IT Security to Information Assurance: The Steps towards Eco Friendly and Sustainable Information Systems

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Type of the Paper: Research Paper.
Subject Area: Information Technology.
Type of Review: Peer Reviewed.
Indexed In: OpenAIRE.
DOI: http://doi.org/10.5281/zenodo.3534655.
Google Scholar Citation: IJAEML

How to Cite this Paper:

Paul, P. K., &Aithal, P. S.(2019).IT Security to Information Assurance: The Steps towards Eco Friendly and Sustainable Information Systems. *International Journal of Applied Engineering and Management Letters (IJAEML)*, *3*(2), 59-64.DOI:http://doi.org/10.5281/zenodo.3534655.

International Journal of Applied Engineering and Management Letters(IJAEML)
A Refereed International Journal of Srinivas University,India.
IFSIJ Journal Impact Factor for 2019-20 = 4.252

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ABSTRACT

Information Technology is become important source for the development. Today almost all kind of organizations, institutions, and individuals are using IT for its wider benefits. Initially Computing considered as a branch of study for the promotion of computational and information affairs but gradually the development and requirement of information lead few other branches and among these important is Information Technology. The gradual development and uses of IT and Computing in various sectors and places creates the requirement of security concerns. The initial security treated as Cryptography and then gradually the concept of Computer Security has been arrived. Later the importance of Network, Websites and Database led the concept of IT Security. Hence in this context, IT Security is most broader for the development of technological information security. Though as far as information privacy and security is concerned the branch called Information Security is also important for its nature; as it is also responsible for the security and privacy of manual contents and information. The Information Assurance is another name responsible for the design and development of manual and traditional contents systems with proper policies, framework and regulation formulation. The branch Information Assurance is the need of hour as it is deals with manual contents also and this is vice versa responsible for the sustainable information systems development. This paper is talks about the basics of security, related technologies and specially the importance of Information Assurance as a sustainable and developed field of theory and practice.

Keywords: Information Security, Information Assurance, IT Management, Information Governance, Sustainable Development.

1. INTRODUCTION :

Information Assurance in short called as IA. It is closely related with the Information Security; both are responsible for the manual and computational IT Security and Management [1], [5]. Information Assurance additionally deals with the policy and framework designing and development of IT Security that include the following—

- Network Systems & Its Security.
- Database Systems & Its Security.
- Web Systems & Its Security.
- Multimedia Systems & Its Security.

And all the areas of Information Technology; Information Assurance these days are gaining as a field of study and various universities are offering the same as a program with sophisticated skill components. Cloud Security, Mobile Security etc are also emerging these days for various reasons [2], [3],[10].

2. OBJECTIVE AND AGENDA :

The main aim and objective of this paper include but not limited to the following—

- To know about the basics of Information Security and Information Management Security in brief.
- To learn about the fundamental characteristics of Information Assurance.
- To learn about the smaller and broader areas of Information Assurance with reference to the need and importance of Information Assurance.
- To dig out the Issues and Challenges of Information Assurance in brief.
- To learn about the sustainable and Green Information Systems in brief.

3. INFORMATION ASSURANCE: OVERVIEW :

Content is the prime for the development of different kind of official and academic affairs. There are two types of content; manual and computational. As far as Information Assurance is concerned, it is deals with both the types but it additionally gives the importance in designing, development, management and evaluation policies and framework. Information Assurance directly and indirectly helps in Data and Information Privacy in different context as well [4], [9],[10]. Different kind of securities viz. cyber terrorism, homeland securities etc become possible to manage with the help of real and sophisticated Information Assurance practice in different sense. These days, Fraud management systems is important affairs and, in this context, technological information assurance management system may play a leading role; no doubt [11], [18], [19].

4. INFORMATION ASSURANCE: CHARACTERISTICS :

- Information Assurance is able in making information to be place to the right person/ place and right time.
- Data and Information Privacy and protection from unauthorized means also illegal access become easy with the help of Information Assurance.
- Both, Information Security and IT security now depends on Information Assurance; thus, it is a broad field and increasing.
- The areas of homeland security viz. terrorism, cyber terrorism, cyber war etc become easily manageable with the help of Information Assurance practice.
- Mobile security become easily possible to manage with the help of healthy Information Assurance practice [6],[7], [11].
- It is an important fact that the Network's privacy, security, database security may get wider success with the help of Information Assurance in real sense.
- Design, implementation, development and modernization of secure database system become possible with Information Assurance practice.
- Cloud security management, infrastructure management will get the benefits of Information Assurance in all its context i.e. technically and manually.
- Risk management and strategies become easy and possible with Information Assurance practice.
- Malicious attack prevention become easily manageable and possible with the help of Information Assurance.
- Information transparency as well as Governance of all kind of contents becomes possible with better and healthy Information Assurance practice.
- Manual and computational information systems developmentwith security and privacy in different context become possible with Information Assurance.
- Designing, Developing and implementation ofInformation Systems, Cyber and IT related policy are the core of Information Assurance practice.

