Oya Şanlı
Trainer and Consultant
MCT, MCAS, MCTS, Business management solution specialist
Owner; PayDeg Bilgi İşlem Programlama Hizm.
Istanbul /Turkey

Management Issues in Information Technology

Abstract

Information Technology and Management explores the many different technologies inherent in the field of information technology and their impact on information systems design, functionality, operations, and management. There are many managerial roles for an IT Manager. Mintzberg' s classic role model includes six managerial roles: resource allocator, leader, spokesman, monitor, liaison, and entrepreneur.

On top of these roles, IT manager has to have an idea about many more management issues, such as change management, helpdesk management, network management, human management, content management, service management, investment management, process management, problem management, incident management, stress management and so on.. Today, we should add outsource management with the Cloud computing concepts. Knowing all of these management concepts with the Mintzberg's roles, IT managers are able to better operate their department and serve to the business.

Managements in IT Management

1. Network Management
2. Service Management
3. Helpdesk Management
4. Application Management
5. Development Management
6. Project Management
7. Risk Management
8. Change Management
9. Human Management
10. Content Management
11. Lean Management
12. Rights Management
13. Systems Management
14. Outsourcing Management
15. Time Management
16. Security Management
17. Performance Management
18. Release Management
19. Asset Management
20. Knowledge Management
21. Data Management
22. Portfolio Management
23. Investment Management
24. Resource Management
25. Business Process Management
26. IT Financial Management

27. Strategic Management
28. Stress Management
29. Relationship Management
30. Incident Management
31. Problem Management
32. Alert Management
33. Capacity Management
34. Configuration Management
35. Patch Management
36. Role Management
37. Life cycle Management
38. Archive Management
39. Regulation Management
40. Scientific Management

Introduction

Enterprises have made significant investment s in network and systems management solutions and processes. The focus of IT is shifting from merely gathering massive amounts of data to targeting and delivering information to people who can act on it in a timely fashion, no matter where they are.

If we think of the evolution on computing machines from ENIAC-1946 to today's mobile phone and software from first proposed by Alan Turing in his 1935 essay Computable numbers with an application to the Decision problem to the today's systems and programming software the management of hardware and software have improved and become complex .
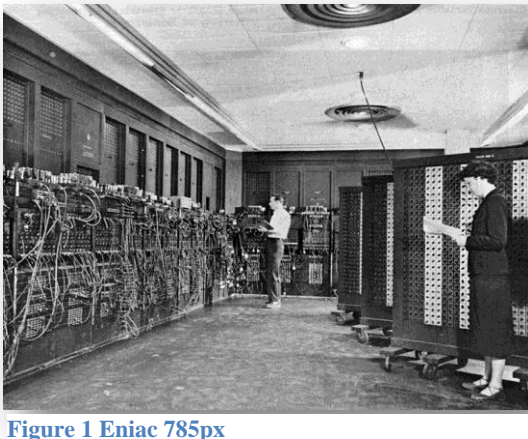
1. Mintzberg's managerial role models

Mintzberg identified ten separate roles in managerial work, each role defined as an organized collection of behaviors belonging to an identifiable function or position. He separated these roles into three subcategories: interpersonal contact (1, 2, 3), information processing (4, 5, 6) and decision making (7-10).

1. Figurehead: the manager performs ceremonial and symbolic duties as head of the organization
2. Leader: fosters a proper work atmosphere and motivates and develops subordinates
3. Liaison: develops and maintains a network of external contacts to gather information
4. Monitor: gathers internal and external information relevant to the organization
5. Disseminator: transmits factual and value based information to subordinates
6. Spokesperson: communicates to the outside world on performance and policies
7. Entrepreneur: designs and initiates change in the organization
8. Disturbance handler: deals with unexpected events and operational breakdowns
9. Resource allocator: controls and authorizes the use of organizational resources
10. Negotiator: participates in negotiation activities with other organizations and individuals

Mintzberg next analyzed individual manager's use and mix of the ten roles according to the six work related characteristics. He identified four clusters of independent variables: external, function related, individual and situational. He concluded that eight role combinations were 'natural' configurations of the job:

- Contact manager -- figurehead and liaison
- Political manager -- spokesperson and negotiator
- Entrepreneur -- entrepreneur and negotiator
- Insider -- resource allocator
- Real-time manager -- disturbance handler
- Team manager -- leader
- Expert manager -- monitor and spokesperson
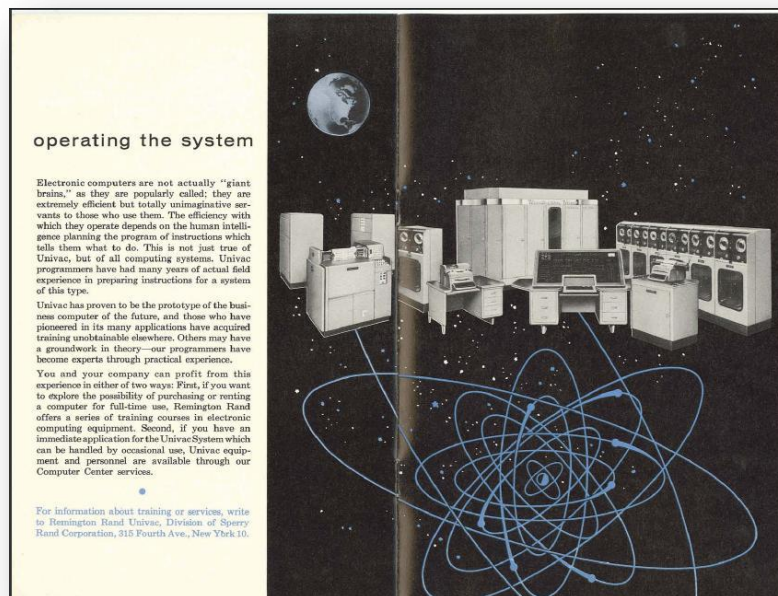- New manager -- liaison and monitor

Today, this study which is made at 1973 still valid, maybe we may add keep track of legislation and laws.

