

# IT Service Management (ITSM) Education and Research: Global View\*

ALI YAZICI and ALOK MISHRA

Atilim University, Software Engineering Department, Ankara, Turkey. E-mail: ali.yazici@atilim.edu.tr, alok.mishra@atilim.edu.tr

PAUL KONTOGIORGIS

IBM, IT Services Curriculum Former Program Director. E-mail: paulkont@gmail.com

This article provides an overview of Information Technology Service Management (ITSM) and investigates the education and research activities in this discipline from a global perspective. The objectives of the study are to inform the training organizations (e.g., universities, training institutes) on the current status of the educational activities in ITSM at undergraduate and graduate levels; and to guide the researchers by providing quantitative data on the research activities conducted in the field. In the educational arena, the statistical data showed that, stand-alone undergraduate/graduate programs are becoming popular among the high school graduates with elevated expectations of the market place, in addition to the appreciation of the IT service management area by the IT sector and the public. The results of the research findings provide guidelines for curriculum developers in the design and implementation of courses for the de facto interdisciplinary ITSM degree/certificate training programs and motivate and guide the researchers by providing the most recent quantitative data on the ITSM field. It is one of the first studies to provide education and research trends in ITSM area. The present study adds to this important stream of emerging research area and contributes by advancing the understanding of ITSM education and research issues. This paper advances the current state of knowledge on ITSM education and explores recent research trends in this area which is becoming standard towards providing quality IT services in enterprises.

**Keywords:** IT Service Management (ITSM), Service Management, ITIL, Organization, Quality, COBit, Web of Science

## 1. Introduction

Service is defined as a means of delivering value to customers of by providing the outcomes desired by the customers without sustaining specific costs or risks [1]. Services science builds on the term “service” by incorporating the people, processes, and technology elements that interact to deliver a GBS (Government and Business Services). ITSM is considered as a sub-discipline of the Services Science which focuses on the delivery and support of IT services to customers. ITSM adopts the process approach and continual improvement, and of its aspects that are critical to the success of any internal ICT process is the alignment of knowledgeable employees with the process activities [2–3].

As a blend of informatics, operations research, business administration, and social, cognitive and the legal disciplines, ITSM is the provision of quality customer service by ensuring that customer requirements and expectations are met at all times [4]. ITSM is also defined as the implementation and management of quality IT services that meet the needs of the business [5]. It highlights a lifecycle approach to managing ICT and focuses on the processes used to effectively operate an ICT organization [6]. A fundamental aspect of ITSM is the focus on processes and the continual improvement

of those processes [2]. A recent Gartner study has found that approximately 80% of IT service failures are the result of process failures (70%) or the lack of employee skill and competence (10%). Only 20% of IT service failures are the result of technology failures, such as poor performing software or hardware [7]. Customer orientation is one of the most important strategic orientations in the context of strategic IT management in today’s enterprises [8]. Enterprises require managing the delivery of services that support users in conducting their activities in the context of business processes [9]. Enterprises have to achieve a common understanding between the customer/user and provider through managing service-level expectations and service-level delivery, and delivering and supporting the desired results [10]. In order to specify IT provider/IT customer coordination, IT services need to be defined properly. Service and quality characteristics for such IT services are negotiated between service providers and customers, and specified by means of a service-level agreement (SLA) [11]. Businesses around the world are adopting ITSM. As stated at Microsoft’s 2004 IT Forum Conference, “Recent studies are showing that an IT service organization could achieve up to a 48% reduction by applying ITSM principles”. According to Forrester, Information Technology Infrastructure Library (ITIL) adoption

by large companies with revenues in excess of 1 billion USD increased from 13% to 20% during 2006 [6]. About 90% of USA companies have one or more ITSM implementations underway [12]. Thus, between 40% [13] and 90% [12] of U.S. companies have one or more ITSM implementations [12]. ITSM based on the ITIL body of knowledge and ISO/IEC 20000 standard, prescribes service activities [3]. The worldwide market for Infrastructure Support Services is \$135 billion, growing to about \$154 billion in 2008 [13].

