Assignment Tasks

Your Name

University Name

Assignment Tasks

# **Task 1**

**Information Security**

We are living in the age of information, BIG Data and algorithms. Information is available so readily. The search engines which help us access this information have entered our daily vocabulary; the word search has been replaced by the world Google. However, with such explosive growth of information, there is also a growing concern for security. Therefore many organizations have devised their IT security policies and have placed security systems in place to protect their critical data from several threats.

Information security systems are developed by humans and therefore humans will remain the weakest link in the realm of information security (Tran, 2016). The reason is that those who can develop a system can also exploit it for their own ulterior motives. Adaptation here is the key. Policies and security systems should keep evolving with the changing environment. It is a constant battle.

**Possible Threats to Information Security**

A threat may be defined as anything that results in a breach of security. Information security faces myriad of threats including attacks on software, theft of identity, extortion of information, intellectual property theft, curbing access to information and so on. The threat can also be categorized as software attacks, malware, virus, worms, Trojan, Bots, adware, spyware, ransomware, scareware, rootkits, zombies.

The above-mentioned threats are old generation threats. But there has been much advancement today. New generation threats include technology with weak security, social media attacks, mobile Malware, social engineering, corporate data on personal devices, etc.

**IT Security Policies**

To protect IT assets and resources, an organization devises security policy which guides individuals as to how to access and use these resources. The policy primarily depends upon the nature of information, the degree of availability desired and perceived threats. IT security policies of most organizations aim at achieving the desired level of confidentiality, access and integrity. The policy documents have to be updated with the changing environment. It defines the objectives of the policy, its scope and responsibilities of the employees.

**How to Assess IT Security Policies**

The following questions should be kept in mind while assessing an information security policy.

* Whether or not the organization keeps assessing the policies
* Whether or not the organization keeps an eye on trending cyber threats
* Whether or not the cybersecurity team is skilled and professional
* Whether or not the organization conducts security reviews and audit of performance
* What the response plan for an incident is. A plan in place means that a possible intrusion will not be denied. Rather a proper response will be given. Some organizations remain in denial mode when a breach of security occurs.
* If there is any training mechanism for employees
* If there are any systems in place for vulnerability assessment

**Security Policy of Federation University Australia**

The policies aim at securing assets of the University against fraud, theft, privacy breach and malicious damage. It also prevents the use of various facilities for objects other than intended.One of the strengths of the policy is its wide scope which includes not only security staff but also students and other persons affiliated with the University. The standards followed by the university include Australian Standard Information Technology.

The policy includes Staff and students security, logical security, data security, physical security, security-related issues with mobile and other portable devices, incident management, and continuous improvement of security systems. This shows the policy and system in place over a wide range of areas.

The software security pertains to the security of software packages of FedUni computer services. Access is controlled through personal accounts with ID and Password. Moreover, the inactivity screensaver keeps monitoring the status of activity and lock the access after 10 minutes inactivity. Endpoint security ensure updates for the latest threats. All systems have updated anti-viruses. Backup of data is kept and there is a determined frequency for backups. For the implementation of the policy, a specific IT team is dedicated. Infringements are dealt with actions.

The above details show that the IT security policy of the university is very comprehensive and covers nearly all the measures necessary for the information security of the university.

**Cyber Security Strategy of the Australian Government**

Australia launched its Cyber Security Strategy in 2016 which aimed at enabling innovation, prosperity and growth (Department of Prime Minister, Australian Government, 2016). Today more than 90% of Australians are online. To ensure the security of these online users, the policymakers embarked up devising a strategy to combat security threats. The policy is based on actions in five major areas. It suggests a cyber-partnership on a nation level, including also private bodies and communities, setting up a cyber-security infrastructure, recognizing the responsibility globally, adaptability and innovation and finally education Australians to train them into a smart nation. Under the policy, the Australian Cyber Security Centre has been established, which in partnership with private businesses aims at ensuring the cybersecurity using state of the art technologies.

For strong defences against cyber-attacks, the strategy is to detect, deter and respond. An online cyber threat sharing portal has been introduced by the government. The government also launched Cloud Computing Policy in 2014 to provide protection of data.

