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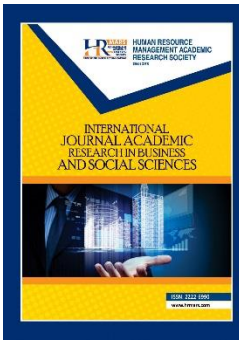
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Trends in Commercial Record Center Development

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Abstracts
Commercial Records Center (CRC) has existed since 1948. The first CRC is known as Business Archives Center, which was probably the first CRC in the United States formed by Emmett J. (Ed) Leahy (Faber, n.d) Since its existence, CRC should be in line with the new and recent trends of technology as the world now is rapidly making their ways to Fourth Industrial Revolution, which also known as IR 4.0. This paper discusses on the characteristic, function, benefits, challenges and the technological development of CRC. It will be the main point to be highlighted and discussed since the numbers of data and records were created and getting increase every day. Future development is necessary to ensure CRC will not be left behind by the technology. In order to provide the efficient services, CRC have to put their most concern on related issues such CRC management, safety and security, preservations and risk management. Some of the technological development that can be linked with CRC such as Extensible Markup Language (XML) Technology, Cloud computing, Radio Frequency Identification (RFID) and Global Positioning Satellite (GPS) as well as development of prototype microcomputer records management system. Thus, CRC should always explore and figure out the latest trends of technologies, which appropriate and able to assist them to serve customers better with the right, fast and accurate information been access.

Keywords: *Commercial Record Center, Records Center, Records Management, Information Industry Information Management.*

Introduction

The records management program was formally in place in United States until mid-1930s (Faber, 2001). Records management continues its important until today. The amount of data and information that have been created by the organization multiply continuously every day. In this age, adopting a

records management policy and managing the records systematically are vital needs for any organization. Records management is important as it will make easy retrieval and ensure the records are accessible at the right time. It is obvious that if we cannot access to the records that we need accurately and quickly, it is totally worthless to store the large amounts of records or information. The public sector and private sector create valuable records that need to be maintain wisely. For the current records management in the public sector, the authority is under the responsible of National Archives of every country. Meanwhile, for some private sector or companies, they choose to store and manage their valuable records and information at the CRC due to the fact that it has full-service records management business that offers offsite records and media storage, scanning, cloud data backup and provides document and hard drive certified destruction services (El Paso, n.d). It also enables records to be properly organized and indexed without an additional investment in labor, software and hardware. In Malaysia, the CRC industry is progressing continually primarily in Klang Valley and in other areas around the country too. CRC industry plays the big roles in assisting the records management of the private sector organizations for several years. Based on the preliminary research, there are about ten commercial record centers in Malaysia (Mohammad Azhan and Saiful Farik, 2015). The numbers increase to 15 in 2016-2017 where Iron Mountain Incorporated has complete its acquisition of Recall, Prism and Santa Fe.

This paper will discuss five (5) main features of the CRC which are; the characteristics, the functions, it's benefits, the challenges faced by CRC and the future development of CRC that urge new trends in CRC development.

Characteristics of Commercial Record Center

CRC is a profit organization that providing record management services to any organization that required offsite record center as their organization is no longer capable of managing the records effectively and efficiently. The services that regularly provided are document storage, magnetic media storage, destruction, cloud storage (Litt, 2017) computer indexing and management report, online access to inventory, interfiling services, and records and information management consultation (Westerberg, 2014). Nowadays, CRC also maintain and preserving the modern records such as microfilm, magnetic tape, optical disk and others. There are certain aspects that must be considered and analyzed by the provenance before selecting any CRC which are records safety, security, environment and natural disaster. Therefore, there are four (4) main characteristic for CRC which are: security, cleanliness and order, efficiency and economy, and technologies used.

Figure 1: CRC in Malaysia and its year of establishment

(a) Cleanliness and order

CRC must be clean and all the records must be organized and arrange orderly. It is to ensure all the records be protected from any damage such as dirt, insects or rodents or infestation by molds. Any individual must not be allowed to eat or even bring any food into CRC as crumbs could encourage the insects and rodents. Besides that, smoking must not be allowed at all and should be prominent notice to this to increase awareness among staff and visitors. Overall, CRC must be cleaned, dusted and being inspect on regular basis to maintain and ensure the cleanliness. Then, CRC must also be orderly as all the records must be kept in proper order such as shelves or special boxes to ensure that any records can be retrieved with a minimum time. All the records must be kept in a proper container or wrapping and must be clearly labelled with specific reference codes. CRC staff must check regularly as to ensure all records are returned to appointed storage.

