Study about approaches of how to implement ITSM - Information Technology Service Management

Prof. Dr. Altino J. Mentzingen Moraes
Brazilian Ministry of Human Right - IT Coordination

The ITSM - Information Technology Service Management is an approach for the implementation of IT Services according to Business Departments expectations alignment. It is based in to be compliance with best practices to be applied in the IT Production Area. The best practice in this Area, recognized all over the world (in academic or in industrial sectors) is ITIL® - Information Technology Infrastructure Library, published and sponsored, by OGC - Office for Government Commerce of the United Kingdom. This article presents a Survey, performed by face-to-face and WEB way – realized in 3 (three) Business Sectors (Industry, Service and Finance) – that questioned its IT Department how they started to put in practice ITSM – among the disciplines and techniques – that this approach has as options for conducting this initiative. The results obtained can support the IT Team, allocated in the IT Production Area, to comprehend the efforts needed to get success in the objective of implementing the ITSM in its day-to-day procedures without high impact and risks. So, to contribute in this aspect, in the "RESULTS" Section of this paper is explained how an Organization can search its scenario and to analyze if it fits to some condition. Then, the Organization can find how others Corporations, of the same Business Sectors, had initialized its tasks and in which point of ITSM was better to begin. Also, is expected that this work can drive the IT Team, responsible of this implementation, to be attentive to workaround common bottlenecks.

Keywords: ITSM - Information Technology Service Management, ITIL® - Information Technology Infrastructure Library, IT Production Area, IT Best Practices, Case Study.

INTRODUCTION

In literature, is possible to find a declaration – in the first page of a book – that says that "most people would agree that the IT - Information Technology infrastructure of a business is a very critical component that allows that business to operate, to compete and to obtain revenue (Steinberg, 2014, p. 1).

Indeed, nowadays is almost impossible to imagine any kind of business that does not need a strong support of IT to survive in highly competitive world.

Thus, this article presents a Survey, performed by face-to-face and WEB way – realized in 3 (three) Business Sectors (Industry, Service and Finance) – that questioned its IT Department how they started to put in practice ITSM – among the disciplines and techniques – that this approach has as options for conducting this initiative.

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So, to contribute in this aspect, in the "RESULTS" Section of this paper is explained how an Organization can search its scenario and how to analyze if it fits to some condition. Then, the Organization can find how other Corporations, of the same Business Sectors, had initialized its tasks and in which point of ITSM was better to begin.

Also, is expected that this work can drive the IT Team, responsible of this implementation, to be attentive to workaround common bottlenecks.

Besides that, in the "CONCLUSION" Section, the evaluations presented may help in the decision-making process on the best way forward, because although this Survey/Research has been carried out in Brazil, its results can be applied – with the proper adjustments of interpretation – in any Organization in any part of the World.

SECTIONS

This paper is partitioned in 6 (six) Sections – and in its Sub-Headers – named as Author, Methodology, Theory, Results, Conclusion and Reference.

AUTHOR

The perception of the existence of different approaches for the implementation of the ITSM - Information Technology Service Management, which can interfere in success in the end of this procedure, besides the 45 (forty-five) years of Author expertise in IT Area, was also consolidated in academic studies and research articles (the author is Master in IT - Information Technology and Ph.D. in Production Engineering, with emphasis in Software House).

He has 5 (five) IT International Certification (PMI, ABPMP, ITIL®, CobiT and ISTQB) and, in some prior papers published in National Congresses in Brazil (such as, the ENEGEP - National Meeting in Production Engineering, sponsored by ABEPRO - Brazilian Association of Production Engineering) and International Conferences abroad (such as, the WMSCI - World Multiconference on Systemics, Cybernetics and Informatics, sponsored by

IIIS - International Institute of Informatics and Systemics, or the CISTI - Iberian Conference on Information Systems and Technologies, sponsored by AISTI - Iberian Association of Systems and Information Technologies), this subject was already studied.

METHODOLOGY

Literature

This paper was done according to academic models applied to Case Studies. Some samples of it can be founded in books already printed and offered by the market. An example is the book of Hamel, Dufour and Fortin (1993) title as "Case Study Methods".

Also, the book named as "How to Analyze Survey Data" is an additional directive for driving the capture of information and to build the presentation results (Fink, 1995).

These 2 (two) mentioned literatures above (in prior paragraph), and the expertise of the Author of this paper, formed the final way as how this task was conducted.

Project

The Research Project, performed by a Survey carried out in Brazil, followed the Activity Schedule as indicated in Figure 1 (Appendix), following the 4 (four) Phases, namely as, the 1. Prospecting Phase, the 2. Ranking Phase, the 4. Research Phase and, finally, the 5. Conclusion Phase.

In the 1. Prospecting Phase, about 60 (sixty) Companies were contacted, among the 3 (three) Business Sectors (Industry, Service and Finance) object of this Study, in order to invite them to participate in this Survey. Of these 60 (sixty) Companies there was a positive response from 48 (forty-eight) Companies regarding their interest in participating in this Survey.

