Mobile Computing: Concepts, Challenges and Opportunities for Chartered Accountants[1]

The Digital Revolution

The confluence of communication and information technology (known as ICT) has powered the massive growth in the deployment of ICT in automation of business process as well as new features in personal appliances. When rightly deployed, it is said that more technology results in less work, transformation of business processes and increased employee productivity. Digital power is the resultant effect of growth in the technologies relating to computers, communication, storage and content. The following extracts from research studies show the enormous growth of ICT components:

*   Moore's law predicted 50 years back that computing power will double every 18 months and this has so far proven to be right and is expected to continue.
*   Fibre (communication cable) is doubling every nine months.
*   Traffic on the world's networks has been nearly doubling every two years.
*   Mobile data traffic is roughly doubling every year.
*   Storage capacity is doubling every year.
*   Content for the known Internet - the Internet excluding the Deep Web is growing by more than 10 million new, static pages each day.

Mobile Computing

Mobile computing is enabled by use of mobile devices (portable and hand held computing devices) such as PDA, laptops, mobile phones, MP3 players, digital cameras, tablet PC and Palmtops on a wireless network. Mobile technology is at the forefront of the digital revolution and its usage is no longer optional but imperative to remain productive in an increasingly connected world. In the near future, going to work could include flexible locations and schedules that suit individual professional needs and personal lifestyles leading to a reinvention of the workplace. It is predicted that emerging Internet cloud and mobile technologies will increasingly shift work lives away from the corporate office altogether and towards an in-my-own-place and on-my-own-time work regimen. It is predicted that smart phones, tablets and other mobile computing devices will become the go-to-computing devices for most of the world.

Growth of Mobile Devices

Researchers foresee shift to mobile computing devices and include mobile computing as one of the top 10 strategic technologies for 2011. It is estimated that more than 1.2 billion people carry handsets capable of rich, mobile commerce providing an ideal environment for the convergence of mobility and the Web. Mobile devices are becoming computers in their own right, with high processing ability and bandwidth. The Mobile devices available in the market now have enough processing power and storage capacity for software vendors to make some reasonably good applications for them. One of the factors contributing to this growth is the development of processors by chip makers that look like the PC processors of earlier years with the potential to create an environment on smart phones which support an enormous pool of PC applications. The importance of Mobile devices can be understood from these surveys by AICPA:

1. "Control and Use of Mobile Devices" ranks No. 1 in the list of 2011 Top Ten Technology Initiatives
2. "Control and Use of Mobile Devices" ranks No. 2 in the list of top issues identified by CPAs in Public Accounting in the Top Technology Initiatives for Business & Industry.
3. "Remote Access" ranks No. 3 in 2011 Top Technology Initiatives for Public Accounting
4. "Mobile Technology" ranks No. 8 in the Top 10 Technologies to watch in 2011

Mobile Devices/Mobile Technology

Mobile technology has inherent communication capabilities which facilitate use of wireless networks to communicate via phone, e-mail and text. Mobile technology refers to a large range of mobile devices such as: full-featured mobile phones with personal computer-like functionality, or "smart phones", laptop, notebook and tablet computers, portable digital assistants (PDAs), portable universal serial bus (USB) devices for storage (such as "thumb drives" and MP3 devices) and for connectivity (such as Wi-Fi, Bluetooth and modem cards), digital cameras, radio frequency identification (RFID) and mobile RFID (M-RFID) devices for data storage, identification and asset management, infrared-enabled (IrDA) devices such as printers and smart cards.

Benefits

Mobile technology is changing the way business processes are performed and services are rendered by enterprises and individuals. It enables enterprises to scale up their process efficiency and also instantaneously customise specific services used by customers, suppliers and employees which are capable of being individually identified and located through their mobile devices. Mobile devices enable authorised users to access and update information as required anytime, anywhere, anyhow based on the access rules defined, on an online and real-time basis thus enhancing employee productivity and enterprise services. Some of the benefits of mobile technology are: increase in workforce productivity, better customer service, employee satisfaction, etc.

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Most of the high-end and medium ERP and business software applications have in-built capabilities of mobile computing.