This strategy has its strengths and weaknesses. Australian government's intervention in the cybersecurity market would promote innovation, increase awareness, enhance cybersecurity-related skills and protect systems. Cybersecurity has been acknowledged as a national security issue. However, some experts suggest the budget allocation is meagre when compared to the US and UK. The strategy also lacks a timeline. There is no proper mechanism for the transfer of funds.

**Security Policy of the Australian Institute of Food Safety (AIFS)**

It aims at preserving the security of personal information and cookie. The institute has a review mechanism for knowing about recent developments in technologies related to security and encryption.

However, the organization claims no responsibility to ensure secure transfer of any kind of information from or to the online products of the organization.

Although the safe transfer is not ensured, once the information has been transferred, the organization has its mechanisms in place to protect the security, confidentiality and privacy of the information in their database. There are not only electronic but also managerial and physical procedures to prevent unauthorized access to the clients' information. AIFS follows the Australia Privacy Policies to ensure the privacy of its customers.

Their website also uses cookies. A cookie is a file placed on a person’s computer after asking for permission. Its purpose is to keep track of traffic. It responds to the users of a website individually. It remembers the preferences of a person and therefore can tailor its features to the needs of the user. Australian Institute of Food Safety also uses cookies to know which pages are visited most.

Since AIFS is an institute which provides training and education related to food safety, therefore the information they are dealing with is not very sensitive. The major concern is the privacy of the users of their website, which they secure in accordance with Australia Privacy Policies. Another strength is their dedication to research on the latest IT trends, which is indeed a strength.

**Task 2**

**Crowd Sourcing**

The practice of dividing a huge project or task into smaller chunks and assigning each chunk to a group of people who may be hundreds or thousands in number, depending upon the size of the task and the manpower it requires. Tasks are usually assigned through the internet. The nature of task may vary, including simply the collection of information and developing websites.

Internet and social media are the tools used for collecting data, information and opinions. The work may be based on paid freelancing or voluntarism.

Traffic navigators such as Google Map not only help the users or the apps but also provide real-time information about accidents that are reported by the app users

Crowdsourcing helps businesses to distribute their work around the globe, thereby exploiting the skills and expertise of a variety of people. It also helps them avoid the overhead expenses of employees working in the office of the company.

**Examples of Crowdsourcing**

There are myriad of jobs which can be crowd-sourced. Websites can be created using crowdsourcing. This method is also being used by the Uber. Companies seeking opinions on new products reach out to millions of their consumers on social media to know the perspective of people from different social, cultural and economic backgrounds.

**Advantages of Crowdsourcing**

Crowdsourcing helps a company or organization to reduce costs, enhance speed, and utilize the skills of people from around the world. Crowdsourcing is useful for those companies as well that perform some special tasks only occasionally. So rather than hiring permanent in-house employees, the task may be crowd-sourced. Proctor and Gamble, reaping the benefits of crowdsourcing, not only saved costs but also increased the generation of ideas (Crowdsourcing.org, 2012).

**Crowdsourcing and Ethical Considerations**

Ethics deals with the question of right and wrong, and studies human conduct to determine whether the conduct is right or wrong in a given situation context. Although technology enables man to reap from its countless socio-economic benefits, yet sometimes there are ethical considerations. Crowdsourcing is one such area.

There are several perspectives related to the question of ethics in crowdsourcing. Utilitarianism aims at maximizing the greatest good with producing minimum hard. The Rights Approach emphasizes human dignity, respect and recognition. The Justice Approach calls for equal treatment of all people ( (Susan Standing, 2017).

One ethical concern is that crowdsourcing increases the risk of exploitation of people at the hands of businesses. By tapping into the minds of a large number of people, crowdfunding can become exploitative. Human beings tend to socialize and remain in the community, they are most of the times willing to contribute without realizing their being exploited.

Crowdsourcing also gives rise to the question of rightful ownership of the task accomplished or the intellectual property thus created. There as an emerging trend that companies ask the participants of the crowd-sourced project to transfer the intellectual property rights to the company (Susan Standing, 2017).

Yet another challenge is the lack of laws to protect ownership. Moreover, since there may be hundreds of thousands of individuals involved in a project, it becomes virtually impossible to calculate and allocate the rightful share of each person.

