization.....	32
Conclusion	34
Works Cited	35

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Introduction

A common feature of all of the developed countries is that they are leaders not only in technological developments but they are also champion of adopting latest innovations. Although, we could observe significant advancements in Pakistan in the area of IT and telecommunications in absolute terms but she is lagging much in comparisons with countries like India, Japan, and USA etc. Consequently Pakistan has suffered significantly on both social and economic fronts.

This report is an effort to prepare an outline of issues and recommendations to uplift IT and Telecommunication sector in Pakistan and its uses for various key sectors of economy in Pakistan. The report comprises of 5- sections. Section-1 outlines issues and recommendations for implementation of 3 G and 4 G technologies in Pakistan while section-2 highlights scope and usage of E-medicines in Pakistan. Prospects and role of IT for agriculture developments in Pakistan has been outlines in section-3. Section -4 presents use of IT in Taxation system record and management and Section-5 signifies the use of IT in Enterprise Resource Planning and management.

Section-1

3G and 4G : Future of Pakistan

Introduction:

3rd Generation (3G) and 4th Generation (4G) mobile telecommunications are generations of standards for mobile phones and mobile telecommunication services. They are the most advanced service standards available in the world. Previously 3G has revolutionized the world's perspective towards the broadband and now 4G is opening a new era of speed and data rate. Unfortunately Pakistan is lagging behind in both technologies and still in confusion how and when to launch. There was a time when Pakistan was a key player in Telecommunication in South Asia but now we have already been left behind by those who used to be our followers in 2G. 3G should have been introduced here already four years ago. This delay has caused us to lose massive opportunities relating to job creation, international trade, economic growth and Foreign Direct Investment. The technology gap between Pakistan and advanced countries has widened to extreme. Moreover more than 70% population of Pakistan comprises youngsters which show the adoptability of the new technology and Pakistan is not taking measures to fulfill their need of technology.

Some Facts

We have listed some facts and figures regarding the investment in telecom sector in the previous years. These facts are the evident proof that there is an immediate need of taking drastic steps to improve and facilitate telecom sector of Pakistan.

Foreign Direct Investment in Telecom Sector			
<i>(US \$ million)</i>			
	FDI in Telecom	Total FDI	Telecom (%) Share
2003-04	207.1	949.4	21.8
2004-05	494.4	1,524.00	32.4
2005-06	1,905.10	3,521.00	54.1
2006-07	1,824.20	5,140.00	35.5
2007-08	1,438.60	5,410.00	26.6
2008-09	815.00	3,720.00	21.9
2009-10	373.62	2,199.44	17.0
2010-11	79.2	1,574.0	5.0

The FDI in telecom sector in 2007 -2008 was around US\$1438.60 which was 26.6 % of the total FDI but due to the catastrophic policies regarding Telecom Sector. The FDI in 2010-2011 in the Telecom sector dropped to US\$ 79.2, which was only 5% of the total FDI. If there was a vigilant policymaker they would have realized the situation. They should have taken serious steps to do development in this sector etc. by deploying 3G and other new technologies in the country to uplift the downfall in this sector.

¹ www.pta.gov.pk

Telecom Investment					
	<i>(US \$ million)</i>				
	Cellular	LDI	LL	WLL	Total
2003-04	666.1	6.4	-	162.7	835.2
2004-05	1,158.10	35.1	2.3	277.3	1,472.80
2005-06	1,420.90	50.5	0.3	259.4	1,731.10
2006-07	2,584.50	602.8	40.6	747	3,974.80
2007-08	2,337.70	403.9	342.1	52.8	3,136.40
2008-09	1,229.75	276.75	57.37	82.11	1,646.98
2009-10	908.8	183.1	22.5	23	1,137.51
2010-11	358.6	108.8	18.2	10.2	495.81

2

We have listed some of the experiences of the countries .these countries have successfully launched 3G services and are looking forward to proper deployment of 4G infrastructure.