In the 2. Ranking Phase, 10 (ten) Companies were selected from the 48 (forty-eight) Companies that responded positively to their interest in participating in this Survey, for each 1 (one) of the 3 (three) Business Sectors ((Industry, Service and Finance). These 30 (thirty) Companies, representing the 10 (ten) selected for each 1 (one) of the 3 (three) Business Sectors (Industry, Service and Finance), were evaluated for having confirmed that they were using the techniques of implementation of the ITSM - Information Technology Service Management and also because these were satisfying some criteria with the purpose of making the sample more diversified.

In the 3. Research Phase, these 30 (thirty) Companies were classified, representing the 10 (ten) selected (list of 10 most significant) for each 1 (one) of the 3 (three) Business Sectors (Industry, Service and Finance) by the criteria of "Life Time (years)", "Employees (Total Number)" and "IT Annual Budget =%". As indicated in Figures 2, 3 and 4 (Appendix) these data were organized in Tables, respectively, by the 3 (three) Business Sectors (Industry, Service and Finance).

In the 4. Conclusion Phase, it were defined which data would be considered to determine the results of this Survey, as well as, to define how the Companies interested in using these results, for to subsidize their decision making of which approach would be better to follow in their implementation of IT Services, could search its identification based on the criteria of "Life Time (years)", "Employees (Total Number)" and "IT Annual Budget =%".

It should be noted that the criteria of "Life Time (years)", "Employees (Total Number)" and "IT Annual Budget =%" were used to facilitate the identification of Companies interested in using these results surveyed with Companies participants in this Survey, that is, it were not used criteria such as Company Size defined by the link

"http://www.sebrae-sc.com.br/leis/default.asp?vcdtexto=4154" (for Brazil), by the link "https: / / /www.usasbe.org/default.aspx" (for the USA) or by the link "https://eur-lex.europa.eu/legal-content/PT/TXT/?uri=OJ:L:2003:025 : TOC" (for Europe).

Following the logic of relating the Companies participating in this Survey to the criteria of "Life Time (years)", "Employees (Total Number)" and "IT Annual Budget =%", were discarded numbers considered "outlier" (marked with underscore and in red color, in Figures 2, 3 and 4, in the Appendix), the average (A) of the remaining values were calculated and the range of +25% / - 25% (plus twenty-five percent and minus twenty-five percent) was created to attribute the Minimum (>) and the Maximum (<) values of the sample researched.

For the Industry Business Sector, the Minimum (>) and the Maximum (<) values for "Life Time (years)" were – respectively – 42 and 70, for "Employees (Total Number)" were – respectively – 140 and 233 and for "IT Annual Budget =%" were – respectively – 4.03% and 6.71%, as indicated in Figure 2 (Appendix).

For the Service Business Sector, the Minimum (>) and the Maximum (<) values for "Life Time (years)" were – respectively – 16 and 26, for "Employees (Total Number)" were – respectively – 49 and 82 and for "IT Annual Budget =%" were – respectively – 8.89% and 14.82%, as indicated in Figure 3 (Appendix).

For the Finance Business Sector, the Minimum (>) and the Maximum (<) values for "Life Time (years)" were – respectively – 72 and 120, for "Employees (Total Number)" were – respectively – 2.146 and 3.577 and for "IT Annual Budget =%" were – respectively – 11.34% and 18.90%, as indicated in Figure 4 (Appendix).

THEORY

IT Service Management (ITSM)

"The IT Service Management (ITSM) bridges the world of business with the world of technology" (ClydeBank Technology, 2016).

This statement, from ClydeBank Technology, in fact defines that the ITSM - IT Service Management aims – as its main objective – to provide an IT service with quality and aligned to the needs of the business, seeking long-term cost reduction.

Tefertiller (2018), in his book, intends to offer for the IT structure – and its Organization leaders – an easy-to-read resource to better understand IT Service Management and how best to leverage its capabilities.

In the book titled as "ITSM Iron Triangle", written by Mclean (2012), this author focuses that as all projects that are people-dependent also the IT Processes implementation (according to ITSM) is no different and it is primordial to obtain the commitment of all staff to facilitate the "break" of no-adequate behaviors and attitudes.

This same author also mentioned, in the first chapter of this his book (Chapter 1: Change in Assignment), that ITIL® - Information Technology Infrastructure Library – which will be explained in the next Sub-Header of this Section – is a way to implement ITSM but he details that are necessary many adjusts, in the treatment of each steps, to be well succeed.

According to the understandings perceived by the research of these bibliographies it can be said that IT Service Management (ITSM) is simply the way to manage the delivery of IT Services, from end-to-end, to the Clients of the IT Information Technology Area based on best practices. One of the best practices frameworks more adopted for ITSM is ITIL® or, as the acronym indicates, the Information Technology Infrastructure Library.