Crowdsourcing also restricts a participant’s access to the company's information. Nor can he play any major role in the decision making of the company. The related is only restricted to sourcing space, lacking the usual warmth that normally exists between relations that involve interactions. As rewards, if any, are contingent upon task completion, the participant does not have any say regarding the scope of the project.

**Way Forward**

There is an ongoing debate on the question of governance body regulating crowdsourcing. Those who oppose governance regulations highlight the already existing organizations such as crowdsourcing.org. They advocate the promotion of transparency in crowdsourcing so that the crowd can hold the company accountable itself without any government interference. They argue that an exploitative company cannot even survive for too long as the crowd will sooner or later call it out. Online professional communities should also play their role in creating awareness about what is ethical so that any projects where ethics are not clear enough are rejected.

Moreover, companies crowdsourcing their projects should institute their own code. Sometimes, the participants themselves may be asked to vote who should receive how many points of ownership. After the formulation of guidelines and rules for evaluation, the firms should also communicate these rules to the contributors. Moreover, the work of contributors should be recognized to prevent their alienation. Skills, knowledge and professional experience should also be acknowledged. When giving rewards, they may be given in groups. But there should be an excuse for not giving rewards just because the number of employees is very large. Those ideas proposed by the participants who get rejected by the company should also be managed in a responsible manner because, after all, the participants put effort into them. Transparency is of utmost importance so that the participants can make informed decisions and are aware of the nature of the company and code of conduct.

Some experts argue that the contributors should not undertake an assignment that causes their professional devaluation or when they are underpaid. There are also some responsibilities that fall on the shoulders of the participants. They should not use the designs or ideas of one company in any other crowdsourcing company. Moreover, they should report any incident of unethical activity on the part of other participants. The question of ethics is made all the more complex by the diversity in perspectives and moral standing of various societies and communities on the question of what is right and what is wrong (Ayala, 2010).

**Task 3**

We live in a knowledge economy and the most important strategic tool in the knowledge economy landscape is technology. Technology has crept into almost all kinds of organizations. It has enabled organizations to increase their competitive advantage. Due to unprecedented feats in research, even the cost of using technology has decreased.

**Understanding Porter’s Model**

The benefits a company can derive from IT have been explained by Michael Porter's Model of competitive forces. Porter's five forces analysis is used to assess the potential of the business industry. The five forces are shown below in Figure 1.

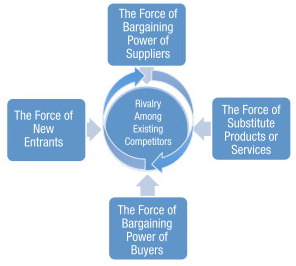


Figure 1: Porter's Five Forces, isaca.org

The model identifies a major competitive threat to any company or organization. One is posed by external sources. Government policy changes business competitors are examples of external threat. In a competitive environment, organizations face many challenges and Porter's model helps explain their behaviour and how they maintain competitive advantages (Mohapatra, 2011).

**Strategic Significance of IT and IS**

IT helps to maintain a competitive advantage as it changes the structure of the organization in such a way that the changed structure is adjusted according to a communication protocol. It is this changed structure that enables the organization to develop new ideas and working style and thereby maintain a competitive advantage over other competitors (Parsons, 1983). Sometimes complete new business models evolve.

**IS Strategic Planning and Porter’s 5 Forces**

The far-reaching impact of IT and IS strategic planning on businesses and competition includes changing business models, changing the industry and finally evolving new strategies. In the following paragraphs, these impacts will be discussed thoroughly.

**IS and buying power.** Using IS, these forces can be managed as well as monitored. Management of inventory, quick selection of vendor and automation of purchase orders and billing procedures can be achieved through IS. These actions can help a company to improve relations with consumers and vendors and reduce procurement time. It has therefore increased buyers’ power.

**IS an entry barrier.** To understand the impact of IS on entry barrier, let us take the examples of banks and financial institutions (FI). Making online banking possible, IS has made the physical presence of the customer in the bank unnecessary. However, online banking entails heavy investments, trained staff and checks against cyber-crimes. All these factors have increased the entry barrier.