India

In 2010, the 3G and 4G Telecom spectrum were auctioned in India via a highly competitive bidding. Tata Docomo was the first private operator to launch 3G services in India. The government of India earned US\$13.51 billion from the 3G spectrum auction. While the broadband wireless spectrum auction generated a revenue of US\$7.68 billion. Together 3G and BWA auction, the government of India earned total revenue of over US\$21.19 billion.

Afghanistan

Etisalat was the first mobile operator in Afghanistan to be awarded a 3G license in 2012. The operator was awarded its license, for which it paid \$25 million. Telecommunication and Information Technology minister Amirzai Sangin said Etisalat Afghanistan will begin offering

² www.pta.gov.pk

3G services from March, extending network coverage to all areas of the country over the next two years.

US Policy and Achievements

The United States became leader in mobile broadband innovation as 3G technology was being deployed. In early 2009, the United States surpassed Japan the country with the highest number of 3G subscribers and it continues to maintain its first-place position. Although penetration is higher in other countries, the sheer number of subscribers is what matters more to developers and device manufacturers.

U.S. investment in 4G networks could fall in the range of \$25-\$53 billion during 2012-2016; conservatively, these investments could account for \$73-\$151 billion in GDP growth and 371,000-771,000 new jobs.

Pakistan Current Status

Pakistan is at the epic of the confusion over the 3G license auction issue and time is elapsing day by day. The Sale Purchase Agreement (SPA) between the government and Etisalat during the privatization of the PTCL is one of the biggest hurdle in launching the new technology, it was decided in SPA that the government would not allow any new telecom operator by 2013.

The investment of the market players in the telecom sector has decreased drastically to US\$498 million. This is the evident proof that Pakistan market needs new companies to increase the investment and break the monopoly.

Advantages of 3G and 4G

The deployment of mobile broadband has special potential to bring into the economic mainstream. All people and organizations who would otherwise participate at a less than optimal level or not at all, have great opportunity. The potential applies to less privileged groups, rural communities, localities with limited access to full broadband connectivity and small businesses for which mobile broadband is a workable option in addition to dedicated access or fixed broadband lines. Increasing efficiency entails producing the same outputs with reduced inputs or producing more outputs with the same inputs. For example, mobile communications increase efficiency by making it possible to conduct transactions, meet, exchange information, or carry out other interactions on an anywhere-anytime basis. More mobile interactions could be conducted more efficiently via greater throughput of 4G networks – for example transactions, payments, information and data transmission, interactive collaborations or enhanced communications such as video calls and social media. Increasing quality relates to the level of performance or value of goods or services, such as the extent to which the richness of the communication associated with an interaction is appropriate to the needs of the parties, or the security with which information integral to the interactions exchanged and documented. For example, for virtual business meetings, remote education, or personal conversations, value is enhanced to the extent the experience resembles being there in person. The visual and auditory information inherent in the type of high-quality video available via a 4G network creates the opportunity for an anywhere-anytime, high-quality interaction that can augment the capabilities of wire line broadband. Improving efficiency and quality increases the ability to communicate, transact, adapt, and/or innovate, which translates into

increased productivity, a major contributor to growth in GDP. The impact when new infrastructure enhances commercial interactions is shown by examples such as the increase in productivity in the United States following expansion of the interstate highway system and the increase in global consumption resulting from electronic payments.⁵¹ Better efficiency and quality of transactions can also boost the number of jobs by increasing demand and promoting the formation of new businesses, which in turn create new employment opportunities

Recommendations and Conclusion

1. There should be an immediate step taken by the ministry to solve the questionable sales and purchase agreement clauses between Aetsalt and Government.
2. If the Aetsalat does not deposit the money than the Government should take the extream step keeping in view the agreement.
3. There should be an immediate announcement regarding auction policy and date regarding 3G and 4G.
4. To make the auction transparent, internationally recognized consultant should be hired.
5. To generate more Revenue and Competitions, International companies should be involved in the auction process.
6. The Competition Commission of Pakistan should also define its position and assist in the auction and bidding.

7. There should be a long term policy announced regarding I.T and Telecom, which make sure that we retrieve our pinnacle in this sector.

