Preface

The information technology revolution is for all practical purposes a second industrial revolution in the history of mankind, impacting every facet of business, society, and life worldwide with a speed beyond imagination. As in the case of the industrial revolution, the growth and expansion of information technology began during the early 1950s but continued on through the following decades. During the 1960s and '70s, computer technology was mainly utilized in business data processing and scientific applications of a mostly number crunching nature. As a result, the use of this technology was limited to those who had a good command of these systems and computer programming languages. With the merge of computers and telecommunications in the 1980s, a new information technology was born with a strong focus on the management and dissemination of information by both information providers and users. However, the advent of personal computers and the ability of users to communicate with each other regardless of their locations directed information technology into the lives of all society.

The most noticeable explosion in the information technology revolution was the creation of the World Wide Web (WWW) and its potential in the early 1990s. During the past two decades, WWW technologies have become the driving force in allowing people worldwide to communicate and exchange information in ways that have created a totally new dimension known as a virtual world. In recent years, through the use of web-enabled technologies, organizations of all types and sizes around the world have managed to utilize these technologies to conduct both information processing and dissemination with their prospective customers, suppliers, students, and governments. These technologies, now allowing readily available information for everyone regardless of their geographic location, bring the true meaning of the information age to its full realization.

In recent years, the science of understanding the nature of information processing and management combined with computer and telecommunication technologies to process, disseminate, and manage information has become known as "Information Science and Technology." This new science includes many resources and components, including: 1) Type of Information; 2) Computer Hardware Technologies; 3) Computer Software Technologies; 4) Telecommunication Technologies; 5) Technology Applications; 7) Information Processing Systems Structures; 8) Systems Personnel and Management; 8) End Users; and 9) Management Skills and Programs (Khosrow-Pour & Yaverbaum, 1990).

Because information science and technology has profoundly impacted science, business, society, and every other aspect of life on our planet, numerous researchers around the world have focused on accumulating knowledge on this discipline. The volume and intensity of research in the field of information science and technology has by far exceeded many other fields of science, and the sheer impact of research discoveries in this area has become the driving force of many emerging technologies and applications. No longer is this discipline limited to a few technology-related areas, but, similar to the field of medicine, the field of information science and technology today is a collection of many specific disciplines researchers have created. This collection process has been accomplished by producing research results to understand the potentials, problems, and challenges of each individual discipline and by trying to expand the body of literature related to the topics of that discipline.

To access the latest research related to the many disciplines of the information science and technology field, I decided several years ago to launch an encyclopedia project where researchers from all over the world would assist

me in providing the necessary coverage of each respective discipline in information science and technology. The primary objective of this project was to assemble as much research coverage related to the disciplines selected for this encyclopedia by defining the technologies, terms, and acronyms related to each discipline, and providing the most comprehensive list of research references related to each discipline. I had hopes of creating a single comprehensive reference source on all related discipline topics of information science and technology.

To provide the most comprehensive, in-depth, and recent coverage of information science and technology, disciplines carefully selected for this encyclopedia project included: Accounting Information Systems, Computing History, Database Management and Technologies, Data Warehousing and Mining, Decision Support Systems Technologies, Distance Education Technologies, E-collaboration, Electronic Commerce Technologies Management, End User Computing, Enterprise Resource Planning, Expert Systems, Geographical Information Systems, Global IT Management, Human Computer Interaction, Human Side of IT, Information Resources Management, Information Security Management, Information Systems Research, Information Technology Education, IT Evaluation Methods and Management, IT Management in Libraries, IT Management in Healthcare, IT in Small Business, IT Personnel, Professional IT Association, Intelligent Information Systems, Knowledge Management, Minorities in Information Technology, Mobile Computing and Commerce, Multimedia Information Management, Objected Oriented Technologies, Open Source Technologies and Systems, Social Responsibility in the Information Age, Software Engineering, Strategic IT Management, Telecommunications and Networking Technologies, Unified Modeling Languages and Unified Process, and Virtual Communities and IT.

In order to provide the best balanced coverage of concepts and issues related to the selected topics of this encyclopedia, researchers from around the world were asked to submit proposals describing their proposed coverage and the contribution of such coverage to the encyclopedia. All proposals were carefully reviewed by the editor-in-chief in light of their suitability, researcher's records of similar work in the area of the proposed topics, and the best proposal for topics with multiple proposals. The goal was to assemble the best minds in the information science and technology field from all over the world to contribute entries to the encyclopedia. Upon the receipt of full entry submissions, each submission was forwarded to at least three expert external reviewers on a double-blind, peer review basis. Only submissions with strong and favorable reviews were chosen as entries for this encyclopedia. In many cases submissions were sent back for several revisions prior to final acceptance.

As a result, this five-volume encyclopedia includes more than 550 entries highlighting current concepts, issues and emerging technologies. All entries are written by knowledgeable, distinguished scholars from many prominent research institutions around the world. Five thousand technical and managerial terms enhance these entries. These terms each have a 5-50 word description that allows the readers of this extensive research source to learn the language and terminology of the field. In addition, this five-volume set offers a thorough reference section with over 11,500 sources of additional information for scholars, students, and researchers in the field of information science and technology to access.

To assist readers in navigating and identifying needed information, this five-volume encyclopedia has been organized by listing all entries in alphabetical order by title throughout the five volumes, and by including the title in the regular "Table of Contents" in the beginning of each volume. Furthermore, all entries are organized under their prospective discipline/area and placed in a separate table of contents at the beginning of each volume. In addition, a comprehensive glossary of all terms will direct readers to the short definition on the subject. A keyword index is also available, listing important keywords included throughout all entries.

To keep up with emerging technologies and research discoveries, regular entry additions will be made to the online version of the encyclopedia. I am pleased to add that complimentary online access to this encyclopedia for the life of the edition will be provided to any library with the purchase of the print copy. This complimentary online availability will allow students, faculty, researchers, and corporate managers to access the latest contents of this comprehensive and in-depth encyclopedia regardless of their location. This particular feature will prove to be an extremely valuable resource for distance learning educational programs worldwide.

The diverse and comprehensive coverage of multiple disciplines in the field of information science and technology in this five-volume authoritative encyclopedia will contribute to a better understanding all topics, research, and

discoveries in this evolving, significant field of study. Furthermore, the contributions included in this encyclopedia will be instrumental in the expansion of the body of knowledge in this vast field. The coverage of this five-volume encyclopedia provides strength to this reference resource for both information science and technology researchers and also decision makers in obtaining a greater understanding of the concepts, issues, problems, trends, challenges and opportunities related to this field of study. It is my sincere hope that this publication and its vast amount of information and research will assist my research colleagues, all faculty, their students, and our organizational decision makers in enhancing their understanding of this discipline. Perhaps this publication will even inspire its readers to contribute to the current discoveries in this immense field, tapping possibilities to assist humankind in making the world a better place to live for all inhabitants of this universe.

REFERENCES

Khosrow-Pour, M. & Yaverbaum, G.J. (1990). *Information technology resources utilization and management: Issues and trends*. Hershey, PA: Idea Group Publishing.

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