**IS and the threat of substitutes.** To minimize the threat of substitute, constant innovation in products is required. Introducing new products means making new designs and manufacturing or developing new products. For instance, there a constant need to introduce new models to tempt customers to upgrade their cars. Since IS helps collect information about the taste of clients and also decrease the time of decision making, the overall process of making innovation becomes very swift. Moreover, with IS all creativity of all the designers of the company can be exploited by helping them connect and exchange ideas. In these ways, IS has helped organizations to reduce the threat of substitutes.

**IS and industry rivalry.** In the service sector the competition is always very fierce owing to very little difference between pricing strategies and service levels. Airlines, railways and banking services might be different businesses but their pricing strategies are quite similar. Using IS, every company aims at reducing the processing time of the customer's request. Moreover, service delivery has also been made swift through IS. Therefore in order to remain in the race, every organization needs to upgrade its systems. Otherwise, it will be left behind.

**IS and selling power.** After Maruti introduced ERP (enterprise resource planning), its relation with buyers and suppliers changed remarkably. ERP makes the whole business extremely transparent. The more transparent the business, the more knowledge does the buyers have about the quality of the product they are interested in. This creates a relationship of trust between the seller and the buyers (Mohapatra, 2011).

**SWOT Analysis for IS Strategic Planning**

Here the example of clinical information systems may be used. The SWOT analysis below may be applied to Information Systems other than Clinical Information Systems as well. A clinical information system is a system which stores and processes data related to bioinformatics algorithms, diagnostics, etc.

**Strengths.** IT boom has influenced nearly all kinds of organizations and businesses, including healthcare. Doctors and medical specialists also need to organize and automate data in the digital landscape. Clinical records need to store in digital form. In order to integrate data of hundreds of patients visiting hospitals, IS becomes inevitable. In emergency situations, such data can be accessed swiftly.

**Weaknesses.** Up-gradation may be time-consuming. Cybersecurity remains a threat and a constant battle. Moreover, the privacy of patients remains a concern.

**Opportunities.** There is a possibility to develop a platform-independent language for coding of software. Most of the healthcare IS are based on mainframes. Servers, on the other hand, are easy to maintain and provide real-time data and quick access. Interfaces can be made further user-friendly by improving the human-machine interface. Security protocols can be improved. Protection of privacy and security of systems is a constant battle. Specific bioinformatics tools can be devised related to medical field such as a tool for judging an athlete.

**Threats.** The major threat posed to IT and IS cybercrimes. The frequency of such crimes is increasing day by day. Just like inventing new medicines for bacteria is a constant battle, so is developing new security tools such as anti-viruses. The reason is that human beings are both the ends of the battle. In the whole security landscape, human beings are the weakest link. In this regard, governments and businesses should join hands to develop security regimes. The threat of penalties can also deter such crimes. Moreover, where possible, such systems can be operated offline to secure sensitive data.

**Task 4**

Information technology plays a central role in managing organizations. Every organization performs several functions such as marketing, manufacturing, sales, production, etc. Earlier, such function was performed separately and all the relevant data was recorded separately in separate information systems. However, the managers required to put the fragmented data together to assess the overall performance of the organization. Those Information technologies which integrate these functions together are called Enterprise Systems.

For example, if a client places an order in a company where the sales department is not integrated with the inventory, the salesman would never know, without contacting the inventory department, whether the demanded product is available or not. This is very recently with the advancement in information technology, many business companies have integrated their several functioning departments into a single whole that is called an enterprise system. Enterprise systems help organizations to plan efficiently by allowing the flow of information across departments.

Today enterprise systems, also called enterprise resource planning (ERP), have become so advanced that they cover almost all the functions of an organization, including but not limited to cash management, payroll, accounts payable, billing inventory, etc. ERP software connects consumers with suppliers and suppliers with other partners as well.

**Importance of Enterprise Resource Planning Systems for an Organization**

It enables communication across the firm. The managers having access to updated information about all the functioning departments are in a better position to make informed decisions (Loo, 2012).

It reduces the overall cost of doing business. One example is reducing the cost of information transfer. The budget thus saved can be invested elsewhere to improve the business. For instance, it can be invested in improving customer care.

By connecting all the departments, it improves customer care services by keeping a database of their history such as previous orders. By knowing about the preference of the customer, he can be helped out by providing updated information to him about the products of his liking.