5. INFORMATION ASSURANCE AND SMALLER AREAS :

Information Assurance is the interdisciplinary field of fields it is combination of manual and technological security systems management. Moreover, it is responsible for the designing and development of proper, scientific and sophisticated rules, regulation and framework designing of security [8], [11], [13]. Information Assurance also comes with the fundamentals of information and contents; thus, it is closely associated with the Management and Policy Sciences. Before the

development of Information Assurance, some of the common and available subject was Cryptography, Computer Security, IT Security, Information Security. There is a close relationship of the Information Security is with Information Assurance. Only policy and rules regulations formulations are the additional components in the Information Assurance.

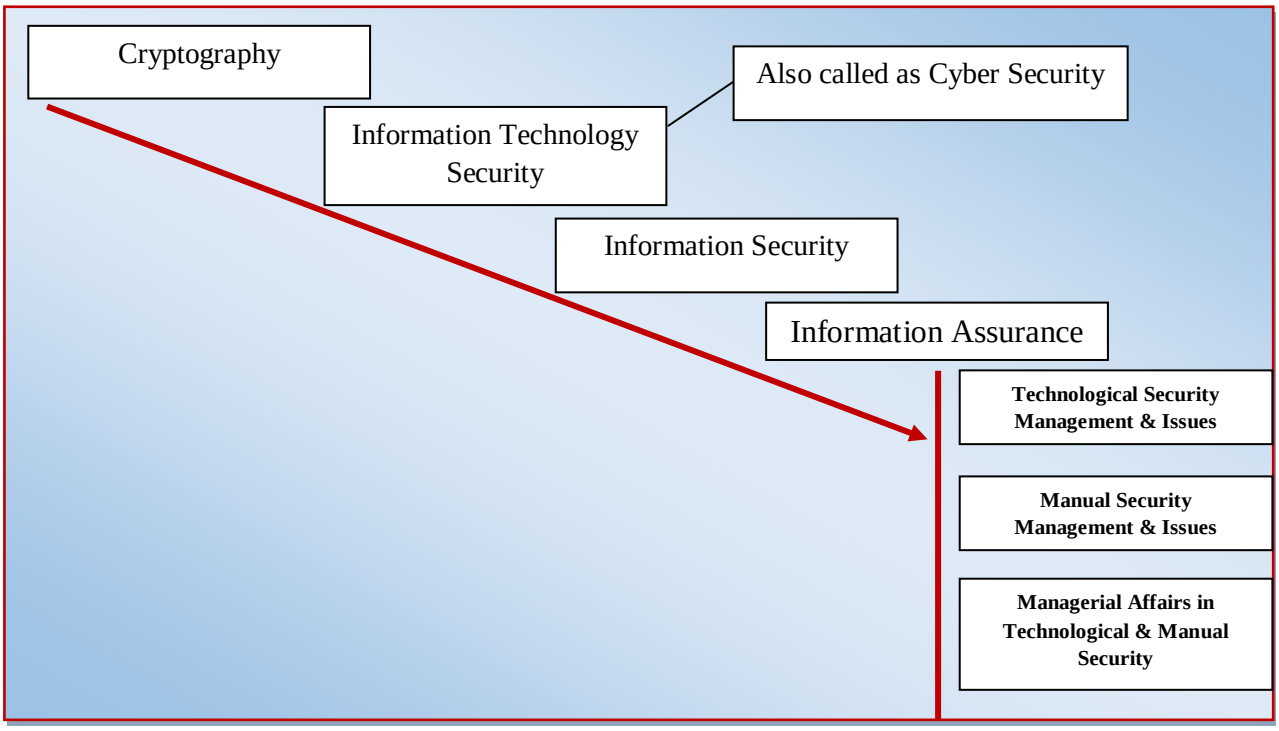

Fig.1 : Showing related (smaller areas) of Information Assurance

Figure: 1 (Source: spherecomenterprises**)** depicted different areas of Information Assurance, here worthy to note that Cyber Security is very close with the IT Security.