2. Managements issues in IT Management

With the evolution of computing machines managements in IT Management improved and increased.

At *Eniac* time, in 1946 there were programmers like Jean Bartik, Electrical Engineers like Dr. John Vincent Atanasoff , and academicians like Dr. John W. Mauchly and Dr. J. Presper Eckert. There were no need for management; they were trying to find faster ways to perform mathematical computations.

UNIVAC I was the first mass-produced computer. In 1956, Westinghouse Electric Company installed a *UNIVAC* computer in its East Pittsburgh plant. The UNIVAC was used to calculate company payrolls, sales records, analysis of sales performance and other company business. Management practice began at this point.

There was a need for programmers and operators which were operating the system and preparing magnetic tapes. Therefore the managements below were required.

1. Service Management
2. Development Management
3. Human Management
4. Systems Management
5. Time Management
6. Performance Management
7. Data Management
8. Stress Management
9. Problem Management
10. Scientific Management
11. Release Management

Till the first Pc which is called as *Simon* introduced at 1950 by Berkley Enterprises, some other management perspectives such as mentioned below were in take place. IT departments were formed. Improvements on machines caused IT people learn about change management. Mainframes were able

to do more than just calculating payrolls at the business side, so process, project and strategic management became important.

In August, 1962, Licklider and Welden Clark published the paper "On-Line Man Computer Communication", one of the first descriptions of a networked future.

In October, 1962, Licklider was hired by Jack Ruina as Director of the newly established IPTO within DARPA, with a mandate to interconnect the United States Department of Defense's main computers at Cheyenne Mountain, the Pentagon, and SAC HQ. There he formed an informal group within DARPA to further computer research.

12. Business Process Management
13. Project Management
14. Change Management
15. Strategic Management

The first ARPANET link was established between the University of California, Los Angeles and the Stanford Research Institute on 22:30 hours on October 29, 1969. By December 5, 1969, a 4-node network was connected by adding the University of Utah and the University of California, Santa Barbara. ARPANET became the technical core of what would become the Internet, and a primary tool in developing the technologies used.

Stemming from the first specifications of TCP in 1974, TCP/IP emerged in mid-late 1978 in nearly final form. By 1981, the associated standards were published as RFCs 791, 792 and 793 and adopted for use.

The British Post Office, Western Union International and Tymnet collaborated to create the first international packet switched network, referred to as the International Packet Switched Service (IPSS), in 1978. This network grew from Europe and the US to cover Canada, Hong Kong and Australia by 1981. By the 1990s it provided a worldwide networking infrastructure.

In 1981 IBM introduce desktop 5150 PC (8088/VLSI). It was perhaps the first to wear the "PC" label, but that was IBM's only innovation. They sure sold a bunch of them, though. The Simon's architecture was based on relays. The programs were run from a standard paper tape with five rows of holes for data. The registers and ALU could store only 2 bit. The data entry was made through the punched paper or by five keys on the front panel of the machine. The output was provided by five lamps.

The punched tape served not only for data entry, but also as a memory for the machine. The

instructions were carried out in sequence, as they were read from the tape. The machine was able to perform four operations: addition, negation, greater than, and selection.

Figure 3 Point to Point connection

Ethernet was developed at Xerox PARC between 1973 and 1975. In 1979 3Com (by the three-company consortium: Digital Equipment Corporation, Intel Corporation, and Xerox Corporation) was formed. 3Com built the first 10 Mbit/s Ethernet adapter (1981). This was followed quickly by DEC's Unibus to Ethernet adapter, which DEC sold and used internally to build its own corporate network, which reached over 10,000 nodes by 1986; far and away the largest extant computer network in the world at that time.

The original IEEE 802.3 standard was based on, and was very similar to, the Ethernet Version 1.0 specification. The draft standard was approved by the 802.3 working group in 1983 and was subsequently published as an official standard in 1985 (ANSI/IEEE Std. 802.3-1985). Since then, a
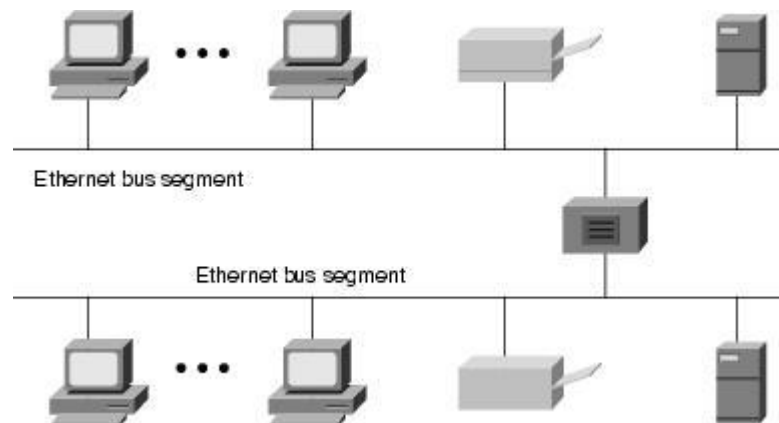

Figure 4 Coaxial bus topology

number of supplements to the standard have been defined to take advantage of improvements in the technologies and to support additional network media and higher data rate capabilities, plus several new optional network access control features.