8. Spectrum is one of our natural resource but value creation will occur only if the supporting network infrastructure are rolled out rapidly which can only occur if we provide this natural resource to the right Operators.

Section-2

Scope and usage of E-Medicine in Pakistan

Introduction

The Islamic Republic of Pakistan, with a population of about 153 million (2005), has an area of 307,374 square miles (796, 095 square km) and an overall population density of 182 persons per square km. There are four provinces and two regions. Provinces are Punjab (the most populous), Sindh, Khyber pakhtun khan (KPK) and Balochistan (largest by area), and regions are Azad Jammu Kashmir (AJK) and Gilgit Baltistan (GB). Afghan refugees and religious minorities reside in certain areas of the country in significant numbers. According to last census report only 32.51% live in urban areas, while majority of population still lives in rural areas where health and education facilities are least available .

The health and population characteristics of Pakistan are high fertility, low life Expectancy, a young age structure, high maternal and child mortality, high incidence of infectious and communicable diseases, and wide prevalence of malnutrition among children and women. The country is going under a demographic transition, characterized by a change from high mortality and high fertility to lower mortality but still relatively high fertility.

The health status in rural areas is still a great concern. In urban areas infant mortality rate is 65%, while in rural areas it is 88%, although it has decreased but still a lot needs to be done in this field.³

To improve the prevailing situation, the problem of rural health is to be addressed at both macro (national and provincial) and micro (district and regional) levels.

In addition, poor villagers spend most of their out-of-pocket health expenses on travel to the specialty hospitals in the city and for staying in the city along with their escorts. The poor infrastructure of rural health centers makes it impossible to retain doctors in villages, who feel that they become professionally isolated and outdated if stationed in remote areas.

Tele-health is relevant in Asia because of limited health resources. Tele-health is a process of becoming an integrated healthcare delivery tool for the patients, which will soon be a part of the mainstream medicine. We have seen the growing importance of information technology and telecommunications in healthcare. The focus of development has shifted from individual telemedicine applications to centralized care and e-health solutions. Integrated service models and interoperability are the basis for future development.

Concept of e-medicine in Pakistan

E-medicine is defined “as the use of telecommunication” to provide medical information and services. It may be as simple as two health professionals discussing a case over the telephone, or as sophisticated as using satellite technology to broadcast a consultation between providers at

³ PIHS 2001-2002,PDS 2001,WHO World Health report 2003

two distant locations, using videoconferencing equipment.” It’s a revolutionary concept in itself.

The existing scenario demands that the development of e-medicine strategy be based on a sound knowledge of the present and future potential of e-medicine to improve health care access and quality, while reducing health care costs.

E-Medicine uses multimedia technology (voice, video and data) to deliver medical services. The lower cost of bandwidth and improvement in video and data compression standards have increased the number and types of medical services that can be delivered from a distance to include virtually every specialty. E-Medicine is an application and not a technology. It uses a hybrid technology incorporating elements of television, telecommunication, computers, engineering and medicine. Services can be delivered on a combination of technologies with a variety of equipment. Considering “Health For All,” there are some objectives for which E-Medicine have originated

To make high quality healthcare available to traditionally under privileged population

Save the time wasted by both providers and patients in travelling from one geographic location to another to avail services on time.

Reduce costs of medical care

It is a fact of life that “All Men are equal, but some are more equal than others”. We are at present, unable to provide even total primary medical care in the rural areas. Secondary and tertiary medical care is not uniformly available even in suburban and urban areas.

Advantages of E-medicine in Pakistan

- Doctors licensed to practice all over Pakistan can use video links
 - Maximum utilization of limited resources Saves travel, time and money
 - Enormous CME⁴ potential for GP⁵, urban trainee and Tele-consultant,
 - International grand rounds, Web casting conferences,
 - Motivation for computer literacy among doctors
 - In unnecessary referrals to specialists
 - Useful in designing credits for re-certification of doctors.