Information Technology Infrastructure Library (ITIL®)

The ITIL® - Information Technology Infrastructure Library, sponsored, by OGC - Office for Government Commerce of the United Kingdom, is composed by 5 (five) Books and, that is the reason why, it is called as a library. Its 5 (five) Books, with about 400 (four hundred) pages, in its first version was published in May of 2017 and named as ITIL® V3. The second version was released in 2011 and is known as ITIL® V3 2011. It became a trade mark from this version.

The ITIL® is a set of best practices, organized in a Service Life Cycle (from the conception of a Service until its discontinuation) for to be implemented in the Infrastructure, in the Operation and in the Management in the IT Area (as is preconized by ITSM). This Service Life Cycle has a "logical order of implementation" as is defined by ITIL®. This "logical order of implementation" is shown as indicated in Figure 5 (Appendix) and the contents of the Books is described below (in this same "logical order of implementation").

Service Strategy (SS)

The book named as Service Strategy (SS) describes how to organize the actions, supported by IT, in Services and the focus is how to create strategies of IT Service Lifecycle. It determines what Services the IT Organization should offer and what capabilities are needed for to be possible to offer these Services. The aim of Service Strategy is to make the Organizations think and act in a strategic manner (OGC ITIL® Service Strategy, 2011).

This task is considered as the initial and as the first step in the "logical order of implementation" (and so, this is considered the 1st. Book). This Book is divided in 5 (five) Disciplines as follow:
- Strategic Management for IT Services (SS/SMS): plans the IT initiatives to support the core business activities;
- Service Portfolio Management (SS/SPM): defines the Services that will be provided by IT;
- Demand Management (SS/DM): controls the reception of Demands and track its resolutions providing prompt "status", if required;
- Financial Management for IT Services (SS/FMS): connects the IT actions (Services) with the Budget allocate to execute these;
- Business Relationship Management (SS/BRM): maintains the alignment between the business goals and the IT targets.

Service Design (SD)

The book named as Service Design (SD) describes how to design effectively new IT Services. This includes designing new Services and changing and improving the existing ones (OGC ITIL® Service Design, 2011).

This task is considered as the second step in the "logical order of implementation" (and so, this is considered the 2nd. Book). This Book is divided in 7 (seven) Disciplines as follow:
- Coordination of Service Design (SD/CSD): coordinates the project of new Services (and its implementation) and also the adaptation of the already in production;
- Service Level Management (SD/SLM): creates SLA - Service Level Agreements to provide quality Services on time to the End-Users and proactively escalate to levels of hierarchy to ensure SLA indicators are met;
- Service Catalog Management (SD/SCaM): showcases the available IT Services to End-Users and presents a new "face" to IT. Creates and publishes the Service

Catalog with the SLA - Service Level Agreements customized with multi-stage approvals;

- Supplier Management (SD/SM): manages contracts with different Vendors. Tracks IT hardware and software contracts to improve compliance, to associate assets and to receive proactive notifications for contract expirations;
- Availability and Capacity Management (SD/ACM): plans the needs of IT resources to put in practices new features and releases of equipment and applications;
- Service Continuity Management (SD/SCoM): administrates the operation level of the Services;
- Information Security Management (SD/ISM): controls the maintenance of the criteria of the normative CIA - Confidentiality, Integrity and Availability.

Service Transition (ST)

The book named as Service Transition (ST) describes how to build and to implement IT Services. It ensures that changes to Services and to Service Management Processes are carried out in an organized way (OGC ITIL® Service Transition, 2011).

This task is considered as the third step in the "logical order of implementation" (and so, this is considered the 3rd. Book). This Book is divided in 5 (five) Disciplines as follow:

- Transition Planning and Support (ST/TPS): focuses in to evaluate and to manage the impacts of install new hardware facilities in the production environment;
- Change Management (ST/CM): simplifies the planning, the approval and the implementation of changes by automatized workflows. Eliminates unauthorized and failed changes;
- Configuration Management and Service Assets (ST/CMSA): discovers and maintains the IT Asset Inventory with efficient auto-discovery. Directs the target to discover IT Assets from Windows, Linux, Mac, AIX, and Solaris, as well as printers, routers, switches, and more options of OS and hardware;
- Release and Deployment Management (ST/RDM): completes the ST/TPS Disciplines with the focus in the installation of new applications version in the production environment;
- Knowledge Management (ST/KM): empowers the End-Users to solve recurrent incidents by Knowledge Base research to allocate rightly the Tickets to IT Help-Desk. Limits the search using keywords and topics.

Service Operation (SO)

The book named as Service Operation (SO) describes how to delivery effective and efficient IT Services. It includes fulfilling Customer requests, resolving Service disappointments in the deliveries, fixing problems, and carrying out routine operational procedure (OGC ITIL® Service Operation, 2011).