Order tracking becomes easier and faster. The time thus saved by the customer service providers can be utilized in maximizing revenue generation.

It enables the organization to evolve a specific kind of corporate culture as ERP enables most of the employees to have almost similar exposure to the organization’s values, mission and other information.

The degree of integration or the size of the database can be expanded or reduced according to the needs of an organization. Scaling up is usually required when the customer base is increased, new departments are created, and so on.

The reliability of ERP can be improved to minimize downtime by installing standby systems as well. This helps the organization to remain online, connected, and informed, thereby generating maximum output.

With worldwide increased interconnectivity, exposure and vulnerability to cybercrimes have also increased. It is relevant to mention here the security breaches of large corporations such as Sony. Such security breaches cannot be afforded by big business as they come with costs as high as hundreds of millions. ERP enables an organization to improve cybersecurity and enhance customer privacy.

With unprecedented changes in market trends and consumers’ preferences, it has become extremely important to have real-time access to data. ERP provides this data thereby enabling the enterprise to make sense of the latest supply and demand trends.

In the ever-changing environment, it is of paramount importance that the customer is provided with a consistent experience by the enterprise. ERP helps the enterprise to evolve its consistent standards related to customer service. Such standardization familiarizes the customer with the enterprise and over time a bond is created between the two (Ullah, 2018).

One of the key areas in businesses is supply chain management. BY enabling the enterprise to keep track of the customer order, supplies, inventory, ERP smoothens the management of supply chain. In fact, ERP has become the bedrock of the supply chain over time.

Government regulations nowadays ask for a lot of information about the organization's activities, businesses, employees, revenues, profits, etc. ERP not only helps organizations to provide such data to the government regulatory agencies but also makes the whole process easier through automatic generation of data. Therefore, one the hand, compliance is ensured and on the other, company's employees remain available for other tasks.

**Challenges in ERP Implementation**

Despite its numerous benefits, ERP also poses some serious challenges to organizations both before and after implementation (Bach, 2014). To understand these challenges, a case study of a water corporation will be discussed. The water corporation began the implementation of ERP in 1997 which was to be completed in 1999. The process was sequential. Some subsystems had been installed earlier the corporation began using them. However, there were many shuts down. Moreover, the transfer of data from the old system to the new ERP system also caused problems. In order to fix these problems, heavy expenses were incurred. The problem was eventually solved but after a lot of effort.

What can be concluded from this case study is that the implementation of ERP requires planning and proper preparation. Even after implementation, there may be operational and managerial problems. After ERP is installed training of employees requires some time. That also needs to be planned accordingly. Otherwise, a business can be severely affected.

CosmeticCO is a Chinese company working in the domain of cosmetics. In 1998, it embarked upon the implementation of an ERP system. The challenged they were that the ERP had not been fully translated into Chinese. Moreover, ERP had a different reporting format while the Government of China required the company to submit their reports in a different format. There were some problems related to display as well such as overlapping of digits. Such challenges can severely impact the performance of the company.

**Recommendations**

Proper planning is required before implementation. Moreover, the organization should not become depending on the ERP abruptly, abandoning the old system. Only when the new system starts functioning perfectly should the old system be abandoned. The whole process of implementation of ERP may be divided into steps in order to avoid and overcome such challenges (Bach, 2014).

The first step is the formation of a consultant team that includes experts in the IT field. Then the ERP product should be chosen with due care. Integration, implementation, training and system testing partners should be chosen then. Then comes the announcement of the plan to the employees to engage them. The implementation plan should be devised and proper tracking mechanism should be set up. Finally, there should be an evaluation team.

**Task 5**

The outsourcing industry has grown immensely over the past few decades, and with its growth, outsourcing has become more complex than it ever was. The complexities involved therefore also create issues and pose some serious challenges (Chou, 2016). To maximize profit, businesses come up with different strategies such as mergers, acquisitions, outsourcing, integration etc. If we trace back the outsourcing trend, we find that it was manufacturing industry that first outsourced its manufacturing to cheap manufacturers (Chou, 2016). One of the world’s biggest outsourcing market is China where the cost of labour is low. On the other hand, there is an increasing trend in the US to outsource services.