DARPA sponsored or encouraged the development of TCP/IP implementations for many operating systems and then scheduled a migration of all hosts on all of its packet networks to TCP/IP. On January 1, 1983, TCP/IP protocols became the only approved protocol on the ARPANET.

Software engineering was spurred by the so-called software crisis of the 1960s, 1970s, and 1980s, which identified many of the problems of software development. Many software projects ran over budget and schedule. Some projects caused property damage. A few projects caused loss of life. The software crisis was originally defined in terms of productivity, but evolved to emphasize quality. Some used the term software crisis to refer to their inability to hire enough qualified programmers.

IT Managers needed to manage local networks, to accomplish this new management new rules set it up.

16. Network Management
17. Helpdesk Management
18. Application Management
19. Knowledge Management
20. Investment Management
21. Configuration Management
22. Rights Management
23. Life cycle Management
24. IT Financial Management

In the mid 1980s, the National Aeronautics and Space Agency (NASA), the National Science Foundation (NSF), and the Department of Energy (DOE), all three of these branches developed the first Wide Area Networks based on TCP/IP. As interest in wide spread networking grew and new applications for it were developed, the Internet's technologies spread throughout the rest of the world. The network-agnostic approach in TCP/IP meant that it was easy to use any existing network

infrastructure, such as the IPSS X.25 network, to carry Internet traffic. In 1984, University College London replaced its transatlantic satellite links with TCP/IP over IPSS.

During the late 1980s, the first Internet service provider (ISP) companies were formed. Companies like PSINet, UUNET, Netcom, and Portal Software were formed to provide service to the regional research networks and provide alternate network access, UUCP-based email and Usenet News to the public. The first commercial dialup ISP in the United States was The World, opened in 1989.
Mean time the Internet began to penetrate Asia. Japan, which had built the UUCP-based network JUNET in 1984, connected to NSFNet in 1989. It hosted the annual meeting of the Internet Society, INET'92, in Kobe. Singapore developed TECHNET in 1990, and Thailand gained a global Internet connection between Chulalongkorn University and UUNET in 1992.

For decades, solving the software crisis was paramount to researchers and companies producing software tools. Seemingly, they trumpeted every new technology and practice from the 1970s to the 1990s as a silver bullet to solve the software crisis. Tools, discipline, formal methods, process, and professionalism were touted as silver bullets:

- Tools: Especially emphasized were tools: Structured programming, object-oriented programming, CASE tools, Ada, documentation, and standards were touted as silver bullets.

- Discipline: Some pundits argued that the software crisis was due to the lack of discipline of programmers.

- Formal methods: Some believed that if formal engineering methodologies would be applied to software development, then production of software would become as predictable an industry as other branches of engineering. They advocated proving all programs correct.

- Process: Many advocated the use of defined processes and methodologies like the Capability Maturity Model.

- Professionalism: This led to work on a code of ethics, licenses, and professionalism.

In 1989, while working at CERN, Tim Berners-Lee invented a network-based implementation of the hypertext concept. By releasing his invention to public use, he ensured the technology would become widespread. For his work in developing the *World Wide Web*, Berners-Lee received the Millennium technology prize in 2004.
With the usage of internet and object-oriented programming, IT Managers needed different managerial aspects such as;

25. Security Management
26. Content Management
27. Risk Management
28. Lean Management
29. Resource Management
30. Incident Management
31. Alert Management
32. Capacity Management
33. Patch Management
34. Role Management
35. Relationship Management
36. Portfolio Management
37. Regulation Management

Today, Cloud computing describes a new supplement, consumption and delivery model for IT services based on the Internet, and it typically involves the provision of dynamically scalable and often virtualized resources as a service over the Internet. It is a byproduct and consequence of the ease-of-access to remote computing sites provided by the Internet. Most cloud computing infrastructure

consists of reliable services delivered through data centers and built on servers. Clouds often appear as single points of access for all consumers' computing needs.

Amazon played a key role in the development of cloud computing by modernizing their data centers, which, like most computer networks, were using as little as 10% of their capacity at any one time just to leave room for occasional spikes. Having found that the new cloud architecture resulted in significant internal efficiency improvements whereby small, fast-moving "two-pizza teams" could add new features faster and easier, Amazon started providing access to their systems through Amazon Web Services on a utility computing basis in 2006.

In 2007, Google, IBM, and a number of universities embarked on a large scale cloud computing research project.
IT Managers' must gain new managerial skills to keep up with this new technology to serve the business;

38. Outsourcing Management
39. Asset Management
40. Archive Management

Now, let's take a close look at that forty management issues in IT Management.

1. Service Management
Service management is generally concerned with the "back office" or operational concerns of information technology management. The concept of "service" in an IT sense has a distinct operational connotation, but it would be incorrect then to assume that IT Service Management is only about IT operations.
Service management is usually used in conjunction with operations support systems. Systems that use service management can include order management, inventory management, activation, maintenance, performance diagnostics and several other types of support systems to make sure that these systems are running proficiently and error free.
IT Service Management overlaps with the disciplines of business service management and Problem Management, Incident Management, Capacity Management, Network Management, Helpdesk Management, IT portfolio management, especially in the area of IT planning and financial control.

2. Development Management
Software development is about working to produce/create software. The term software development is often used for the activity of computer programming, which is the process of writing and maintaining the source code. Software development may include research, new development, modification, reuse, re-engineering, maintenance, or any other activities that result in software products. For larger software systems, usually developed by a team of people, some form of process is typically followed to guide the stages of production of the software.