(b) Efficiency and economy

Each CRC must be efficient as every record should be retrieved quickly and easily as the client want to use the record immediately. The records also need to be disposed according to predetermined disposal schedule that being agreed between CRC and client. There are several criteria of CRC that help to ensure the CRC are managed in minimal cost and economically which are the unit cost of space in CRC must be less than active office buildings. Then, CRC itself is less expensive building than an active office site because it is designed or adapted for its specific low-cost storage purpose. Record can be stored more densely in CRC compare to office as it can be quantified in terms of the ratio between cubic meters of records stored per square meter of floor space. Overall, CRC must be organized to ensure all the records easily to identified and retrieved.

(c) Technologies used

Each CRC has various technologies used by them. During selection of CRC, the client required to identify the technology used by them. With the latest technology system, the records will be more secure and stored better. Dube (2013) stressed that services quality was the most valuable and useful strategy in the marketing and selling of records management. It shown that the clients are very particular about the services provided by the CRC and technology is the most vital criteria for the services. The technologies that being used by CRC are providing various advantages for the client beside advances security system which are easily access because they scan the records and store it on cloud storage and they provide client the access to the cloud storage. Therefore, the client do not

need to go to CRC to retrieve the records as all the traditional records have been transform to digital format and been stored in cloud storage.

Functions of Commercial Record Center

Record Center (RC) is an intended to serve as a central repository in which an organization can store and manage all of its records such as legal, administrative and financial documents. RC supports the entire records management process, from records creation, use and maintain until records disposition. Typically, RC site is designed and configured by an organization's records management professionals and information technology (IT) staff to support an organization's file plan (Microsoft, 2018). Nowadays, many organizations are unable to manage their own records due to various problems and legal requirement in managing records and had to use CRC services as they providing advanced professional services with the current and up-to-date technological equipment. CRC also have standard practices that meet their clients' requirements and expectations. According to Mohammad Azhan Abdul Aziz and Saiful Farik Mat Yatin (2015), customer service quality is critical at CRC for their sustenance and growth. Therefore, there are five (5) main functions of CRC which are off-site records storage and media storage management, record digitization and online data backup, data protection and disaster recovery, secure records destruction, and record management consultancy and training

Off-site records storage and media storage management

CRC are offering an offsite record storage facility to safeguard information using advanced environmental, security and access control. These features is to ensure the record can be accessed at all times. E-Manage Africa using robust software driven records management system that utilizes bar code recognition technology to simplify, track, discover and retrieve physical records (Maina, 2011). Nowadays, the CRC not only providing services to store physical format but also media format. Therefore, media storage management are also one of the most vital function provided in the CRC.

Record digitization and online data backup

There are many benefits if converting records to digital format such as easy and multiple access as it can be viewed by multiple people at the same time. By placing a copy of the records online, it becomes available to people over the world who have access to the internet. Then, clients also able to access their records via email or web and view the records, by not leaving their office. Transforming records to digital format also reduces some of the costs faced by the CRC as it will reduce some space and staff time required to locate the records. Nowadays, CRC offer document-scanning service including conversion of printed documents into digital format. They index and tag the digital records using specific tagging to ensure it can be search and retrieve efficiency. Then, CRC upload the records in their online system for authorize client to access. Other benefits are reducing cost, improving accessibility, controlling access, saving physical storage and guarantee back up of physical data.

Data Protection and Disaster Recovery

Disaster recovery plan is designed to ensure the continuation of main business processes in the organization when a disaster occurs (Martin, 2002). This recovery plan will provide an effective and efficient solutions that can be used to recover all the main business processes within the required time frame using important records that are stored offsite. Offsite storage can help minimize disruptions to business occasioned by fire, corruption, theft or equipment and software failures. CRC must have the recovery plan to ensure all records will be kept in great condition and the records should also been back up as if there any emergency occurs such as fire or flood, it may damage or eliminate the records. Then, as a record keeper, data protection is the most vital criteria in gaining trust from the clients as some of the records are very confidential.