Presently ITSM is a key issue, in which IT management services (hardware and software installation, network/systems, applications management, and the help desk) along with business-oriented service support are planned and managed according to their contributions to the required business process. ITSM concentrates on the support and delivery of IT operations because approximately 80% of the cost of an infrastructure is in these two areas [14]. According to Galup et al. [6], ITSM is process-focused; that is, it shares a common theme with the process improvement movement (for instance, Total Quality Management (TQM), Six Sigma, Business Process Management, and Capability Maturity Model Integration-CMMI). Galup et al. further concluded that ICT plays a critical role in supporting business functions and satisfying business requirements.

A service is defined as a time-perishable, intangible experience performed for a customer acting in the role of a co-producer [15]. Service measurement plays an important role in ITSM that is one of the sub-fields of Services Computing Science [16]. Many IT service organizations consider the measurement of ITSM processes, especially service-support processes, as a difficult task due to these four reasons [17]:

1. IT organizations do not have a structured approach for measuring IT services and service management processes;
2. Tools used by service support teams do not enable effective measurement;
3. ITSM standards and frameworks do not provide practical examples as to how to measure support processes; and
4. There are too many options as to measure in service management.

The ITSM processes as mentioned in the Information Technology Infrastructure Library (ITIL) are: Incident Management, Problem Management, Release Management, Change Management, Configuration Management, Service-Level Management, Financial Management of IT Services, Capacity Management, IT Service Continuity Management, and Availability Management [18]. The

focus of ITSM is to provide specific processes, metrics, and guidance to enable and manage assessment, planning, and implementation of IT service processes to optimize tactical and strategic IT asset use [6].

As organizations push for better IT governance and more efficient IT functions, the ITIL framework is one solution. To date, there are 50,000 ITIL certified professionals worldwide and 24.1% of IT managers in large organizations bear ITIL standards [19]. The key benefits that an organization expects from an ITIL implementation are: alignment of IT services with current and probable future business needs [20]; improved quality of IT services; and a reduction in the long-term costs of service provision [19]. McNaughton [19] proposed a framework to be used by management when initiating ITIL improvement, to change efforts, and to be used to evaluate that change, perform benefit realization, conduct performance assessments, and direct future improvements.

Besides ITIL, there are several other IT service management standards and frameworks that address the need for monitoring and measuring service management and provide their own set of metrics [17]. The Control Objectives for Information and related Technology (COBIT) framework [21] is designed for IT governance purposes. It provides both process metrics and maturity-level metrics for each delivery and support (DS) process, such as DS8 Manage Service Desk, Incidents and manage problems. Microsoft Operation Framework (MOF), and Process Reference Model for Information Technology (PRM-IT) are among the other ITSM frameworks. ISO/IEC 20000 is the first international ITIL-compliant auditable standard for IT service management, consisting of two parts: specification for service management and code of practice for service management [22–23], and also one of its requirements is that the organization shall apply suitable methods for the monitoring and measurement of the service management processes.

In the IT sector, ITIL is complemented by other process-improvement models such as TQM, Six Sigma, and CMMI. There have been several evaluation frameworks proposed and used; these were intended to improve service quality, IT functional assessment, and evaluation of IT benefits [19]. The Forrester Research reported in 2004 that the widespread adoption of ITIL's best practices by internal IT departments would soon be evident, with implementations becoming possible over the following decade. However, many organizations that have started implementing ITIL processes do not seem to be aware of the tangible or intangible benefits that it can bring and, according to one study, only a third

of these organizations claimed to have a general methodology for IT benefits computation [24].