3. Human Management
Finding the right employees at the right times can be an especially time-consuming and frustrating struggle. Recruitment strategies for hiring employees should be set with Human Resources Manager. IT managers should also consider employee coaching, coaching for performance and they must know how to deal with difficult employees. Like any other manager, IT Manager must track employee time for costing and of course for the health of the projects in hand.

4. Systems Management

Systems management is the general area of IT that concerns installing, configuring, administering and managing computer resources, especially network resources. System management may involve one or more of the following tasks:

- Hardware inventories.
- Server availability monitoring and metrics.
- Software inventory and installation, configuration and maintain.
- Anti-virus and anti-malware management.
- User's activities monitoring.
- Capacity monitoring.
- Security management.
- Storage management.
- Network capacity and utilization monitoring.

5. Time Management

Time management is the art of arranging, organizing, scheduling, and budgeting one's time for the purpose of generating more effective work and productivity.

The Management Process:

- Plan—specify what goals you want to achieve. Visualize the end results. Break large goals into weekly and daily priorities and detail the steps to completion. Be prepared for barriers and deal with them in a calm manner.
- Organize—your activities to achieve your goals. Use project boards, be ready for busy weeks, and organize your work space.
- Staff—ask for help, delegate tasks, form study groups, take advantage of supportive programs.
- Direct—use positive reinforcement to motivate yourself. Reward yourself.
- Evaluate—Monitor your attitude and behavior. Track your accomplishments.

6. Performance Management

Performance management includes activities to ensure that goals are consistently being met in an effective and efficient manner.

IT Performance management is refers to the monitoring and measurement of relevant metrics to assess the performance of IT resources. It can be used in both a business context (IT Management), and an IT Operations context. In a business context, IT Performance Management is concerned with measuring the expenditure of capital and human resources in IT projects to determine how they improve strategic and operational capabilities of the firm in designing and developing products and services for maximum customer satisfaction, corporate productivity, profitability and competitiveness.

In an operations context, IT Performance Management is the subset of tools and processes in IT Operations which deals with the collection, monitoring and analysis of metrics that can tell IT staff if a system component is up and running (or available), or if the metrics indicate abnormal behavior that can impact the components' ability to function correctly - much like how a doctor may measure pulse, respiration, and temperature to measure how the human body is "operating".

7. Data Management

Data management is the process of developing data architectures, practices and procedures dealing with data and then executing these aspects on a regular basis. It is; controlling, protecting, and facilitating access to data in order to provide information consumers with timely access to the data they need.

There are many topics within data management, some of the more popular topics include data modeling, data warehousing, data movement, database administration and data mining

8. Stress Management

Managing stress is all about taking charge: taking charge of your thoughts, your emotions, your schedule, your environment, and the way you deal with problems. The ultimate goal is a balanced life, with time for work, relationships, relaxation, and fun – plus the resilience to hold up under pressure and meet challenges head on.

Stress management has strong relation with time management and task management. Correctly balanced schedule, prioritized tasks and delegation reduce the stress.

9. Problem Management

The goal of Problem Management is to minimize the adverse impact of Incidents and Problems on the business that is caused by errors within the IT Infrastructure, and to prevent recurrence of Incidents related to these errors. In order to achieve this goal, Problem Management seeks to get to the root cause of Incidents and then initiate actions to improve or correct the situation

10. Scientific Management

In the mid-nineteenth century, traditional management practices were found to be inadequate to meet demands from the changing economic, social and technological environment. Numerous enterprises were simply functioning inefficiently. A few pioneers examined the causes of these inefficiencies and tried to try to find more efficient methods and procedures for running a firm. These basic experiments gave birth to a system which became known as scientific management. Its method relied heavily on finding the "one best way" to solve every operating using scientific methods of research. The concept involved a way of thinking about management.
F.W. Taylor, in 1911, published his most famous book: principles of scientific management
He was among the first experts who systematically tried to formulate some universal management principles:

- Workers should have a detailed, clearly defined, daily task;
- Standardized conditions are needed to ensure the task is more easily accomplished;
- High payment should be given to the workers who managed to successfully complete their tasks. Workers who failed to their standards, in turn, should be sanctioned and receive less compensation.

11. Release Management

Release Management is the relatively new but rapidly growing discipline within software engineering of managing software releases.

A Release Manager is:

- Facilitator – serves as a liaison between varying business units to guarantee smooth and timely delivery of software products or updates.
- Gatekeeper – "holds the keys" to production systems/applications and takes responsibility for their implementations.
- Architect – helps to identify, create and/or implement processes or products to efficiently manage the release of code.
- Server Application Support Engineer – help troubleshoot problems with an application (although not typically at a code level).
- Coordinator – utilized to coordinate disparate source trees, projects, teams and components.
- Some of the challenges facing a Software Release Manager include the management of:
- Software Defects
- Issues
- Risks
- Software Change Requests

- New Development Requests (additional features and functions)
- Deployment and Packaging
- New Development Tasks

12. Business Process Management

First let's define the core element, a business process. A business process is an aggregation of operations performed by people and software systems containing the information used in the process, along with the applicable business rules. The execution of a business process achieves a business objective. Processes also include business rules that may be documented policies and procedures, as well as the undocumented 'how we really do things' rules that exist in most enterprises.

A comprehensive Business Process Management platform provides an organization with the ability to collectively define their business processes, deploy those processes as applications accessible via integrated existing software systems, and then provide managers with the visibility to monitor, analyze, control and improve the execution of those processes in real time.