Secure and Authorized Records Destruction

CRC must have procedures or regulations to ensure the records are systematically destroyed and only specific authorization that allowed as to prevent the chance of reckless, selective or personally motivated destruction of the records. Normally, CRC provide confidential and secure records destructions such as shredding, pulverizing and recycling services in accordance with clients' organization's records retention and destruction policy. Other than that, records should be destruct or destroy based on pre-determined schedule to minimize legal and business risk associated with random destruction. Overall, to provide a good destruction services, CRC should provide several records destruction option such as destruction bins or scheduled pick up and CRC should provide data destruction certificate to make it more official.

Record Management Consultancy and Training

Normally, every CRC will provide consulting and training services to their clients as it will help to increase the client's knowledge towards the services provided. Then, training programs are customized to ensure it meet the client's expectations. It is also provided practical benefits to the organization including compliance, improve access, space saving, use of information and improved customer relations.

Benefits of Commercial Record Center

When it comes to the benefits of CRC, it has to refer to the benefits to both side; record centers and the institution itself. Both needs to feel the benefits to ensure the win-win situation achieve. The records center must maintain their professionalism as trusted of the institution or organizations.

Cost savings

The organizations are encouraged to utilize the services offered by CRC so that the space used to store files and records sections can be utilized as the working space. If the organization decided to build their in-house records center, the organization have to get new appointment for records manager to maintain their record center and also allocate a new building or space floors or rooms for the purposes. This approach will lead to cost constrain to the organization as compared to utilized

the service offered by CRC, they only need to pay the fees which is not too expensive as developing the new in-house records center.

Records Management and Accessibility

CRC offers professional records management and documentation. Unlike the self-management record center or in-house records center, they have to label the documents itself in proper to avoid misplaces, misfiled as the volumes of records will be increase from time to time. Thus, the filling will be time consuming and retrieval process will be inefficient in terms of time management; especially if documents are not properly organized in the first place. Organizations' documents and files need to be labelled and indexed in proper way by the professional records managers and they will retrieve the files requested and deliver them to the organization. CRC can offer ways to streamline file accessibility such as scanned and converted to electronic access for swift digital access.

Facilities and Service Capabilities

To develop a records center, the facilities designed have to be in a high standard which caused difficulties to the organization to maintain good facilities and services. Thus, CRC are tailored and designed to provide high density of storage which can prevent the records from damage, managed by the expert and etc. All the facilities and services have to meet the specific needs of organizations. As nowadays, CRC offers a professional service from storage, retrieval, digital conversion and delivery. They also offer the secure destruction and by the consent of the organizations.

Optimal Retention Management

In Malaysia, under the National Archives Act 2003, "public records" denote "records officially received or produced by any public office for the conduct of its affairs or any public servant or employee of a public office in the course of his official duty and includes the records of any government enterprise and also includes all records which, on the coming into operation of this Act, are in the custody or under the control of the National Archives established under the National Archives Act 1966 [Act 511]". As National Archives retain the inactive government records which aged more than 20 years. However, before it becomes 20 years old, the retention records depend on the government agencies policies as well as the government act on records retention. In CRC, normally the government agencies used to keep the inactive records and semi-active records. Therefore, the government agencies can retain the records according to their policy and retention requirements as needed. CRC will take the responsibility to ensure in retaining all the records in safe, secure, properly managed, retrievable and accessible on behalf of the government agencies. For private organization, it depends on their own retention policies as they do not have to follow the National Archives Act.

Authorized and Secure Destruction

Destruction is the complete and irreversible physical erasure of the record which ensures that the records cannot be reconstituted or reconstructed (Maina, 2011). In CRC, they will be a procedure in terms of destruction the records. Usually, it based on the consent between the organization and the records center and any records approved for destruction should be disposed in appropriate way,

secure and completely to avoid any unauthorized access. They will ensure the organization's records will not be destroyed prematurely or retained longer than needed (Podraza, 2014).

Challenges of Commercial Record Center

Since the records considered as essential tools of organization, the challenges facing by CRC are also increased in this new technology era. The current need and long-term interests become parameters for CRC. The big responsibility, trust carried out on behalf of the organization because technology is vast changing, successful CRCs must also stay abreast of the vary latest advancements and pass the benefits of those developments on to their clients (Faber, 2002).

Marketing and Management

The American Marketing Association offers this managerial definition: Marketing (management) is the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational goals (Kotler, 2000). In order to market the CRC, they have to provide the facilities, services which can derive the organization goals and needs. The economical, cost-effective services should be considered since most of the organization choose CRC to reduced their management costs. Therefore, to offer the good quality services with the latest technology and with lowest price is the big challenges.