6. WHY IT SECURITY TO IA: THE SUSTAINABILITY :

The field Information Assurance is growing rapidly and there are different reasons for the emergence of the field and among these; simplicity and sustainability of the system is major one [8], [12], [14]. The Information Assurance is now fully based on Green Systems and Technology and it is responsible for the Green and Eco-Friendly Information Systems designing and development moreover it is needed for the evaluating the actual security mechanisms in order to assess their energy consumption and allied fields. And it is also required to build new security mechanisms by considering energy costs. As the field of IA is growing so (refer Fig: 2), it needs perfection and proper functioning and management in all space [15], [20].

7. ISSUES AND CHALLENGES :

Information Assurance is a broadest and interdisciplinary field of study. The field and areas thus have different kind of challenges and issues viz.—

- Information Assurance is professionals needs knowledge of both technological and manual securities [12], [16], [17].
- In most of the Information Assurance curricula, technology become common and integral part and thus initiatives are required in the manual securities.
- Information Assurance as a term and nomenclature not yet popular so, there should be proper initiative in this regard.
- Availability of proper man power is a critical and vital issue having the knowledge of diverse areas of Information Assurance.

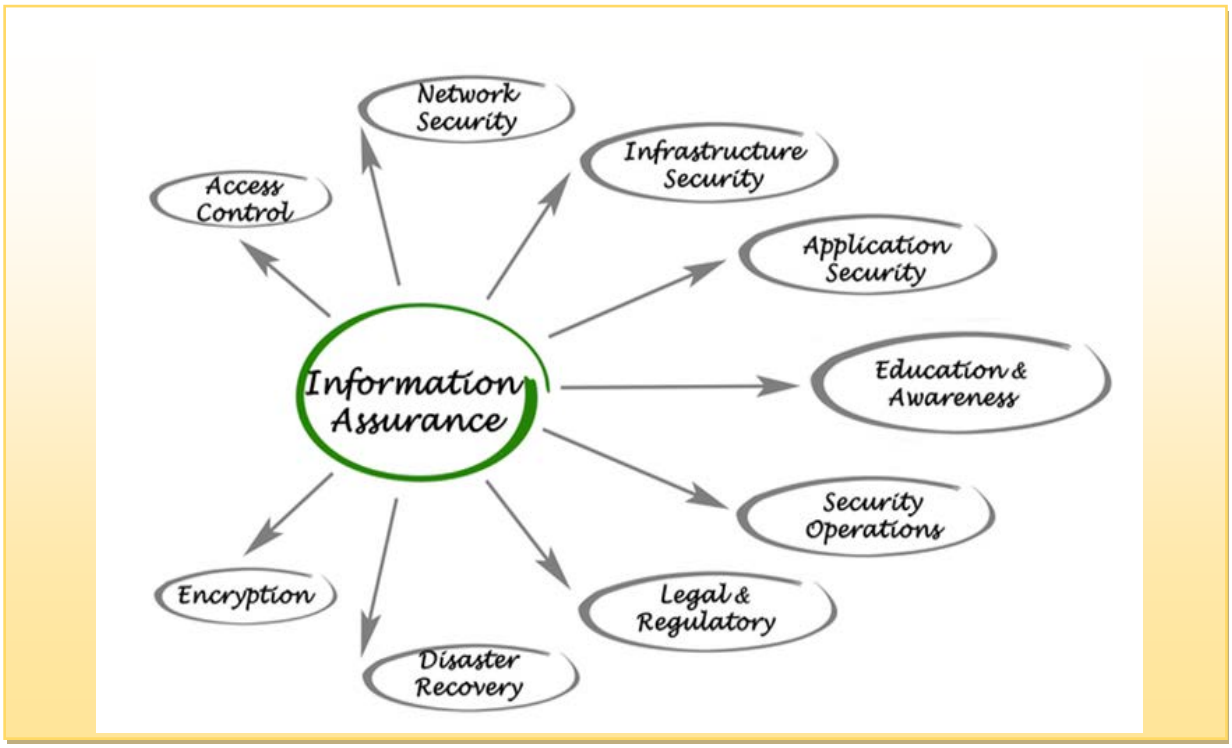

Fig. 2: The growing areas of Information Assurance (Source: Stryva.com)

8. CONCLUSIONS WITH SUGGESTIONS :

Information Assurance is an emerging and broadest area thus each and every type of organizations and institutions, be it Government or Private; Small or Large, Profit making or Non-Profit Making needs proper utilizations of Information Assurance. Manual content is a vital issue for the official affairs of different organizations and institutions; thus, Information Assurance practice combines both technology and manual system under one roof. There are shortages in proper manpower in the field and thus proper initiative may be undertaken to develop the manpower in Information Assurance by the colleges, universities and engineering and industrial units. Here apart from short term programs full-fledged program leading to Bachelors, Masters and Doctoral may be started for the promotion of the subjects and the working affairs.

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