This task is considered as the fourth step in the "logical order of implementation" (and so, this is considered the 4th. Book). This Book is divided in 5 (five) Disciplines as follow:

- Event Management (SO/EM): receipts the automated warnings from eventual incidents detected and directs for the evaluation of the Checking Group;
- Incident Management (SO/IM): reduces outages, improves productivity, meets SLA - Service Level Agreements and manages the complete Life Cycle of IT Tickets. Automates Ticket workflows to let IT Technicians focus on other important tasks;

- Request Compliance (SO/RC): maintains the IT Environment under compliance with legal determinations and technical rules, including, the Development and the Infrastructure Areas;
- Problem Management (SO/PM): classifies, analyzes, and closes problems. Analyzes root causes and reduces recurrent incidents to boost the IT Help-Desk's productivity;
- Access Management (SO/AM): manages the active End-Users list and controls its authentication in the Production Environment.

Continual Service Improvement (CSI)

The book named as Continual Service Improvement (CSI) describes how to improve continually the quality of IT Services in line with the concept of Continual Service Improvement adopted in ISO 20000 (OGC ITIL® Continual Service Improvement, 2011).

This task is considered as the final and as the fifth step in the "logical order of implementation" (and so, this is considered the 5th. Book), although, this one can be started at any time (that is the reason why it is highlighted with an Interrogation Mark when is presented in the Flow of Implementation of the ITSM - IT Service Management in all Figures of this paper). This Book is divided in 3 (three) Disciplines as follow:
- Identify Opportunities for Improvement (CSI/IOI): processes the problems occurred, to understand them and for proposing new solutions that has the target to solve forever the issue;
- Prioritize the Identified Improvements (CSI/PII): organizes the projects to implement the improvements in the IT Environment.
- Implement Improvement Initiatives (CSI/III): puts in practice the results obtained with the projects constructed for implementing the improvements.

RESULTS

In the sequence of the Research Phase of this Case Study, described in the "Project" Sub-Header of the "METHODOLOGY" Section, the Companies participating in this Survey were asked about the order of implementation of the Disciplines of ITIL® - Information Technology Infrastructure Library in the implementation of the theory of ITSM - Information Technology Service Management.

This information, about the order of implementation of the Disciplines of ITIL® - Information Technology Infrastructure Library, was registered by the effort - in percentage - applied by the Companies participating in this Survey in the implementation of each Discipline, which, also shows the degree of importance considered for the Discipline as the priority of its implementation.

The expected percentage of efforts (costs and time) for the implementation of the theory of ITSM - Information Technology Service Management, researched in the literature and experimented by the Author's expertise, is indicated in Figure 6 (Appendix) in the Logical Order of Implementation (Theory). Since Continual Service Improvement (CSI) can only be applied, at first time when at least one Cycle of Implementation is finished, the percentual for this task does not have a preview defined percentage. Thus, for the Service Strategy (SS) is 40% (forty percent), for the Service Design (SD) is 25% (twenty five percent), for the Service Transition (ST) is 20% (twenty percent) and for the Service Operation (SO) is 15 (fifteen percent).

The presentation of these data is as indicated in Figure 6 (Appendix), in which, it is possible to be visualized a Data Table that shows this information in one more interpretable

way, considering a scale of 5% (five percent) percentages, what means to say that, values have been rounded up or down.

Thus, fractional intermediate values equal to or less than 2.50 (two and a half) and 7.50 (seven and a half) were converted to the previous smaller value multiple of 5 (five) and fractional intermediate values greater than 2.50 (two and a half) and 7.50 (seven and a half) were converted to the posterior bigger value multiple of 5 (five).

The remainders of the division, of these rounding, were accounted for in other values to make them more meaningful and can better present the degree of effort applied in the implementation of the Disciplines of ITIL® - Information Technology Infrastructure Library, and with it, to be easier to interpret which Flow of Implementation has been followed (by each Business Sector) and to facilitate the choice of which path to follow by Companies that are interested in researching the results of this article.

In this Data Table (in each line of the Disciplines of ITIL® and in each Business Sector), the higher value (percentage) and the lower value (percentage) were marked in red color and marked in green color, respectively. It was done for to be possible to find easily the extremes percentages found.

Also, as indicated in Figure 6 (Appendix), it is possible to be visualized a Data Graph, based on the rightmost 3 (three) Columns (with the letter "A" that the meaning is "Average") in the Data Table. This average was not adjusted, that is, it was not rounded to multiples of 5% (five percent), and therefore, it is the average of the calculated percentages that were the basis for the construction of the Data Table. The objective is to present more accurately the results obtained and to better to subsidize the assembly of the Flow of Implementation followed (by each Business Sector) in a more real way.

In this same Data Graph is possible to view (in the footer subtitle) the average total percentage for each ITIL® Book Processes. This total does not correspond to a scale of 100% (one hundred percent) since in the Data Table, as already mentioned before, the percentages were rounded for adequation to multiples of 5% (five percent) for better and easier interpretation.