Points to be addressed to implement the telemedicine

- Will faster transmission or better image quality alter diagnosis or treatment?
- Medical Coordinators for each specialty to lay ground rules,
- Technical coordinators to identify the most effective mode of data acquisition, compression, transfer and manipulation at Tele-consultant console,
- Collecting data over 1 year and analyzing data over next 3 months.
- Last but not the least, Budget.

⁴ CME= continued medical education

⁵ General practitioner

Our neighbor India has already started e-medicine in 2002 and is much successful in it .Our IT engineers must devise a way to make up data link between cities and rural areas within economical range so that we can bring a positive change in the health sector in the country.

Under the USF (universal service fund⁶) project initiated by government of Pakistan, a pilot project has already been started but it's pace is slow. Moreover digital libraries for pathological cases can be of great help in research and analysis of health hazards and its changing trends.

⁶ www.usf.gov.pk

Section -3

Use of Information Technology in Taxation

Growth in the Pakistan's IT sector has been visible even in this challenging economic situation. The sector's gross annual revenues are in excess of US\$ 1 billion, and growth crossing 50% per annum, Pakistan's IT business sector is clearly contributing significantly in the economy which shows huge potential in this sector. This potential should also be effectively used for increased revenue generation in Pakistan.

PRAL (Pakistan Revenue Automation Limited)

In 1994 FBR started to develop an automated system for the whole taxation procedure. For indigenous development and maintenance a whole new department was created Pakistan Revenue Automation Ltd (PRAL) as a private limited company, PRAL is a fully owned subsidiary and (Data Arm) of Federal Board of Revenue Government of Pakistan. The blend of professional experience available with PRAL has enabled us to serve to ICT needs of Federal Board of Revenue. Over the past twelve years, PRAL has not only been able to conceptualize, develop, implement and support large scale and mission critical applications of Federal Board of Revenue on nationwide basis. It also provided varied nature of clients from private and public sectors with practical, innovative and mission-critical solutions

Its Overall activities include

- Feasibility studies/ Technical Advisory Services
- Business process improvement / reengineering
- Need Analysis/Requirement Specifications
- Data center management and operations
- Software Development, Customization and Implementation
- Web Sites & Portal Design and Development.
- Large Database Management and Administration.
- Customized ICT Trainings
- Evaluation & selection of hardware, software, operating systems etc.
- Large scale data entry.
- Preparation of computer installation sites.
- Hardware Maintenance
- Network Management

According to report of Federal Tax Ombudsman the working of PRAL was found unsatisfactory and due to its performance Pakistan had to face ISAF containers scandal

Following are the findings of the report

- The quality of data held by PRAL was found to be highly unreliable. The available

Cross-checks within FBR were also found to be highly vulnerable to fraud and corrupt practices of various actors involved in Afghan transit trade.

- It was soon realized that the abuse was massive, though difficult to quantify with a high degree of precision.

PaCCS Software

Being essentially an automated system, PaCCS servers are connected to the Shipping Lines, the terminal Operator, various branches of National Bank of Pakistan, to FBR, the relevant Customs staff, importers /exporters and embassies, etc. All the users can connect to PaCCS over the internet, with their user names and individual passwords which are legally deemed their digital signatures under the Customs Act, 1969. In PaCCS, the importers / exporters can get connected to Customs from anywhere. They conduct their business online without need for any paper document. All information as declared by them is validated against the information provided to Customs directly by Shipping Lines, Terminals, Banks, FBR, etc. As importers can conduct their business without coming to Customs offices, the contact between the taxpayer and the tax collector is virtually eliminated. The system is equipped with FIFO (First In First Out); the Customs officials can neither expedite nor delay anyone at will. Finally, as all regulations relating to imports / exports, taxes, concessions, etc. are built into the software, the discretion available to Customs officials is largely eliminated.

Recommendations

- Flaws identified by the tax ombudsman should be considered and get rid of.

- Capacity building of PRAL should be done in order to promote development and maintenance of state of the art software systems.
- PRAL has faced budgetary constraints several times in the past. Steps should be taken to ensure this condition not to happen again.
- Complaints of taxpayers should be dealt online by upgrading and making current system user friendly.
- Manual clearance of consignments should be banned and in this regard discretionary powers of the Customs officials should be abolished.
- PRAL should organize workshops and trainings for the taxpayers to efficiently use online system.
- Tax Returns of the Political and public Office bearers should be made available on FBR website.