International institutions, such as ISO—International Organization for Standardization argues that process certification is necessary in order to fulfill customer expectations and requirements for product and service quality [25]. A certification provides evidence that processes are documented, and that accountability has been defined, while indicating that the firm has started to analyze processes and initiate change programs [26]. Two standards are especially applicable in accordance with ITIL: the general ISO 9000 quality standard and the area-specific standard ISO/IEC 20000 for IT service management. Researchers have found that a number of factors are vital for implementation success [27]. As a reference model for IT governance, ITIL emphasizes the control of IT through processes [28]), and is strongly influenced by quality management and process reengineering [3]. ITIL focuses on the flow of activities that cross organizational units, both inside and beyond the IT function. The objective is to maximize IT's ability to provide services that are cost-effective and meet the needs and expectations of the business as manifested in the SLA. Standardization leads to predictability, both for staff and customers, and is often viewed as the first step towards process management [29]. Process standardization is a fundamental principle of ITIL; there is only one ideal way to handle a certain type of case, and it way should be followed by every function and every staff member [28]. For example, in order to comply with the negotiated standards set in the SLAs, every request for change must follow the standardized change management process [30]. Monitoring is another process management practice [26, 31]. Process goals must be translated into performance indicators that can be monitored. Firms must continuously assess process performance and verify that their goals are met [32]. ITIL mandates that processes be monitored in order to ensure that they comply with requirements [28]. According to Iden and Eikebrokk, it is important to note that without process management, it is not likely that ITIL will succeed beyond its implementation [33]. Iden and Eikebrokk further suggested that on the firm and process levels, more research is required in order to assess whether firms implement or plan to implement entire ITIL package, or selection of different processes and reasons for these selections.

Research finds that there is a growing interest among ITIL firms in these standards [34]. It has been observed that IT governance positively affects IT performance [35]. Companies have invested heavily in reference models and industry standards such as COBit, Prince2, ISO 9001, ISO/IEC 20000,

and Val IT [36] in order to achieve IT governance, and this trend is expected to continue [37]. The prevalent global popularity of ITIL opens a challenging research opportunity, but more research on ITIL is called for [38–39].

This research advances to the existing body of knowledge in ITSM education and research area which is becoming standard towards providing quality IT services to customer in enterprises. This article is an attempt to study the research and education activities in the ITSM discipline from a global view by using the research output as published in the Web of Science and by searching for the training programs at the undergraduate and graduate levels education across the world. Also one of the engineering education program outcomes of American Board of Engineering and Technology (ABET) and similar accreditation agencies is to provide necessary skills in related frameworks and standards of the engineering discipline in examination. In the next section, ITSM education will be reviewed and some recommendations for curriculum development will be provided. In Section 3, ITSM curriculum development towards establishing a degree program is described. In Section 4, ITSM research trends in Web of Science and other major indexes are presented. The article concludes with discussions in Section 5 and conclusions in Section 6.

## 2. IT service management education

Most business-school IT programs ignore IT support services. They focus on computer programming, analysis and design, and generic IT management. Yet, IT support services accounts for 60%-90% of the total cost of IT ownership [14]. Business trends, such as outsourcing, and regulatory changes, have forced a business focus on IT support services [40]. Executive management is also demanding that the computing resource be viewed from a business perspective [12]. ITSM provides a framework to align IT operations-related activities and interactions of technical personnel with business customers and user processes [41]. While a growing number of universities are implementing service management courses and a handful of universities offer ITSM programs, most have either not heard of ITSM or do not know enough to determine whether or not ITSM would be a reasonable addition to their programs [40]. Buckby et al. [37] further argued that, with more than half of U.S. businesses initiating service management activities, ITSM offers a fertile subject area for attracting and placing students and has the potential of revitalizing IT programs by its addition to business school curricula. The evolution of ITSM from the ITIL frame-

work to the BS 15000, and then to the international standard ISO/IEC 20000, reflects the changing global demands placed on IT organizations to deliver IT services [7]. Galup et al. [6] reported the following three initiatives to include ITSM into universities curricula:

- (a) IBM's Service Sciences, Management, and Engineering (SSME) initiative to support undergraduate and graduate programs that focus on development and support of services.
- (b) itSMF-USA conference in 2006 to promote the development of ITSM academic programs.
- (c) A group of faculty from 25 universities petitioned the Association of Information Systems (AIS) to form a special interest group on services management.