13. Project Management

Project is the collection of activities that are related or connected, for developing a product or a service. It is a temporary effort to create a unique product or service. Project management is a methodical approach to planning and guiding project processes from start to finish. The processes are guided through five stages: initiation, planning, executing, controlling, and closing.

The scope of project management knowledge as follows: integration, scope, time, cost, quality, human resources, communications, risk, and procurement. So, Project management has cross relations with other managements' issues in IT.

14. Change Management

Change Management is an IT Service Management discipline. The objective of Change Management in this context is to ensure that standardized methods and procedures are used for efficient and prompt handling of all changes to controlled IT infrastructure, in order to minimize the number and impact of any related incidents upon service. Changes in the IT infrastructure may arise reactively in response to problems or externally imposed requirements, e.g. legislative changes, or proactively from seeking improved efficiency and effectiveness or to enable or reflect business initiatives, or from programs, projects or service improvement initiatives. Change Management can ensure standardized methods, processes and procedures are used for all changes, facilitate efficient and prompt handling of all changes, and maintain the proper balance between the need for change and the potential detrimental impact of changes.

Change management is responsible for managing change process involving:
- Hardware
- Communications equipment and software
- System software
- All documentation and procedures associated with the running, support and maintenance of live systems

15. Strategic Management

It is the art of planning your business at the highest possible level. Strategic management focuses on building a solid underlying structure to your business that will subsequently be fleshed out through the combined efforts of every individual you employ.

Strategic management is based on upon answering three key questions:
- What are my business's objectives?
- What are the best ways to achieve those objectives?
- What resources are required to make that happen?

Once these steps have been taken, a strategic plan should begin to emerge — effectively setting the stage for answering the second question above, or "How best can we reach our goals?" Phase two of successful strategic management is formulating a plan by which the company can accomplish what it sets out to do. Therefore, strategic management is one part of IT Management.

16. Network Management

Network management is the top-level administration and maintenance of large networks, often in areas such as computers or telecommunications, but not including user terminal equipment. In network management, functions such as security, monitoring, control, allocation, deployment, coordination and planning are executed.

Security management is also a key component of network management. Security management protects a network from unauthorized access and includes many sub-functions, such as the authorization of subscriber access, control of the distribution of cryptographic keying material, and the distribution and reporting of security related events.

Successful network management also uses accounting management. Accounting management controls and reports on the financial status of the network. This is done though analysis, planning, control of financial data reporting programs, and reporting for managerial decisions. This area of network management involves bank account maintenance, financial statement development, and analysis of cash flow and financial health.

17. Helpdesk Management

Help desk typically provide a first line of assistance to users of IT systems. Technical support services are provided to assist and promote the use of technology within a business environment. The Help Desk is the traditional mechanism for these technical support services, usually accompanied by on-site assistance, training and self-help programs. Technical support can include many levels, including custom software assistance, off the shelf software assistance, hardware diagnostics, and related technical and training services.

Help desks exist for one primary reason; to ensure a maximum return on the organizational investment in technology systems and services. In order to achieve this result, help desk services have to be effective, relevant and accessible.

Helpdesks in order to be successful must know how to:
- available
- measurable
- flexible
- learn/teach

18. Application Management

Application Management provides a methodology and tools that offer visibility into real-time metrics that help manage the key aspects of applications. Business Driven Application Management helps IT manage applications according to the needs of the business users so that valuable IT resources can be better focused to help deliver better business results.

A company that does not appropriately manage the availability of its key software applications cannot remain competitive, and business suffers when enterprise applications do not perform as expected: lack of availability costs money.

Application management may include;
- Application life cycle management
- Business Process management

- Capacity Management
- Financial Management
- Portfolio Management
- Development management
- Deployment management

19. Knowledge Management

In today's economy, knowledge is people, money, leverage, learning, flexibility, power, and competitive advantage. Knowledge is more relevant to sustained business than capital, labor or land. Nevertheless, it remains the most neglected asset.

A holistic view considers knowledge to be present in ideas, judgments, talents, root causes, relationships, perspectives and concepts. Knowledge is stored in the individual brain or encoded in organizational processes, documents, products, services, facilities and systems.

Knowledge management is an audit of "intellectual assets" that highlights unique sources, critical functions and potential bottlenecks which hinder knowledge flows to the point of use. It protects intellectual assets from decay, seeks opportunities to enhance decisions, services and products through adding intelligence, increasing value and providing flexibility.

20. Investment Management

The business of investment management has several facets, including the employment of professional fund managers, research (of individual assets and asset classes), dealing, settlement, marketing, internal auditing, and the preparation of reports for clients.

IT investment management has 3 phases;
- Selection
  The organization selects those IT projects that will best support its mission needs and identifies and analyzes each project's risks and returns before committing significant funds to a project.
    o Screen
    o Rank
    o Select
- Control
  The organization ensures that, as projects develop and as investment costs rise, the project is continuing to meet mission needs at the expected levels of cost and risk. If the project is not meeting expectations or if problems have arisen, steps are quickly taken to address the deficiencies.
    o Monitor progress
    o Take corrective action
- Evaluate
  Actual versus expected results are compared once projects have been fully implemented. This is done to 1) assess the project's impact on mission performance, 2) identify any changes or modifications to the project that may be needed, and 3) revise the investment management process based on lessons learned.
    o Reviews
    o Adjustment
    o Apply lessons learned

21. Configuration Management

Configuration management relates to both the security and quality areas of network management. It refers to the management of security features in a network by controlling changes made to the software, hardware, firmware, documentation, and test features in a system. This area of network management keeps the system under control as it evolves and grows, maintaining quality and security.