Section -4

Prospects and role of IT in Agriculture Sector in Pakistan

Agriculture can be defined as the systematic and controlled use of living organisms and the environment to improve the human condition. 'Agricultural land' is the land base upon which agriculture is practiced. Typically occurring on farms, agricultural activities are undertaken upon agricultural land to produce agricultural products. Although agricultural land is primarily required for the production of food for human and animal consumption, agricultural activities also include the growing of plants for fiber and fuels (including wood), and for other organically derived products (pharmaceuticals, etc)⁷.

There are so many challenges in the agricultural sector which are related to high operating costs, difficulty in accessing credits, poor statistical data, poor financial management and poor traceability of the product.

Agricultural Sector in Pakistan

Pakistan is a developing country where agriculture is the main source of livelihood as it provides employment to 45 percent population and provides input for agro based industry⁸. It is the second largest sector, accounting for over 21 percent of GDP, and remains by far the

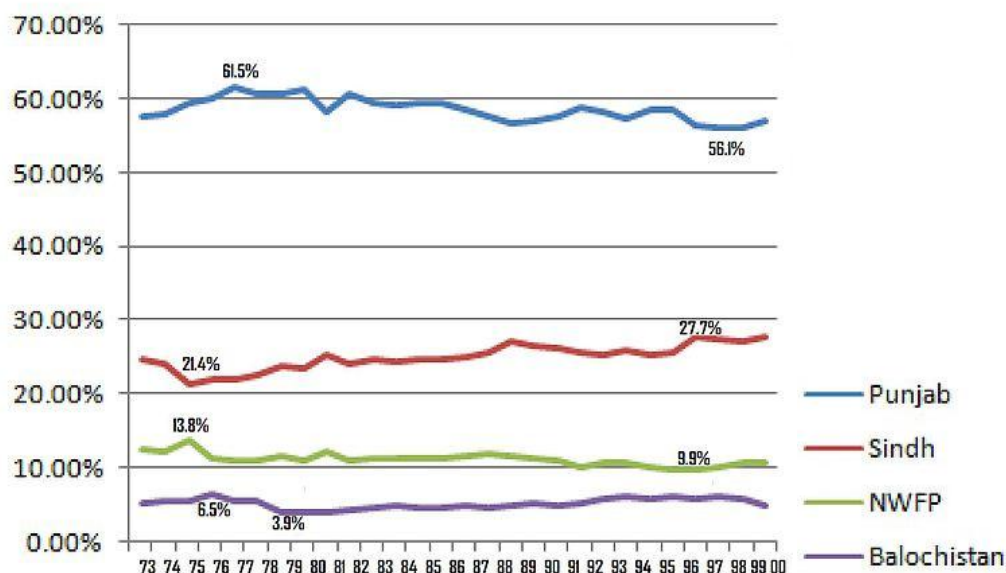
⁷ Kenk, E. and I. Cotic. April, 1983

⁸ Economic Survey 2010-11

largest employer, absorbing 45 percent of the country's total labor force. At present, Pakistan has a total cropped area of 22 million ha⁹ (Economic survey 2003-2004). Nearly 62 percent of the country's population resides in rural areas, and is directly or indirectly linked with agriculture for their source of revenue¹⁰. Pakistan ranks third in the Muslim world and eighth worldwide in farm output, according to the List of countries by GDP sector composition.