There are several approaches in the implementation of an ITSM curriculum. One approach is the inclusion of ITSM content into traditional IS courses, and the other is creating new ITSM courses, both at the undergraduate and/or graduate levels, and related curricula from scratch. Another variance would be the creation of certificate programs in ITSM or designations of "Minors in ITSM" with the traditional CS and IS degrees. Some of the courses pertaining to an ITSM curriculum are listed below:

- ITSM in System Architecture, OS and Networking courses
- ITSM in Security Management
- ITSM concepts in introductory IT/IS courses
- ITSM in Infrastructure Management
- ITSM in Service or Relationship Management
- ITSM in Service-Oriented Architecture (SOA)
- ITSM in Software Development Services
- ITSM in Autonomic Computing (Cloud Computing Infrastructure)
- ITSM in Network Management
- ITSM in Storage Management

### 2.1 New ITSM courses based on ITIL and COBIT, and IBM's ITSC

Currently, computers are the tools for engineers and scientists and therefore computers play a vital role in engineering education [42]. New technologies and tools should be introduced in all practical oriented courses [43]. The IT Services Curriculum (ITSC) at IBM was developed to establish university courses, degree curricula, and a repository of university courses that foster in graduates the skills in-demand and necessary for architecting, engineering, implementing, managing, and delivering information technology services. The ITSC Program is a specific implementation of SSME where the class of services is those for operating Information Technol-

ogy. ITSC has identified a set of over 100 IT services topics that combine to form courses, represent full semester courses, or combine or expand into full-degree curricula. The courses are designed to be implemented across disciplines or within the existing computer sciences, management information systems, or business administration degree programs. There have been over 360 universities worldwide that have downloaded the ITSC Program's Foundations in IT Services I and II course materials. ITSC can be taught with or without the use of software or software agonistically – IBM software is available free of charge from enrollment in the Academic Initiatives Program. Classes and programs have been, and continue to be developed for bachelors, and master's degrees focused on IT Service Management, IT Infrastructure Management, IT Service Integration, Business Process Management, Service-Oriented Architecture (SOA), Autonomic Computing, Security Management, and others. Although the program focuses on the practitioner approach of managing the IT Enterprise, the post graduate degree tracks represent the frontier of IT services and offer significant opportunities for innovation and research by universities and candidates.

### 2.2 Existing ITSM programs

In Table 1, a list of institutions offering a large spectrum of ITSM training programs is given. A small part of this data was compiled by the authors using the institutional web sites and the rest of the data was provided by IBM. All institutions listed here are also affiliated with IBM's ITSC program. Worldwide development of the ITSM educational programs in all continents can be attributed to the appreciation of the Service Management area in the IT sector by the universities.

## 3. ITSM curriculum development and market place for ITSM graduates

The following topics need to be addressed when establishing a degree program in ITSM:

- Infrastructure of the base department/program
- Minimum requirements of ITSM
- Staffing and their research interests
- Industrial relations
- Support from related disciplines
- Management Sciences and Industrial Engineering
- CS, IT/IS, Computer/Software Engineering

Among these topics, support from related disciplines appears to be the major factor in establishing a sustainable and attractive program in the field because of the interdisciplinary feature of the field.