Software configuration management can be divided into two main areas. The first is concerned with storage of entities from a software development project and is sometimes called component repository management. The second area involves production and change to these entities and is often referred to as engineering support.

Computer hardware configuration goes beyond the recording of computer hardware for the purpose of asset management, although it can be used to maintain asset information. The extra value provided is the rich source of support information that it provides to all interested parties. This information is typically stored together in a configuration management database (CMDB).

The responsibilities of configuration management with regard to the CMDB are:
- Identification
- Control
- Status accounting
- Verification

22. Rights Management
The purpose of this process is to grant authorized individuals the right to use a particular IT service while preventing access by unauthorized users. Access management executes the policies defined by information security management and availability management.

Often, individuals are granted access to business applications using operating system, database and/or network "access control" mechanisms. Integrated business applications, however, are increasingly being held responsible for user and access management in service-oriented architectures that span technology boundaries to deliver functionality.

In the areas of access management, any requirement to restrict the 1) usage of application features or 2) access to business and personal information is part of "application security."

23. Life cycle Management
Life cycle is consecutive and interlinked stages of a product system, from raw material acquisition or generation of natural resources to the final disposal.

Life cycle management is an integrated concept for managing the total life cycle of goods and services towards more sustainable production and consumption.

24. IT Financial Management
IT Financial Management is the discipline of ensuring that the IT infrastructure is obtained at the most effective price (which does not necessarily mean cheapest) and calculating the cost of providing IT services so that an organization can understand the costs of its IT services. These costs may then be recovered from the customer of the service.

Costs are divided into costing units:

- Equipment
- Software
- Organization (staff, overtime)
- Accommodation
- Transfer (costs of 3rd party service providers)

25. Security Management

Security Management is the process of managing a defined level of security on information and IT services. Information security is achieved by implementing a suitable set of controls, which could be policies, practices, procedures, organizational structures and software functions. These controls need to be established to ensure that the specific security objectives of the organization are met. (ISO 17799:2000)
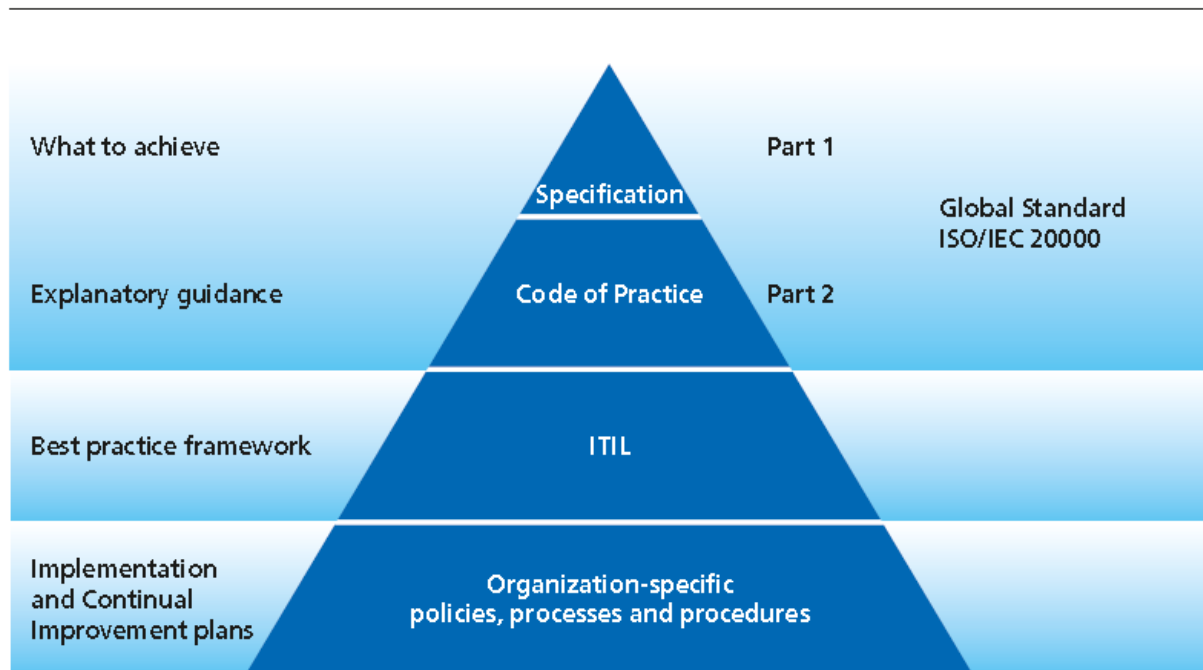

Figure 5 Security Management standarts

26. Content Management

Content management consists of;

- Web-based publishing: Documents and other forms of information can be published by authorized individuals. Page templates, wizards, and other software aids help inexperienced content authors to produce higher-quality output. Data useful on intranet, extranet, and ecommerce Internet sites, for example, can automatically be re-purposed and co-ordinate for the multiple destinations.
- Format management: Data can automatically be converted into formats suitable for Web publishing such as HTML PDF. Legacy electronic documents, or even scanned paper documents, can be unified into a few common formats that are more easily shared with third parties.
- Revision control: Files can be updated to a newer version or restored to a previous version. Changes to files can be traced to individuals for security purposes.
- Indexing, search, and retrieval: For data to be valuable, it must be relevant to the task at hand and accessible in a timely fashion. Documents can be parsed for keywords, headings, graphics, and other elements; mechanisms for processing search requests become critical.