CONCLUSION

This Section will describe some conclusions that could also support the Companies, besides the points already explained and mentioned in "INTRODUCTION" Section, "METHODOLOGY" Section ("Project" Sub-Header) and "RESULTS" Section, to identify themselves with the reality found and to choose/to decide the best way to go according to its project about the implementation (or the revision of the current flow) of the ITSM - IT Service Management.

The Companies, that are interested in to research the results of this paper to support its decision of how implement its ITSM - IT Service Management, can find the 3 (three) Flows of Implementation, representing the 3 (three) Business Sectors (Industry, Service and Finance), build in the end of this survey, as is indicated in the Figures 7, 8 e 9 (Appendix).

These same 3 (three) Data Graphics of the 3 (three) Flows of Implementation were also based on the rightmost 3 (three) Columns (with the letter "A" that means "Average") in the Data Table.

Confirming the information already provided in "RESULTS" Section about the Data Graph of the Figure 6 (Appendix), these averages also were not adjusted (that is, these were not rounded to multiples of 5% [five percent], and therefore, these are the averages of the calculated percentages that were the basis for the construction of the Data Table) and the objective is the same, what it means, to present more accurately the results obtained and to

better to subsidize the assembly of the Flow of Implementation followed (by each Business Sector) in a more real way.

Regarding these 3 (three) Flows of Implementation of the ITSM - IT Service Management, constructed based in the facts detected in the real world, some conclusions – described below for each one of the 3 (three) Business Sectors (Industry, Service and Finance) – can be retrieved and can also helping to understand how some occurrences have happened.

It is possible to understand that even in the Business Sector of Industry and in the Business Sector of Finance, that are known for having Types of Organization that invests in planning and that are extremely regulated by formal internal and external rules and procedures, the Disciplines of the Service Strategy (SS) Process were not deeply implemented, even with this Service Strategy (SS) Process being considered the initial and the first Process of ITIL® to be implemented by the logic of the Flow of Implementation of the ITSM - IT Service Management.

Some efforts of Industry Sector and the Finance Sector in the implementation of Disciplines of Service Strategy (SS) Process were concentrated in the Disciplines of Business Relationship Management (SS/BRM), a little bit more in Industry Sector (according its more identity with this theme) and in the Financial Management for IT Services (SS/FMS), a little bit more in Finance Sector (according its more identity with this theme).

Minimum percentage efforts in the implementation of other Disciplines of the Service Strategy (SS) Process, such as the Discipline of Service Portfolio Management (SS/SPM), were informed by Industrial Sector and the Finance Sector and these were considered as insignificants. So, these were registered as "zero".

Both the Industrial Sector and the Finance Sector reported that there were problems latter occurred by the reason of them not had attributed the special attention that this Discipline of Service Portfolio Management (SS/SPM), of Service Strategy (SS) Process, should deserve.

Regarding still the same Service Strategy (SS) Process, and its Disciplines, it is a fact that in the Service Sector (since the other Disciplines were considered as "zero") only the Discipline of Service Portfolio Management (SS/SPM) had some investment in effort when it was implemented (comparing with the Industrial Sector and with the Finance Sector), since it is just impossible to run the ITSM - IT Service Management directives without, at least, with this Discipline implemented.

All the 3 (three) Business Sectors (Industry, Service and Finance) invested deeply (with big percentage of efforts) to implement the Disciplines of the Service Operation (SO) Process bypassing the previous implementation of the Disciplines of the Service Design (SD) Process, the Disciplines of the Service Strategy (SS) Process and the Disciplines of the Service Transition (ST) Process, those that come first according to ITIL® Flow.

Only some efforts were allocated in the Disciplines of the Service Level Management (SD/SLM), of the Service Catalog Management (SD/SCaM) and of the Supplier Management (SD/SM), components of the Service Design (SD) Process, since it is also just impossible to implement any ITIL® Process without the minimum of these 3 (three) Disciplines implemented before.

Although not being so important for Industry Sector and for the Service Sector (the percentage of its efforts were registered as "zero" in the Data Table), for the Finance Sector the Discipline of Information Security Management (SD/ISM) – of the Service Design (SD) Process – had a significant aggregated value and has received a good percentage.

Comparatively to Industry Sector and to Finance Sector, Service Sector invested a big part of its efforts (and time and costs) in the implementation of the Discipline of Change Management (ST/CM) of the Service Transition (ST) Process. It can be explained since it is a

Business Sector that is always been impacted by changes in the market, besides, living in constant market concurrence. So, as would be normal and was expected, Service Sector needs to be able in to adapt its IT Operation very fast to maintain your level of competitiveness and compliance with market standards.

Another important point, that must be highlighted, is that the Discipline of Knowledge Management (ST/KM) that is related to Service Transition (ST) Process and is the foundation to create a Knowledge Data Base to save and to retrieve workaround solutions (already applied with success to solve issues and keep the IT environment in normal operation, what is one of the most important targets of ITIL®), had no significant investments in effort, in time and in costs. Hence, it was registered "zero" in the Data Table.