**Table 1.** A list of institutions with ITSM (80 Affiliations with ITSC Program alone)

Region	Country	Institution	
America	USA/CANADA	1. Missouri State ITSM Undergraduate Program 2. North Caroline State University 3. Florida Atlantic University 4. Appalachian State University 5. Marist University 6. Florida State University 7. MS Certificate Dallas University 8. Arizona State University 9. Indiana University 10. San Jose State University 11. New Jersey Institute of Technology 12. Metropolitan Community College 13. University of Wisconsin – River Falls 14. Nicholls State University	15. Carnegie Mellon 16. Stevens Institute 17. Brigham Young University - Hawaii 18. School of International and Public Affairs: Columbia - SIPA 19. Neumont University 20. Ohio State University 21. Bowling Green State University 22. DeVry University 23. Capella University 24. Carleton University 25. Webster University 26. Temple University 27. DePaul (MBA ITSM Concentration)
	BRAZIL	28. Centro Universitario SENA	
	MEXICO	29. Monterrey TECH	
	VENEZUELA	30. UNITEC – Universidad Tecnológica del Centro	
Europe	TURKEY	31. Atilim University 32. Bilgi University 33. Bahçeşehir University	34. Ozyeğin University 35. Sabancı University 36. Kültür University
	CZECH REPUBLIC	37. Brno University of Technology 38. Masaryk University 39. University of Economics Prague - Vysoka Skola Ekonomicka	
	LATVIA	40. Riga Technical University 41. Vilniaus Gedimino Technikos Universitetas	
	ITALY	42. Universita' degli Studi di Roma	
	BULGARIA	43. University of Sofia	44. Sofia University St. Kliment Ohridski
	HUNGARY	45. Budapest Tech	46. University of West
	ROMANIA	47. Alexandru Ioan Cuza University	
	UK	48. The University of Northampton	
	FRANCE	49. University of Savoie - IAE Savoie Mont-Blanc	
	PORTUGAL	50. Faculty of Engineering of University of Porto (FEUP) 51. Instituto Superior Engenharia do Porto	
	DENMARK	52. University of Applied Sciences Zittau / Goerlitz	
	GREECE	53. University of Crete	
	M.East	QATAR	54. Qatar University
Asia	INDIA	55. GLIM (Great Lakes) - India	
	THAILAND	56. SIIT 57. RBAC 58. Rangsit University 59. Sripatum International College	60. Silpakorn 61. Asian Institute of Technology (AIT) 62. Mahanakorn University of Technology (MUT)
	INDONESIA	63. Universitas Bina Nusantara	
	AUSTRALIA	64. Deakin University School of Engineering and IT	65. Bond University
	SINGAPORE	66. National University of Singapore	
	MALAYSIA	68. Universiti Teknologi Malaysia 69. The Asia Pacific University College of Technology and Innovation (UCTI) 70. Asia eUniversity	71. INTI International University 72. Universiti Kebangsaan 73. Albukhary International University
	PHILIPPINES	74. Asia Pacific College	
	NEW ZEALAND	75. Auckland University of Technology	76. Whitireia Polytechnic
	PR OF CHINE	77. Peking University 78. Northeastern University Software College 79. Wuhan University	
	VIETNAM	80. College of Technology (COLTECH) - Vietnam National University	

With this in mind, teaching the fundamental subjects of ITSM with the support a software (e.g., BMC Remedy ITSM Suite, HP Service Manager, IBM Tivoli and so on) may be productive. The beneficiaries of the educational programs may be best-equipped with some practical skills if the curriculum is complemented with subjects on the popular frameworks such as ITIL and/or COBit.

According to a survey, there is potential for employing 15,000 individuals in the market per year only in the U.S. for undergraduate and graduate students who have ITSM skills. Also, companies are willing to hire ITSM-trained graduates [44].

#### 4. ITSM research trends: web of science and other major indexes

First of all, a keyword search was conducted on the Web of Science (WOS) index to determine the number of research articles published in ITSM and its related areas. The search is carried out using the topic terms which seek out the fields such as the title, abstract, author keywords and so on within any record.

It should be noted that, WOS search for the conference proceedings includes articles appearing only after 1990. Here, two different sets of keywords are used, and the first set is shown in Table 2 covering ITSM and a wide range of topics in the related areas of service science and ITSM, including service quality, and the frameworks such as ITIL, COBit, CMMI and some ITSM standards. The second set is limited to ITSM and related frameworks and standards only and is displayed in Table 3.