Safety and Security

One of the main issues taken place in CRC is customers are far more concerned than ever, over the safety of their records, and are scrutinizing the security measures their records centers provide. Security of premises, both external and internal, is high on the list of records managers' concerns (Dykeman, 1997). The records center should provide high-density store system and minimizing the threat of unauthorized access as all the records and data considered as confidential and privacy. The safest and environmentally controlled security should be provided. There are some points to look for such as external perimeter security, internal 24-hour security staff, motion detector, 24-hour alarm system, fire detection and suppression system and in-house fire marshal.

Technology

In today's growth of new technology, CRC has to be in line with the latest technologies in order to provide a good, efficiencies and economical services to the organizations. Latest technology might help in order to serve the organization efficiently and effectively but the main concern here whether the organization can afford with the cost that is parallelly high and needed to consider when it relates to technology. When trying to implement new technologies, the difficulties occurred in order to provide economical services. Thus, CRC must create or proposed solution to meet the organization needs and ensuring significantly compliance with the latest technology, to seek for the technology which can reduce cost or resource management. Digital data, the wide dispersal of data on mobile devices and cloud technology have also pushed records management out of the physical realm, but without a larger mandate for a well-managed digital future (Horwitz, 2014).

Protection, preservation and risk

CRC should consider the level of risk and must have a disaster recovery plan. A disaster mentioned here can be caused by water such flood, fires or smokes or any other element that can damage the records or the records center itself. Disaster also should consider the technical disaster such as server faulty, or any other important equipment which can contribute in to potential records damage or difficulties in order to retrieve the records as needed. Emergency Plan and Risk Assessment should be given particular attentions among the officers. In addition to, CRC has to aware on how to preserve the vary format of records that they hold; digital and physical. Secure backup is a must.

Technological Development of Commercial Record Center

Nowadays, there are many technologies available to ensure the challenges can be faced and managed. The CRC industry continues to find new paths and ways in how to reduce costs, improve acuteness and develop new opportunities. Referring to Iron Mountain (2018), one of the biggest CRC company and pioneered in this industry stated that records management is inexorably transitioning to a more digital environment. Decision-makers understand the staggering growth of digital content will continue unabated, and the only way to achieve regulatory and e-discovery compliance is through an enterprise wide information management solution that goes beyond storing electronic records. Paper will not necessarily go away, but the management of physical documents will increasingly become an integrated function within a unified records management solution.

Extensible Markup Language (XML) Technology

All offices and workplaces create documents and record every day. It is very crucial to manage the records and store the documents efficiently. Poor records management can be disadvantage to the organizations. Even if the business organizations and companies cannot afford the good document storage and record management program, they need to come up with another solution such as keeping their precious documents and records at CRC. Keeping the important documents and records at the premise of the company can be risky. Organizations need to ensure that the records and documents are safe and all risk of damage to the records such as flood, fire, or misallocate can be prevented and avoided. According to Iron Mountain (2018) most offices are well-designed with water sprinkle system to prevent fire from creating huge problems. Is this fire prevention system effective and can help save the records? We cannot be sure as water sprinkle can also be the risk to damage the records and documents. The only reason that organizations need record management is because they want the records they need can be retrieve quickly and economically. But handling and managing of a large volume of record keeping requests can be one of the problems when you have no storage to place records. The file folder and also the paper boxes in the record keeping center are increasing every day and they need space to be stored. To continue keeping these records and files, the records management center can either build new offsite CRC or dispose the records after several years depending on the contracts. But what are the better solution for this situation? The solution for the storage of the large volume of record keeping requests is to go paperless. As we already aware new technologies and development are emerging constantly these days. Extensible MarkUp Language (XML) Technology is one of the opportunities to assist in the creation and development of

the paperless information system that can ensure users are able to access to their information and document at any time they want without depending to the CRC staffs. According to Iron Mountain (2018), one of the largest and well-established CRC in the world, by going paperless office or becoming paper-lite, one can gain benefits such as increase their productivity, reduced costs, and improve employee morale.