The figure that shows Pakistan agriculture growth according to provincial level from the year 1973 to 2000 is as under:

Regional accounts of Pakistan: Methodology and Estimates 1973-2000¹¹



⁹ Economic survey 2003-2004

¹⁰ Economic Survey 2009-10

¹¹ Regional accounts of Pakistan: Methodology and Estimates 1973-2000

Information Technology

IT has revolutionized and redefined all aspects of human interaction in social and business scenario. It has turned the world into global village where limits of time and location no more apply (Report from Federal Ministry of Industries, 2004.). IT has globally connected the world and is now dynamically alter our standards of living and social realization. (The Sunday times September 2009). It has eliminated the geographical distances and due to advance communication facilities, the entire world can be viewed on computer screen by just a click of a button. The use of IT has grown at an astonishing rate over the past three decades. Now, Information Technologies permeate nearly every aspect of modern business operations and communications. As computing and networking machinery proliferated into every aspect of business life, the pressing need to manage these technologies effectively has grown accordingly¹². Information technology plays an increasingly important role in linking cooperative members to high quality product supply chains¹³. Initiation of IT as a strategic tool for agricultural development and welfare of rural area requires that the necessary IT infrastructure is in place.

Role of IT in Agriculture

In the agricultural perspective, potentially information technology (IT) could have an extensive evaluation under two heads:

¹² Report from Federal Ministry of Industries, 2004

¹³ SNV Netherlands Development Organization Case Studies 2010

(a) As a tool for direct contribution to agricultural productivity

(b) As an indirect tool for empowering farmers to take informed and quality decisions which will have positive impact on the way agriculture and allied activities are conducted.

In developed countries IT is used broadly in precision farming to make direct input to agricultural productivity. Some of the techniques in agricultural sectors which are commonly utilized by the farmers to increase the agricultural output are as follows:

- The techniques of remote sensing using satellite technologies
- Geographical information systems
- Agronomy and soil sciences

This approach is capital intensive and valuable concerning large tracts of land. As a result it is more appropriate for farming taken up on commercial scales.

Since the area under discussion is vast, therefore observing the entire scale in detail is not possible. The debate is limited accordingly to the concerns based on the key players who are involved in agriculture. The key players may be broadly classified into:

- (i) **The farmer** -who is the actual person who can directly bring about an improvement in efficiency and productivity in agriculture,
- (ii) **Various industries**- that provide inputs to agriculture,
- (iii) **Various industries**- that deal with agricultural output,
- (iv) **Federal and provincial governments,**

- (v) **Institutions/organizations and NGOs-** working for the benefit of farmers such as agricultural universities & research centers.

The farmer, towards whose welfare a huge government machinery and industry is devoted, still suffers from the absence of accurate information at the required time. The farmer requires timely input on weather forecasts, sowing time, availability and recommendations on inputs, availability of credit, expert advice on maintaining his crop in healthy condition, information on markets and on all other areas of interest to him and his family. Despite the best efforts and expenditure, the conventional apparatus could not meet these requirements satisfactorily.

Limitations to implement IT induced agriculture in rural areas

Whenever we start talking about implementation of IT in the agricultural sector of rural areas, several circumstances and conditions come in our mind which acts as a limiting factor for the induction of IT in agricultural practices. A few of these are highlighted here.

It is to be noted that, the farmer is in no position to use IT directly. The literacy levels, language barrier (as most of the application software are predominantly in English), cost of computers, poor communication infrastructure make it impossible for individual farmers, particularly small farmers to directly adopt IT. This calls for institutional effort to harness to create the necessary IT based services to farmers.

Another major setback in spreading IT induced agriculture to rural areas is related to connectivity i.e. ensuring that the access points can get connected to the databases which are in

selected locations. Since dialup lines are very slow, other viable options are required to be explored. Unfortunately, the alternatives are expensive and may not be feasible.

Possible solution of the problems in spreading IT induced agriculture in rural areas

To increase farmer's computer literacy it may be useful to initiate IT based services for farmers and cooperative societies. In this effort, attempts should be made to create an association of like-minded institutions/organizations committed to rural uplifting.

While regarding the connectivity issue, several private operators are connecting important cities with fiber optic which provides a very reliable and fast access. Since these will pass through rural area, it is possible to explore the possibility of tapping this potential by laying the last mile connectivity. Once this is done, substantial segment of rural areas can access the IT based services discussed. Through these collective efforts, attempt made to act as a catalyst for IT penetration in rural areas with farmers and cooperatives as major focus.