One should bear in mind that, some acronyms

may have more than one meaning and consequently, as with any other search methods, WOS keyword search may return ambiguous results. The amount of such returns are not many and hence are not excluded in the counts.

The results of the keyword searches are outlined in the following diagrams. The 2013 data covers only the first 11 months and as such is also incomplete due to the delay of the appearance of the most recent research articles in the WOS. Fig. 1 indicates the importance of the services' science in general and in the associated fields in terms of number of publications in the respected fields. The effect of the inclusion of the proceeding indexes in WOS searches after 1990 in the number of publications can be easily identified from the figure. On Fig. 2, two sets of data are displayed. The darker pyramids show the total number of publications (SCI-Expanded, SSCI, AHCI, and Conference Proceedings Citation Indexes) per year, whereas the lighter ones display only the publications listed in the SCI-Expanded, SSCI and AHCI indexes. From Fig. 2, one can easily observe that, ITSM and closely-related areas attracted researchers only in the last decade or so (2000–2013) with a peak in the numbers in 2009. In addition, a drop in the numbers in 2010–2011 range is observed for the more specific keyword search with the more specific keyword set 2.

Finally, another keyword search with Set #2 is conducted to determine the amount of journal articles published in ITSM and related areas which appeared in other major indexes. For this purpose, only the period 2002-current is considered and the results are shown in Table 4 along with the previous results from WOS index.

**Table 2.** Keyword Search Items Set 1

#	Keyword	Category
1	Service Science; Services Science	SERVICE SCIENCE
2	ITSM; IT Service Management; Information Technology Service Management	ITSM
3	ITIL	FRAMEWORK
4	COBit	FRAMEWORK
5	CMMI	FRAMEWORK
6	Six Sigma	FRAMEWORK
7	TQM; Total Quality Management	FRAMEWORK
8	eTOM	FRAMEWORK
9	ISO 20000; ISO/IEC 20000	STANDARDS
10	BS 15000	STANDARDS

**Table 3.** Keyword Search Items Set 2

#	Keyword	Category
1	ITSM; IT Service Management; Information Technology Service Management	ITSM
2	ITIL	FRAMEWORK
3	COBIT	FRAMEWORK
4	CMMI	FRAMEWORK
5	BS 15000	STANDARDS
6	ISO 20000; ISO/IEC 20000	STANDARDS

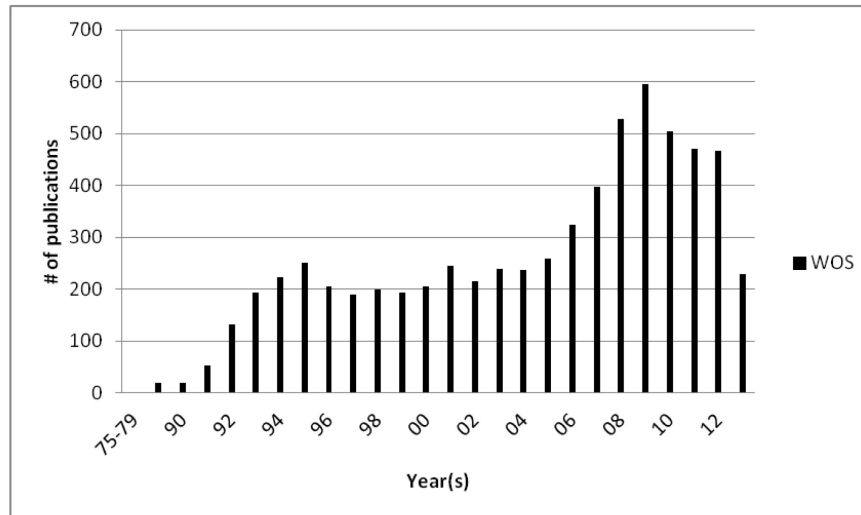


Fig. 1. Total number of publications in ITSM and Service Sciences in general (Keyword Search Items Set 1).