Extensible MarkUp Language (XML) Technology is very useful for structured information exchange. XML is fated as machine processed, however it is understandable and can be edit easily by making prompt changes. It is very suitable for the record management usage. Compared to HTML counterparts, XML will reject those documents that are not properly form because XML processors are stricter. Winters (2005) defined that Extensible MarkUp Language (XML) Technology is going from paper and paper-like electronic documents to fully electronic XML-type records. XML offers much more than simple data tagging, it also structures the exchanges of electronic information, handle the security and the authentication of the information, and define the models of technical architecture. Extensible MarkUp Language (XML) is the repurposed data can be used by incompatible system without having to move data by hand (the “read” and “re-type” method) by using the same tags for the same things. By having the clear standards in tagging data elements makes information exchanges among different systems possible. XML is both machine-readable and human-readable. It is properly managed, safe, and reliable.

Development of prototype microcomputer records management system

The Microcomputer System Management exist to manage records and run statistics automatically. Kesner (1982), in his background research included several bibliographic database searches and a thorough survey of the literature pertaining to microcomputers and information management by anticipated development in both hardware and software. This will allow archivist and records managers the flexibility to exercise a wide range of options while at the same time ensuring that the final product will meet the minimum basic standards set by profession. Microcomputer Records Management System is very suitable to be developed and improved as the data file sizes are compatible within the limits and they can be accessed readily by the patrons. The patrons can use and access to the systems by themselves in order to do some works related to information exchange. They can access the system anytime they need the records or the information, less relying on the Global Positioning System (GPS) to track the records on delivery, and also the drivers to pick up and send records and information documents. This microcomputer record management system is designed to handle record keeping in minimum delay of time. The records kept are all computer records because no printed and written information records or documents to be kept without request. It can generate statistical processes, invoicing and accounting functions be made easier, the ordering and delivery of records document can be done easily. Minimal transaction process with the timely delivery and effective record access is the benefits that also can be obtain.

Cloud data management or cloud computing

To preserve the records and to reduce physical storage space in records center, most of CRC have taken the initiative to do the digitization solutions. This digitization is end-to-end basis and of course

with the consent of the clients. Therefore, they use cloud based to archive all the digitized records. Cloud based can consider as virtual server and virtual desktop. As defined by webopedia.com, Cloud-based is a term that refers to applications, services or resources made available to users on demand via the Internet from a cloud computing provider's server (Beal, n.d.).

Nowadays, the CRC use cloud computing as a new approach in modernized records management. There are some CRC offer the cloud storage options. There are three options, which are in-site, offside and hybrid cloud storage.

- *In-site cloud storage* also known as private cloud storage is an instant in-site virtualization. This mean the client will do it themselves to run the virtual machines directly into the records center machines and devices. This approach will backup and restoration as fastest as possible.
- *Offsite cloud storage* which mean cloud server virtualization. This option of cloud storage, the scalability is using the Software as a Service (SaaS) to avoid the infrastructure costs and freeing from software and hardware management where the only clients need to have is an internet connection. It also known as public cloud storage.
- *Hybrid cloud storage* where this kind of cloud options offered the cloud storage with traditionally backup. This option is kind of the combination of in-site and off-sites cloud storage approaches. According to webopedia.com on hybrid cloud storage, some critical data resides in the enterprise's private cloud while other data is stored and accessible from a public cloud storage provider. With hybrid cloud storage, enterprises are able to mix and match cloud storage resources between local data center infrastructure and scalable, on-demand infrastructure, with the cloud storage provider typically fully managing the cloud storage (Beal, n.d.).

Additionally, the cloud storage gives many benefits to CRC in order to prevent and preserve their clients' records. Some of the benefits to CRC are fast recovery when disaster occur. This can improve backup and compliances. It is also accessible, automated and easy to use by customers, no technical skill required to handle it as this technology also have protection against viruses such ransomware attacks, simple predictable costs, which no hardware costs needed. CRC can offer lower price, which is more cost effective to the clients. It also future-proof storage as the technology may become obsolete over the time. The cloud storage is the best choices since it is not depending on any physical media. The other benefits of cloud storage within the CRC is scalability that the clients can store and add records no matter how big and how small the data or how many volumes of data that they want to store. It has the potential to be enlarged and it is all depends on the clients itself.

The Future of Cloud Computing: 4 Predictions for 2018 (2018) anticipated that even more money will be invested to ensure that cloud services have robust protection against increasingly complex data breaches. It is also likely that cyber security companies will come up with inventive ways to provide new cloud computing security options. Thus, this is one of the future developments that can be developed in CRC. As for future, there is a potential of serverless for cloud. It is not impossible for CRC to migrate to serverless cloud (Boulton, 2018).