Conclusion

Information technology is rapidly growing and touches almost all areas of human activity. For that reason it is essentially required that farmers can contribute in the creation of IT-based agriculture. Hence it is expected that Information Technology will bring a highly developed agriculture by its worthwhile contributions to the society by narrowing down the enormous gap between the researchers and farmers. It is suggested that the farmers are to be made aware of the utility of the Internet and other related information regarding Information Technology.

Section-5

Use of Enterprise Resource Planning

Computerized Maintenance Management System (CMMS)

Introduction

For many years efficient planning, management, and forecast of the maintenance function was accomplished without computer assistance. However, this era of enormous technology, swift, efficient data communication and job preparation is accomplished far more efficiently with the support of a sound Computerized Maintenance Information Management System. Express, flexible access to reliable, current and comprehensive information is vital if planners and managers are required to control the maintenance function on the basis of knowledge rather than intuition.

It is no longer an economically wise decision to manage a function as important as maintenance without on-line informational support. Computer support is essential if the full potential of the maintenance control system is to be realized. Only on-line transaction processing systems and networks—people and programs simultaneously retrieving and updating information—satisfy the immediacy required by today's environment.

Integration of the entire Maintenance Arch (Introduction), including the CMMS, supports fosters the following:

Lowering unit cost by online Efficiency of maintenance resources (both hourly and salaried)

Improvement of responsiveness and service to internal customers

Improvement of asset reliability, capacity assurance, and equipment up time

Better delivery performance and product quality to external customers

Lower unit costs and increased profitability ¹⁴

CMMS Scope and Usage

Computerization of the work order scheme facilitates efficient and rapid access to large amounts of data and enables analyses of time consuming work .

An accepted phrase regarding several CMMS's in the masses is that they "are not easy to use."

The statement is fairly correct. It is also true that an adequate amount of training is required to make sure the skill level of manpower.

There is nothing advance in this allocation of responsibility. When work order systems first introduced, well past 50 years, people request regarding maintenance support were supposed to submit a written work order. A Work Order Request now just requires filling in requestor-required fields on a form or software work space. Good build-in management features that allow the quantification, by craft and type, of all open work orders, are critical. These features relate essentially to efficient coding regarding:

- "Job Status" to facilitate the planner's efforts to keep all work orders moving to completion rather than allowing them to bog down in a state of limbo.

¹⁴ Maintenance Planning, Scheduling & Coordination, 1st Edition by Don Nyman & Joel Levitt

- “Assigned Team” to facilitate the preparation of a weekly schedule fully deploying the resources reporting to each given supervisor.
- “Asset/Equipment” to facilitate the assembly of all ready-to-go backlogs that might be performed during access to a given asset.
- “Requestor” to keep internal customers apprised as to the current status of their requests. Ideally, requestors should be able to access this information themselves, online.
- “Planner” so that each planner is able to separate his or her work load from the complete backlog.
- “Condition required” because there is regularly a need to separate work that is doable at any time versus that requiring asset down time, of various duration (a few hours, a weekend, periodic programmed access, annual shutdown, etc.)
- Features in CMMS that support effective planning and estimating include:
- Macro-planning to keep resources in balance with the workload. That is, screens to allow calculation of available hours, and deductions for projected PMs and provide an estimate for break down hours. The macro-plan then calculates capacity available for backlog relief. This is called the Work Program process
- System capability to store, retrieve, modify, and copy previously developed job plans and estimates from history or planner libraries.
- When planning a job on a specific asset, ready access to related information without backing out of the planning module. Being able to cut and paste is useful. The information in question includes previously cataloged:

- Job Steps
- Bills of Material cataloged by machine and major component
- Current available inventory with capability to reserve same
- Job Estimates
- Pertinent safety and environmental procedures, instructions,
- Permits and authorization (hot work, isolation, lockout/tag out, pre- and post-maintenance valve and switch lineups, etc.)
- System linkage to current drawings and other reference documents with provision for automatic attachment to planned job packages.
- Effective materials management features are essential. Problems in this area are common and constantly threaten mechanic's productivity.
- Cross references
 - Bill Of Materials (BOM) of components by asset.
 - Conversions between manufacturer's part numbers,
- vendor's part numbers and storeroom item numbers
- Reservation (allocation) of inventory item units to specific planned jobs and release (de-allocation) of same as needed
- Reliable replenishment of authorized stock
- Prompt processing of purchase order requests for direct purchases
- Prompt and reliable notification of receipts