Just reminding, in the same Data Graph indicated in the Figure 6 (Appendix) for each one of the 3 (three) Business Sectors (Industry, Service and Finance), is possible to view (in the footer subtitle) the average total percentage for each ITIL® Book Processes and, as also already mentioned before in the last paragraph of "RESULTS" Section, this total does not correspond to a scale of 100% (one hundred percent), since in the Data Table the percentages were rounded for adequation to multiples of 5% (five percent) for better and easier interpretation as well.

Returning to the evaluating of this Figure 6 (Appendix), according to its Data Graph and its average total percentage for each ITIL® Book Processes (viewed in the footer subtitle), it is understood that Service Operation (SO) Process ranked in the first position (115) in the list of processes that had more investments (in efforts, in time and in costs) when implemented. In the second position (80), it is possible to find the Service Transition (ST) Process.

It reflects an inversion in normal Flow of Implementation defines by ITIL®, since, the Service Transition (ST) Process comes prior (the 3rd. in the sequence), and the Service Operation (SO) Process comes posterior (the 4th. in the sequence). It is logical that the Service Transition (ST) Process comes first, whereas, this is a process connected to the structuration of the Service Operation (SO) Process that comes later.

Maybe, the reason why for this evidence is the internal pression to reach results that could appear to Users and reply quickly the "Sponsor" investments in the ITSM Implementation. Just as point to be highlighted, the Service Operation (SO) process is a process that involves deeply the Users because it is focus in to answer to its requests in a prompt way.

As a final conclusion, even with big investing (in efforts, in time and in costs) in the Service Transition (ST) Process and in the Service Operation (SO) Process (those come in the 3rd. and in the 4th. in the ITIL® sequence of the Flow of Implementation), in order to obtain fast wins, all the 3 (three) Business Sectors (Industry, Service and Finance) reported that would like to restart its procedure of work with its focus in planning (from de beginning as preconized by ITIL®) to get more stable and more sustainable results.

Also can be understood that none of these 30 (thirty) Companies, participants in this Survey, achieved the level to start the implementation of the Disciplines of the Continual Service Improvement (CSI) Process, considered as the final and the fifth to be implemented (in the Flow of Implementation of the ITSM - IT Service Management), although, this one can be started at any time (that is the reason why it is highlighted with an Interrogation Mark when is presented in the Flow of Implementation of the ITSM - IT Service Management).

This can be said since the declared percentages were so negligible that those were computed as "zero" in the Data Table.

It was perceived that the answer for this occurrence is that all these Companies were not yet achieved the Level of Maturity to obtain results with this knowledge acquired. But, on

the other hand, many of these have stated that they still do not know what they must do about this point and not even how it could be done.

To these ones, were explained that one way of performing the Disciplines of Continual Service Improvement (CSI) is to apply the PDCA Cycle (Plan, Do, Check and Act) techniques as described in Sobek and Smalley (2016).

The PDCA Cycle, also known as Shewhart Cycle ("https://en.wikipedia.org/wiki/Walter_A._Shewhart") or Deming Cycle ("https://en.wikipedia.org/wiki/William_Edwards_Deming") is a management tool widely used by Companies around the world. This method was designed by Walter A. Shewhart and was disseminated by Willian E. Deming, which, has as the main focus the Continuous Improvement.

In reference to all these 30 (thirty) Companies which were participants in this Survey – in the end and in fact – they expressed that they considered very reliable the results obtained and that their prior expectations were reached. So, they will review themselves its approaches to continue to implement the missing ITSM Processes and were sure these results could be very useful to other Companies to direct its investments in this same task.