Radio Frequency Identification (RFID)

Radio Frequency Identification (RFID) is created in 1940s used during World War II to identify airplanes. The objectives were to use the airplanes radar signal to read an identification number in

order to identify whether they were allies or enemies (Rieback, Crispo and Tanenbaum, 2006). From that year, RFID has been upgraded and modified for the use of various industries from retail to healthcare, manufacturing, defense, logistics and lately the use of RFID in libraries and record centers has grown rapidly due to the difficulties faced in managing materials. Faber (2002) stated that RFID has the capabilities to revolutionize business applications and this technology can be applied to the files and records cartons. Using RFID technology could accomplish the complete warehouse inventory in time. The main function of RFID system in the CRC is to trace and identify the materials and with the new technologies offered, RFID are able to assist in inventory management as well. Waszkowskit et al. (2013) mention that rfiDoc (RFID tagged documents) system assists the employees at every stage of their work such as from the time of registering the material, through its archivization, potential access and copying, until the time when it is lacking. Then, the integration between system and devices (that having the RFID mechanism) enables full control of not only an electronic form of the document, but also hard copies. Other than that, it is also able to enhance the security system when utilizing an RFID system as the alarm will ring if the materials brought out from its place illegally. Overall, utilizing of RFID system will not only make the materials in CRC wirelessly identifications, but also provide other benefits that can leverage to do other things. It is also allowed to collect specific or required information in real time.

There are three (3) common problems occurs when utilizing RFID system which need to be improve which are:

(1) Solving RFID privacy issues

RFID is providing various benefits to the CRC, however, the features of RFID tags able to cause privacy threats. Song (2013) stated that the communication between RFID tags and readers is wireless which it will identify the tags automatically without physical contact and out of sight. They do not typically know whether authorized RFID readers read it, or authorized reader do. The tags will automatically respond to the reader query and the interactions will occur without alerting the CRC. The threats to privacy are worse when a tag identifier is linked to any private or confidential information or record. There are two (2) major privacy issues which are tag information leakage and tag tracking. Tag information leakage occurs when the unauthorized reader request and obtain the private information related to the tag that stored in the server database. Tag tracking occurs when the response of a tag to reader query is a static ID code, the movements of the tag can be monitored to the third parties without them knowing. Therefore, they should improve these two (2) privacy threats described above. They should improve RFID system that is able to resist tag information leakage and tag tracking attacks.

(2) Solving tag collision problems (or missed reads) in RFID system

At CRC, each record will be provided with their own tag to easily differentiate and locate but there is a common problem occurs which are tag collision. Yang, He and Kun (2013) discuss that there

are two types (2) of collision happens in RFID system which are tag collision and reader collision. Tag collision occurs when multiple tags responds to a reader and it cannot differentiate these tags correctly meanwhile reader collision occurs when multiple readers interrogate one tag at the same time. Therefore, they should improve the tag collision problem for greater use of RFID system in the future. They should upgrade into tag anti-collision protocols.

(3) Increasing the reading range of RFID

Each CRC will provide a large storage space and sometimes the reader cannot identify and locate the certain tagged document as the signal are very low. Behzad (2013) stated that there are three (3) types of transponders which are passive, semi passive and active. Passive tags have no battery in their circuitry, and they rely on the reader to provide the power for the tag to operate. Active and semi-passive tags use internal batteries to power their circuitry, active tags need batteries to broadcast radio waves to a reader meanwhile semi-passive tags are supplied by the reader. The operating frequency directly impacts the transmission rate and power consumption of the RFID system which higher frequencies will provide a greater transmission rates, but they require higher transmission power as well. Therefore, they should improve reading range of RFID for easily trace and locate the materials.

Global Positioning Satellite (GPS)

Global Positioning Satellite (GPS) is also important to the CRC as each vehicle that delivers the materials from the records center can be tracked and identified on a computer and mobile phone screen map. The system will automatically update new locations from time to time (Faber, 2002).

Conclusion

Technology is moving in vast speed and records managers in CRC must adapt to the changes of technology and implement them in the usage for their CRC. This will improve their customer services and enhance their reliability to keep records safely and deliver records timely. The future technological development is essential for the better services of CRC information industry and also for the records of any client agencies and organizations.

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