More generally, effective content management systems support an organization's business processes for acquiring, filtering, organizing, and controlling access to information.

27. Risk Management

As organizations use automated IT systems to process their information for better support of their missions, risk management plays a critical role in protecting an organization's information assets, and therefore its mission, from IT-related risk.

An effective risk management process is an important component of a successful IT security program. The principal goal of an organization's risk management process should be to protect the organization

and its ability to perform their mission, not just its IT assets. Therefore, the risk management process should not be treated primarily as a technical function carried out by the IT experts who operate and manage the IT system, but as an essential management function of the organization.

Risk management is the process of identifying risk, assessing risk, and taking steps to reduce risk to an acceptable level. Risk management is the process that allows IT managers to balance the operational and economic costs of protective measures and achieve gains in mission capability by protecting the IT systems and data that support their organizations' missions.

28. Lean Management
Lean Management is:

- Defining the purpose of the organization in terms of customer value
- Consumption problems of customers it is required to solve
- Designing and executing the right value streams and processes for achieving the purpose and aligning the people touching the process and building problem solving capability in them

It is now proven that Lean is applicable in any sphere of human activity, and a variety of industries – small and large from Retail, Office and Service industries have begun to appreciate the benefits of Lean Management and are transforming themselves. Many companies from Banking & Financial Services, Healthcare, Retail, Hospitality, BPOs, Call Centre & ITES and Software Industries have already embarked on a Lean management or are evaluating and seriously considering one. This is apart from Manufacturing Industries realizing that Lean Management is more than applying tools and techniques in the factory operations.

29. Resource Management
In organizational studies, resource management is the efficient and effective deployment for an organization's resources when they are needed. Such resources may include financial resources, inventory, human skills, production resources, or information technology (IT). In the realm of project management, processes, techniques and philosophies as to the best approach for allocating resources have been developed.

Core to this effort is learning how to optimize your resource utilization across all of IT – which ultimately will give you the planning flexibility you need to keep the right people on the right projects. Additionally, when faced with the all-too-common unplanned change request, you will know exactly what your trade-offs are and what choices you can offer your business customers. Making such informed choices will reduce the number of projects in jeopardy.

A focus on achieving this type of strategic agility requires a shift from two predominant resource management approaches that have thus far impeded project management success rates:

- Maintaining a narrow focus on time-tracking systems
- Lack of workflow automation for key processes

30. Incident Management
An incident is any event that is not part of the normal operation of an organization and causes a disruption of IT services. Within this context, incident management is the process to restore normal IT operations as quickly as possible to the organization while minimizing the impact within defined service levels. It's important to note that incident management is about restoring service and not about resolving the underlying problem.

Incident management programs that generally span five core areas:

- Detection and recording

- Classification, prioritization, and tracking
- Investigation, escalation, and diagnosis
- Resolution and recovery
- Closure and communication

While incident management can be a thankless job, it's a core process that every IT staff needs to master. Incident management identifies, classifies, and manages the resolution of incidents while minimizing their impact to the business. This role is critical in ensuring that the impact of IT incidents on the business is managed effectively.

31. Alert Management
Alert management is a proven, valuable solution for the enterprise help desk. A good Alert management improves IT operations productivity by automating notification, assignment, collaboration, and resolution of IT incidents.

32. Capacity Management
It is about ensuring that the right source levels are available where and when they are needed, at the right price. One view is that capacity management is about ensuring there is enough capacity, but it is equally about making sure there is not too much, with the unused resources incurring expense.

33. Patch Management
The rise of widespread worms and malicious code targeting known vulnerabilities on unpatched systems, and the resultant downtime and expense they bring, is probably the biggest reason so any organizations are focusing on patch management. Along with these threats, increasing concern around governance and regulatory compliance has pushed enterprises to gain better control and oversight of their information assets.

It's obvious that patch management is a critical issue. What is also clear is the main objective of a patch management program: to create a consistently configured environment that is secure against known vulnerabilities in operating system and application software. Unfortunately, as with many technology-based problems, good, practical solutions aren't as apparent. Managing updates for all the applications and operating system versions used in a small company is fairly complicated, and the situation only becomes more complex when additional platforms, availability requirements, and remote offices and workers are factored in.

A key component of patch management is the intake and vetting of information regarding both security issues and patch release - you must know which security issues and software updates are relevant to your environment.

Several scheduling guidelines and plans should exist in a comprehensive patch management program. First, a patch cycle must exist that guides the normal application of patches and updates to systems. This cycle does not specifically target security or other critical updates. Instead, this patch cycle is meant to facilitate the application of standard patch releases and updates.

After patch testing installation and deployment is where the actual work of applying patches and updates to production systems occurs. Audit, Consistency and Compliance checks must be done afterwards.

34. Role Management
Role management helps you manage authorization, which enables you to specify the resources that users in your application are allowed to access. Role management lets you treat groups of users as a unit by assigning users to roles such as manager, sales, member, and so on.

35. Relationship Management

Relation Management gives you the opportunity to register and manage all relevant information about your relations.

Client Relationship Management is responsible for managing all aspects of ITS working relationships with clients to render high quality service delivery and to maximize client satisfaction.

Client Relationship Management overall is comprised of four parts:

- Understanding what the client is asking for, and needs.
- Executing or delivering what the client is requesting.
- Predicting what the client will need in the future.
- Delivering targeted communications to respond to client needs.

As part of a client-centric focus, the Client Relationship Management unit assesses all individual needs, aggregated into client segments, and organizational or unit needs.

Business Relationship Management forms connection between the IT department and the business units it services. Business Relationship Management ensures that everyone is working at potential and that the most appropriate technologies are being used by the right people.