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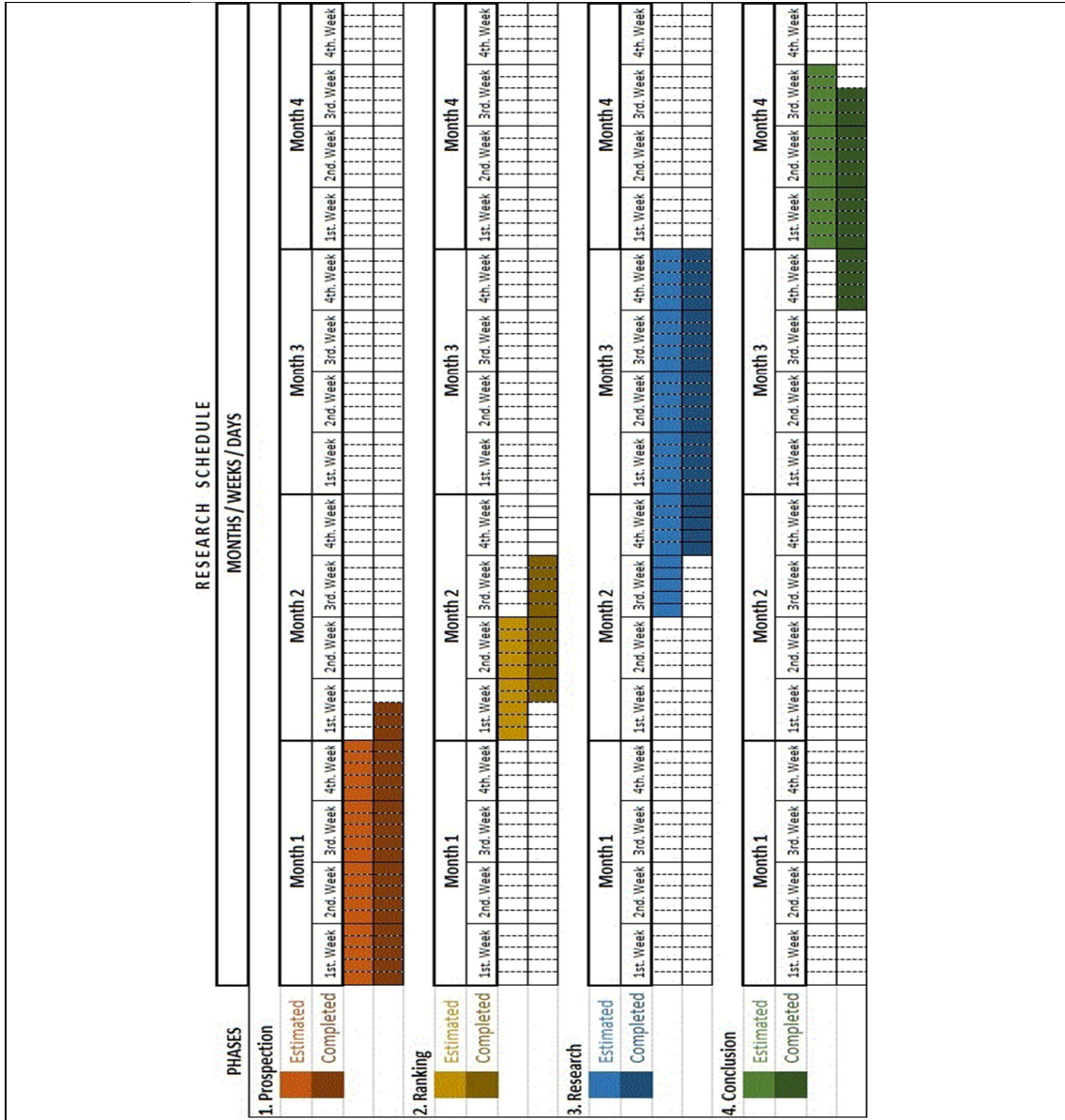
Figure 1 - Project Timeline

Co.	Life Time (years)	Employees (Total Number)	IT Annual Budget=%
01.	10	20	2%
02.	80	250	5%
03.	35	175	8%
04.	85	30	5%
05.	78	110	4%
06.	70	90	25%
07.	92	150	6%
08.	83	235	15%
09.	66	50	5%
10.	59	300	8%
	445/8	1.310/7	43%/8
A	56	187	5,37%
>	42	140	4,03%
<	70	233	6,71%

Figure 2 - Industry

Co.	Life Time (years)	Employees (Total Number)	IT Annual Budget=%
01.	15	80	28%
02.	28	65	16%
03.	31	72	11%
04.	36	98	14%
05.	22	55	3%
06.	32	66	11%
07.	20	210	10%
08.	18	180	13%
09.	23	15	8%
10.	34	83	2%
	214/10	464/7	83%/7
A	21	66	11,86%
>	16	49	8,89%
<	26	82	14,82%

Figure 3 - Service

Co.	Life Time (years)	Employees (Total Number)	IT Annual Budget=%
01.	115	3.500	21%
02.	135	2.000	19%
03.	95	1.800	2%
04.	120	3.000	13%
05.	98	8.700	12%
06.	96	450	11%
07.	145	4.200	16%
08.	300	3.300	44%
09.	110	2.200	11%
10.	450	2.900	18%
	769/8	22.900/8	121%/8
A	96	2.862	15,12%
>	72	2.146	11,34%
<	120	3.577	18,90%

Figure 4 - Finance

Study about approaches

Figure 5 - ITIL© Book Processes Flow X Disciplines Names

Study about approaches

Business Sectors X Minimum(>)/Maximum(<) Range X Co. X ITIL®Book Processes X % Effort of Initial Implementation