IT outsourcing has existed for around six decades and one of the earliest IT outsourced service was Timesharing. It was introduced early in the 1950s (Chou, 2016). There is are a wide range of services that are outsourced by companies. The motivations behind outsourcing IT services include cost-effectiveness, access to resources not available internally, completion of the difficult task by employing external skills, and tapping diverse talent.

Hiring in-house staff can be very expensive including costs of salaries, rents, billings etc. By outsourcing an IT service, such costs are reduced, and the upper management can shift their focus towards other ongoing projects. Outsourcing helps in quick implementation of new technologies. By outsourcing IT services, the company invests more time and money in its core business, thereby generating more revenue.

Outsourcing reduces the risks in many ways. All the risks associated with market changes, competition and regulations are now handled by the vendor. Outsourcing can bring small companies at par with big businesses by outsourcing such IT services that they themselves do not have the capacity to handle.

However, there are some risks posed by the practice of IR outsourcing as well, including unexpected costs, fear of losing intellectual property, theft of strategic data, losing control and access etc.

**Most Common Outsourced IT Functions**

IT functions have pervaded all kinds of enterprises, organizations and businesses. Over the years, organizations have moved from outsourcing simple support services to highly advanced functions. The functions outsourced include marketing, consultation, cyber-attack protection, backup and recovery, and so on.

Email management is one of the most common IT feature outsourced to vendors. Companies dealing with a large number of emails need proper management and protection of these emails. In large organizations, regular maintenance of network and software ensured by outsourcing them to an IT vendor. Some IT outsourcing companies provide access to shared servers or exclusively protected servers that can be utilized by paying for them. Data collection, data storage, back up, maintenance of data and updates are some other IT functions that companies outsource to third-party IT service providers.

**Issues Associated with IT Outsourcing**

One challenge faced by IT outsourcing companies is the government regulations which are usually enforced to protect state interests (Ojukwu, 2015). In Europe, the legal regimes offer little opportunities for companies to outsource their IT operations (Aziati, 2010). Likewise, the Turkish government imposed several restrictions on the outsourcing of IT to avoid exposing its national capabilities.

Another major challenge is the absence of skilled IT employees in the organizations intending to outsource its IT functions. This results in the inability of the organization to explain its IT requirements to the vendor (Farrel, 2010). The example of Accenture Company in Norway is indeed relevant in this context. Its employees were not trained to gather data from their offshore service provider, as a result of which the company suffered in business due to insufficient information. Moreover, any bitter experience between the vendor and client experience causes degradation of service quality.

Sometimes the focus of the outsourcer is on the cost, not on the objective of outsourcing. Sometimes the specific information required for the successful provision of IT services is not carefully provided to the vendor. In other cases, the servicer outsourcer shifts the whole responsibility from its shoulders on to the vendor and in worse cases, it may not consider it their problem anymore.

It has also been observed that outsourcers sometimes do not carefully monitor information security. On the other hand, some businesses or governments are reluctant to outsource their IT services primarily because of their concerns regarding strategic IT outsourcing. Outsourcing of strategic IT functions is considered inappropriate because of the fear of leakage of sensitive information (HKSAR, 2008).

Another issue associated with many IT projects is the failure to produce the promised advantage. This happens because the focus of the organizations usually remains on the application of technology rather than on the evaluation of the IT outsourced project. In case IT outsourced projects, the appropriate project methodology remains slow and most often organizations lack any formal method of evaluating IT outsourced projects.

Yet another challenge associated with IT outsourcing is the ambiguities in the agreement. For instance, the cost of a particular service might be unspecified in the contract. There is also the possibility of potential misinterpretation of the text of an agreement by either the client or the vendor or both. One example of unspecified cost is usually the cost maintain communication (Riungu, 2007). Confusion may also be caused because of currency and inflation problems involved as the vendor and client can possibly reside in different countries.

Lack of global IT resource or inability of the organization to cope with the ever-changing technological landscape poses another big challenge. Since outsourcing may be offshore it gives rise to interaction with different ethnicities with diverse backgrounds. It may result in problems of collaboration and association. When there is poor communication or improper behavioural style, the business may suffer immensely.

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