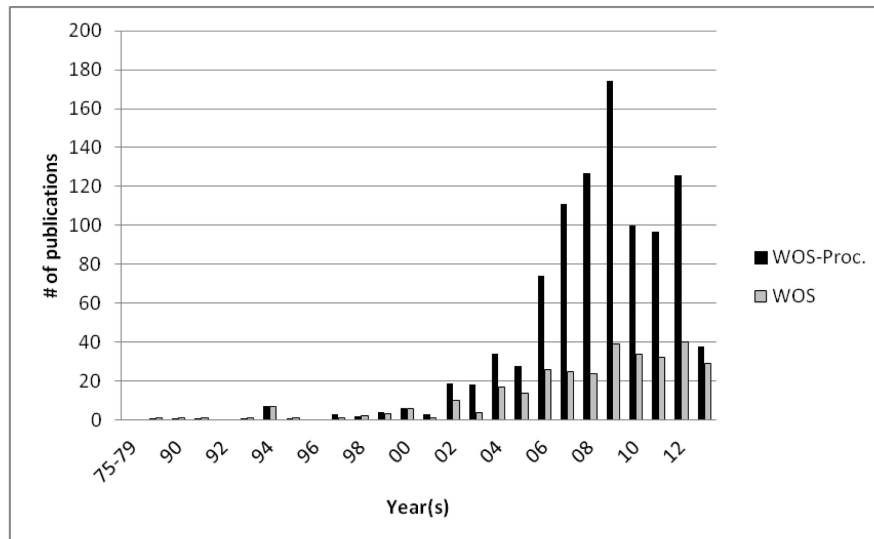


Fig. 2. Total number of publications in ITSM, related frameworks and standards (Keyword Search Items Set 2).

Table 4. Distribution of number of publications according to popular indexes using (Keyword Search Item Set 2)

Index	Year											
	02	03	04	05	06	07	08	09	10	11	12	13
WOS	10	4	17	14	26	25	24	39	34	32	40	29
IEEE/IEE	7	8	15	27	47	63	54	76	86	103	140	182
ACM	2	1	1	3	3	8	11	10	17	12	17	9
SPRINGER	4	4	2	8	15	19	12	19	15	13	15	17
SCIENCE-DIRECT	64	53	73	82	88	104	236	322	457	636	720	1029

Keeping in mind the overlaps and the noise in the data because of the undesired returns from the keyword search as explained above, a steady increase in the research products is obvious after 2007. Another way of interpreting the values in Table 4, it may also unveil the fact that ITSM research is still in its infancy in spite of the remark-

able increase in the number of journal articles indexed especially under Science-Direct database.

## 5. Discussions

Our study contributes to the literature in two different ways. First, it offers insight into, how

ITIL education is advancing all over the world. Second, it shows the available research studies evolution in this area during the last decade. From Table 4 it is evident that number of publications has increased during last five years. Recently Iden and Eikebrokk [33] conducted a systematic literature review on implementing ITSM and observed interesting results based on 36 significant contributions. For instance they found that Australia (11 articles), North American (7 articles) and European researchers (17 articles spread among 11 countries) dominate the studies. Out of thirty six articles authors found seven categorized as conceptual research and all are journal articles. Nine articles (25%) deal with the implementation status of ITSM and ITIL and four of them report from two specific studies). Remaining five of studies are survey based and two studied progress through case studies. Further, According to Iden and Eikebrokk [33] six research articles were found related to the outcomes and benefits of introducing ITSM and implementing ITIL out of these two reported from a specific case study. Also, existing research studies implementation status of three different levels of analysis: the national level, the firm level and the process level. As we have observed in web of science summary that there is limited research in ITSM and related areas. This is also supported by Iden and Eikebrokk [33] that there is only limited research on implementation strategies, methods, performance measurement, alignment and IT governance. In their work Iden and Eikebrokk found that variety of theoretical frameworks and reference theories have been used which are mainly contingency theory, cultural differences, organizational learning, balance scorecard, IS ServQual and critical success factors (CSF) framework including drivers and barriers is widely used towards identifying successful ITIL implementation. Most organizations planning to implement ITIL will already have a set of existing practices established. ITIL implementation requires a four-step approach: (1) identifying the company's existing practices, (2) achieving competence in ITIL recommendations, (3) redesigning existing practices based on ITIL recommendations, and 4) realizing the outcomes and instigating process management. Most firms choose a single-process approach when implementing ITIL by prioritizing the user-centric areas, such as the service desk and incident management. It has been observed that although IT support services are significant part of IT services career still not many educational institutions have included it in their engineering education curriculum. It is also interesting to note that US/Canada and European Universities and educational institutions are far ahead in incorporating ITSM as part of the curriculum. In