Selecting the Right CMMS

Good Computerized Maintenance Management Software (CMMS) that schedules preventive maintenance work orders on your equipment is an integral component of any efficient maintenance department. Preventive and scheduled maintenance, efficiently scheduled, will not only reduce your maintenance costs, but will minimize emergency repairs and downtime, resulting in an increase in overall profitability.

A few years ago, choosing the right CMMS Software was a much simpler venture. With only a few programs to choose from, you could do minimal research and be on your way to implementing a simple and effective system. But, with the explosion of the maintenance software industry in recent years, selecting your software has become a far more complex task.

Factors for CMMS Selection

Some of the most important issues to consider when deciding which CMMS is right for you are cost, stability of the vendor, program features, fast implementation, support availability, and last but not least availability of a demonstration program.

Factors Influencing Implementation Success

According to the respondents, the most important factors in their success were obtaining Senior Management commitment, and effective training towards the effective use of the current ERP solutions.

Benefits Of Implementing CMMS

- o Upgrade in knowledge
- o Equipment Performance

- o Reduced firefighting calls and breakdowns
- o Standardization between different maintenance departments
- o Enhanced computer literacy, measurement
- o Enhanced transparency and accountability
- o Trending
- o Time sheets of engineers
- o Improved control of material tracking & delivery
- o Be able to implement Asset maintenance program (RCM/RBI method) in the organisation
- o Inventory control
- o Changes in maintenance processes
- o Vendor details recorded,
- o Improved KPI's control
- o Cost projection

Pakistan Scenario and Utilization

ERP has thrown open opportunities for many companies to trade with foreign counter parts in the name of outsourcing, implementation and deployment of the existing ones. It has contributed lot to the economy .Academics also boast its own share of ERP relations.

Siemens will deliver SAP Enterprise Resource Planning (ERP) system to Alka Private Limited in order to fulfill its vision of becoming a reliable and leading company in the region. A verification of this effect was made in a signing ceremony between Mr. Moeen Ahmed, Managing Director, Alka (Pvt.) Ltd. and Mr. Syed Mukarram Saeed, General Manager, Cross Industry, Siemens Pakistan on July 24, 2009. Both representatives signed the accord in the presence of key personnel from both organizations¹⁵.

In Pakistan, a large number of national and multinational companies, including Sui Southern Gas Corporation, Pak Arab Refinery Limited (Parco), Pakistan Tobacco Company, ICI Pakistan Limited, Pakistan State Oil, Shell Pakistan Limited, Unilever Pakistan Limited etc, have implemented or going to implement ERPs system¹⁶. First ever Open Source ERP Solution - developed by a Pakistani company, launched under PSEB Industrial Automation Project

Pakistan Software Export Board (PSEB) signed two MoUs, one between Pakistan Readymade Garments and Manufacturers Association (PRGMEA) and SME Business Support Fund (BSF) and another between Pakistan Hosiery Manufacturers Association (PHMA) and SME Business Support Fund (BSF). The MoUs were signed during an inaugural ceremony of the Global Business Management Solution (GBMS), an ERP for the Readymade Garments and Hosiery vertical. GBMS is the first locally developed and implemented open source ERP in Pakistan¹⁷. It

¹⁵ www.siemens.com.pk/press_alka-chemicals.html

¹⁶ www.mubashirnazir.org/.../R0008-ERP-Implementation-in-Oil-Refin..

¹⁷ www.isacakarachi.org/pdf/news_letter/newsletter_jul_aug.pdf

has promoted lot of employment and educational opportunities. India happens to be a key beneficiary in this aspect¹⁸.

Conclusion

The future of ERP holds an undisputed demand not only in the national level but also at the global level. If the technology can be improvised to the desire extent.

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