Risk Management

As with every technology, mobile devices offer enterprises considerable benefits primarily on account of portability and location free access. However, these benefits also have inherent risks and these need to be mitigated by implementing appropriate controls. Mobile devices may contain an enterprise's sensitive information, data obtained from business/customer applications, customer information which is private, corporate e-mails, and documents. The mobile computing devices may be used to provide input to business applications on wireless networks which can impact enterprise data on a real-time basis.

Some of the business risks are given below:

- Loss or theft of enterprise information/asset due to virus attacks or malware.
- Exposure due to information interception through wireless sniffers/intrusion resulting in a loss or breach of sensitive data, privacy impacting enterprise reputation and legal implications.
- Propagation of malware resulting in data leakage, data corruption and non-availability of required data.
- Physical damage to devices, data corruption, data leakage, interception of calls and possible exposure of sensitive information.
- Possibility of fraud through remote access and inability to prevent/detect it.
- Copying of critical enterprise information by hackers using remote access.
- Lost devices or unauthorised access to unsecured devices allowing exposure of sensitive data, resulting in loss to the enterprise, customers or employees

Risk Mitigation Strategy

The risk mitigation strategy should be holistic and derived from the overall enterprise risk strategy. It is advisable to use best practices from standard frameworks as appropriate. The overall approach should consider the risks of mobile technology and commit resources to take decisive actions that will control their vulnerabilities. Risk register should be prepared with detailed inventory of high-value data, relevant risks and related counter-measures to be implemented to mitigate these risks. Mobile computing security policy should be implemented covering all mobile devices used in the enterprise. The policy should include security procedures covering appropriate physical and logical aspects. The access policy for mobile devices should define user rights, type of information, and kind of devices and information services that may be accessible through the devices. Specific controls for mitigating each of the identified risks need to be implemented as required. These could be relating to implementing: anti-virus software on regular basis, classification and protection of data, secure transmission of data, asset management policy, user training, user accountability, performance management and monitoring.

Opportunities for Chartered Accountants

As with any technology, Chartered accountants need to understand mobile computing technology from three perspectives:

A. Using Mobile computing within a CA firm.
B. Provide consulting services on mobile computing for clients.
C. Provide assurance services on mobile computing for clients.

A. Using Mobile computing in CA firm:
Mobile computing can be used by Chartered Accountants in their own offices for enhancing overall efficiency and effectiveness of services rendered by the firm. However, implementation has to be based on the overall IT strategic plan of the firm and should take into consideration the current technology deployed, organisation structure, technical competency of the staff, services offered currently and planned in the future, client profile, usage of technology by clients, cost benefit analysis, etc. A detailed project plan with specific milestones and timelines has to be prepared and implemented considering all the above factors rather than just buying mobile devices with connectivity.

B. Consulting on mobile technology implementation:
1. Business strategy/business process transformation.
2. Risk Assessment, risk mitigating strategy and security at different layers of technology.
3. Designing security policy for the enterprise.
4. Access controls at different layers of technology and for devices/employees.
5. Application and business process controls to be implemented.
6. Training to users on risks, security and controls.

C. Assurance services on Mobile technology implementation:
1. Information systems audit of all/any aspect of security policy, business continuity, environmental access, physical access, logical access and application security.
2. Compliance with enterprise policies, procedures, standards and practices as relevant
3. Physical verification or confirmation of usage of mobile devices.
4. Compliance with regulations as applicable.
5. Network security, Database security and Penetration testing as required.

Conclusion

Mobile technology can lead to transformation of business processes and how customers are serviced by leveraging the two key advantages of location independence and personalisation. There will a drastic increase in use of mobile computing by enterprises. Every technology offers immense benefits but has inherent risks. Chartered Accountants with good understanding of security, risks and controls of mobile computing can not only use it within their firm to enhance overall effectiveness of deliverables but they can also offer consulting/assurance services as required by their clients. However, required competence and skill sets need to be identified and enhanced as required. Mobile computing implementation has generic aspects which Chartered accountants are already conversant with but there may also be technical skills which need to be acquired internally or added by using help of technology experts.■