some institutions it is included as part of software engineering, or information system engineering under faculty of engineering while at other places as part of information technology/systems under faculty of business and management.

## 6. Conclusions

This paper presents the education and research activities in the ITSM discipline from a global point of view, using the research output as displayed in the Web of Science and also by searching the existing training programs at the undergraduate and graduate levels all around the world. It has been observed that ITSM research is still in its infancy in spite of the increase in the number of articles published in the last decade. Some issues concerning the development of ITSM programs in the universities and educational institutions are discussed. One of the limitations of the study in terms of research output focused is limited to five indexes (WOS, IEEE, Springer, ACM, ScienceDirect). Future studies may include other indexes like Scopus, Google Scholar and so on. To extend this research and gain a broader view, interviews with a wider range of stakeholders will be conducted. A further study may elaborate some of the data about the ITSM research by performing a systematic review of the articles and also, by analyzing each of the educational programs in the world according to curriculum content and implementation by considering the regional differences.

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**Ali Yazici** is a Professor and the Head of the Software Engineering Department at Atilim University, Ankara, Turkey. He received BS, and MS degrees in Mathematics from the Middle East Technical University (METU), Ankara, Turkey. He has completed his PhD dissertation at the Computer Science Department, Waterloo University, Canada. His research interests include Parallel Computing, Big Data and Cloud Computing, Database Systems, and e-Topics. He is the writer of many scientific articles, books and research reports in the field of Computing and Informatics. Dr. Yazici is a founding member of Turkish Mathematics Foundation, an associate member of Turkish Informatics Society, and a founding member of Turkish Informatics Foundation.

**Alok Mishra** is a Professor in Software Engineering at Atilim University, Ankara, Turkey. His areas of interest and research are software engineering and information systems. He has published articles, book chapters and book-reviews related to software engineering and information system in reputed journals, books and conferences. Dr. Mishra is also editorial board member of many prestigious journals including *Computer Standards and Interfaces*, *Journal of Universal Computer Science*, *Computing & Informatics*, *Electronic Government—An International Journal* etc. Prof. Mishra has

extensive experience in online learning. He had received the excellence in online education award by U21Global Singapore. He is the recipient of various scholarships including the national merit scholarship and the department of information technology scholarship of the Government of India.

**Paul Kontogiorgis** is currently a property investor, general contractor, and property manager for multiple units in Chicago, with a focus on revitalizing underprivileged areas and serving low-income families. Previously, he was the Global Program Director of IBM's IT Service Curriculum (ITSC) program in the Software Group, with roots in IBM Research. The ITSC program has been incorporated in over 330 universities worldwide. Since founding the ITSC Program, he has visited over 40 countries including the Turkey, Poland, and Thailand to discuss local education efforts with multiple ministers of education, and tier 1 universities, in an effort to assist strategic academic plans and prepare for the future of higher educational policies. He has also lead the Chicagoland Center for Advanced Studies (CAS). In his 13 year tenure at IBM, he has held multiple positions including IT Architect, IT Consultant, and IT Project Manager for multiple Fortune 500 companies in multiple sectors and industries. Paul Kontogiorgis earned his BS in Computer Science from DePaul University in Chicago, and has served on multiple university advisory boards worldwide.