36. Portfolio Management

IT portfolio management is the application of systematic management to large classes of items managed by enterprise IT capabilities. Examples of IT portfolios would be planned initiatives, projects, and ongoing IT services.

IT Portfolio management is distinct from IT financial management in that it has an explicitly directive, strategic goal in determining what to continue investing in versus what to divest from.

At its most mature, IT Portfolio management is accomplished through the creation of two portfolios:
- Application portfolio
- Project portfolio

37. Regulation Management

The Computer Misuse Act 1990, enacted by Great Britain on 29 June 1990, and which came into force on 29 August 1990, is an example of one of the earliest of such legal enactments. This Act was enacted with an express purpose of making "provision for securing computer material against unauthorized access or modification".

Certain major provisions of the Computer Misuse Act 1990 relate to:

- "Unauthorized access to computer materials",
- "Unauthorized access with intent to commit or facilitate the commission of further offences", and
- "Unauthorized modification of computer material."

The impact of the Computer Misuse Act 1990 has been limited and with the adoption of the Council of Europe adopts its Convention on Cyber-Crime, it has been indicated that amending legislation would be introduced in parliamentary session 2004-05 in order to rectify possible gaps in its coverage, which are many.

In parallel with public opinion, governmental organizations have imposed stricter controls on companies. Regulations such as Sarbanes-Oxley, SEC Rule 17a-4, the Federal Rules of Civil Procedure, HIPPA ,and the European Union 8th Directive create business requirements for retaining key information assets. Failure to comply exposes companies to fines or regulatory sanctions so severe that non-complying organizations may cease to exist.

In response to these new risks and shareholder pressures, many companies have enacted strict corporate governance policies – some more stringent than the regulations even require. As a result, organizations are keeping e-mails and certain types of files forever. By deploying strong business processes for archiving that are linked to larger corporate governance requirements, organizations can minimize business and legal risks.

In Turkey, the law 5651 gives very broad authority to filter the net. It places this power in a single authority, as well as in the courts. It is unclear how broadly the law will be implemented. If the authority is well-meaning, as it seems to me to be, the effect of the law may be minimal; if that perspective changes, the effect of the law could be dramatic.

- The blocks are done at the domain level, it would appear. In other words, instead of blocking a single URL, the blocks affect entire domains. Many other states take this approach, probably for cost or efficiency reasons. Many states in the Middle East/North Africa have blocked entire blogging services at different times, for instance.

- The system in place requires Internet services to register themselves with the Turkish authorities (Middle East University).

Internet Service Providers are themselves supposed to take the initiative to block access to content, which they then show to a judge who decides whether or not the blocking should continue. It will be will then be submitted to a "Communication Presidency," which like the "Telecommunication Council" is an entity specially created to ensure the new law's implementation.

38. Outsourcing Management
Outsourcing is the process of contracting to a third-party.
Organizations that outsource are seeking to realize benefits or address the following issues;
- Cost savings
- Focus on Core Business
- Cost restructuring
- Improve quality
- Knowledge
- Contract
- Operational expertise
- Access to talent
- Capacity management
- Risk management
- Scalability

39. Asset Management
Asset Management is a systematic process of operating, maintaining, and upgrading physical assets cost-effectively. It combines engineering and mathematical analyses with sound business practice and economic theory.

IT asset management (ITAM) is the set of business practices that join financial, contractual and inventory functions to support life cycle management and strategic decision making for the IT environment.

Types of Assets include:
- •Management
- •Organization
- •Process
- •Knowledge
- •People
- •Information
- •Applications
- •Infrastructure
- •Financial Capital

The IT Asset Management function is the primary point of accountability for the life-cycle management of information technology assets throughout the organization.

Included in this responsibility are development and maintenance of policies, standards, processes, systems and measurements that enable the organization to manage the IT Asset Portfolio with respect to risk, cost, control, IT Governance, compliance and business performance objectives as established by the business.

40. Archive Management

There are many types of archives in the modern world. Libraries are archives of written works, museums are archives of physical objects, and national archives hold critical pieces of a nation's past.

The discipline of maintaining archives or safeguarding critical objects is not a process limited to public service institutions. Businesses have maintained archives of corporate records and information for years. And in recent times, corporate governance and external regulations have mandated that businesses retain specific types of information assets.

As a business process, archiving should link the requirements and goals of the business with the actions and tactics of its IT organization. Business Archive Management is a true business process that spans the entire organization to facilitate three goals: minimizing risk associated with governance concerns, enabling the efficient use of corporate assets, and generating value through the reuse of information assets.

The three key drivers of Business Archive Management are the need for corporate governance, efficient use of corporate assets, and business reuse of information.

Business Archive Management requires mastering four core capabilities:
- Business planning
- Archive planning and design
- Archive operations and support
- Infrastructure management

Conclusion

As a business-savvy IT Manager more than 15 years, I may say every IT Manager must be aware of all the managements issues related to IT in order to rule the department and serve to the business. To make the best decisions for business, IT Managers have to know about all management issues mentioned above.

Today, IT Management is not all about the development, system, network and helpdesk management. Because today, business critical needs are not just fine working IT systems. We need to take in

consideration; the regulations for not facing up law suits, archives for reusing information, outsourcing for saving money and time.

I also tried to mention how management issues for IT changed and evolved in time. Today's hot management issues are outsourcing, security and archiving if we consider Cloud Computing. Tomorrow, certainly management issues will change according to innovations in IT. And I am sure every IT Manager who serves to business will adapt her/himself to the new management processes.