		INDUSTRY (I)										SERVICE (S)										FINANCE (F)										A	A	A
		Life Time (years) >42 <70		Employees (Total Number) >140 <233			IT Annual Budget=% >4,03% <6,71%					Life Time (years) >16 <26		Employees (Total Number) >49 <82			IT Annual Budget=% >8,89% <14,82%					Life Time (years) >72 <120		Employees (Total Number) >2.146 <3.577			IT Annual Budget=% >11,34% <18,90%					I	S	F
		01	02	03	04	05	06	07	08	09	10	01	02	03	04	05	06	07	08	09	10	01	02	03	04	05	06	07	08	09	10	I	S	F
1st.	SS/SMS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SS/SPM	0	0	0	0	0	0	0	0	0	0	10	20	25	5	5	30	20	5	10	5	0	0	0	0	0	0	0	0	0	0	0	14	0
	SS/DM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SS/FMS	5	0	10	0	5	5	0	0	10	0	0	0	0	0	0	0	0	0	0	0	25	0	15	10	20	15	5	10	15	20	4	0	14
	SS/BRM	20	15	15	10	5	20	25	25	15	10	0	0	0	0	0	0	0	0	0	0	5	10	5	10	0	5	15	0	5	0	16	0	6
2nd.	SD/CSD	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SD/SLM	5	0	10	0	5	5	5	5	0	10	0	5	10	5	0	5	5	5	0	10	5	5	10	10	5	5	5	0	0	10	5	5	6
	SD/SCaM	0	10	0	0	5	10	5	0	10	0	5	5	0	0	5	10	5	0	0	10	10	5	0	5	5	5	5	0	10	5	4	4	5
	SD/SM	5	0	5	10	5	10	10	5	0	5	5	0	10	5	0	10	5	10	10	5	5	5	5	10	5	10	10	5	0	5	5	6	6
	SD/ACM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SD/SCoM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	SD/ISM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	5	10	20	5	0	10	0	15	20	0	0	10
3rd.	ST/TPS	5	15	0	10	5	0	0	10	0	5	0	0	5	5	0	0	0	10	5	15	5	15	15	5	0	10	20	0	10	5	5	4	9
	ST/CM	10	10	5	5	15	20	5	5	0	10	40	25	20	10	35	25	30	25	15	10	5	5	10	15	5	10	5	5	0	5	9	24	7
	ST/CMSA	0	10	5	10	15	0	5	0	5	10	0	10	5	10	0	5	5	0	0	10	0	10	0	0	0	5	0	0	5	0	6	6	2
	ST/RDM	5	5	5	10	5	0	15	5	5	0	0	5	0	5	0	5	5	5	0	0	0	5	0	0	5	0	0	10	0	0	6	3	3
	ST/KM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4th.	SO/EM	20	15	10	10	5	20	10	10	5	15	5	5	5	15	10	0	10	15	10	15	10	15	15	10	20	5	10	15	15	20	12	9	14
	SO/IM	15	10	20	10	15	10	5	0	25	15	20	15	10	5	10	5	10	10	25	10	5	10	5	5	15	15	10	5	10	10	13	12	9
	SO/RC	5	10	5	15	10	5	10	15	5	10	5	10	5	15	15	0	5	10	5	10	10	10	15	0	5	5	10	10	15	10	9	8	9
	SO/PM	10	0	5	10	5	0	0	10	15	5	5	0	5	10	10	5	0	5	15	5	5	0	5	0	10	5	5	10	0	0	6	6	4
	SO/AM	0	0	5	0	5	5	5	5	0	0	5	5	5	0	5	0	0	0	0	5	5	0	0	0	0	5	0	5	0	0	3	2	1
?	CSI/IOI	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CSI/PII	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CSI/III	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

% Total > 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100

Logical Order of Implementation (right panel):

- 1st. **40%** — Service Strategy (SS)
  - Strategic Management for IT Services (SS/SMS)
  - Service Portfolio Management (SS/SPM)
  - Demand Management (SS/DM)
  - Financial Management for IT Services (SS/FMS)
  - Business Relationship Management (SS/BRM)
- 2nd. **25%** — Service Design (SD)
  - Coordination of Service Design (SD/CSD)
  - Service Level Management (SD/SLM)
  - Service Catalog Management (SD/SCaM)
  - Supplier Management (SD/SM)
  - Availability and Capacity Management (SD/ACM)
  - Service Continuity Management (SD/SCoM)
  - Information Security Management (SD/ISM)
- 3rd. **20%** — Service Transition (ST)
  - Transition Planning and Support (ST/TPS)
  - Change Management (ST/CM)
  - Configuration Management and Service Assets (ST/CMSA)
  - Release and Deployment Management (ST/RDM)
  - Knowledge Management (ST/KM)
- 4th. **15%** — Service Operation (SO)
  - Event Management (SO/EM)
  - Incident Management (SO/IM)
  - Request Compliance (SO/RC)
  - Problem Management (SO/PM)
  - Access Management (SO/AM)
- ? **?% (Rmk)** — Continual Service Improvement (CSI)
  - Identify Opportunities for Improvement (CSI/IOI)
  - Prioritize the Identified Improvements (CSI/PII)
  - Implement Improvement Initiatives (CSI/III)

Rmk.: *Since Continual Service Improvement (CSI) can only be applied, at first time when at least one Cycle of Implementation is finished, the percentual for this task does not have a preview defined percentage.*

Chart (bottom): % Effort of Initial Implementation vs ITIL® Book Processes — Legend: INDUSTRY, SERVICE, FINANCE. Bottom totals: 52, 53, 80, 115, 0.
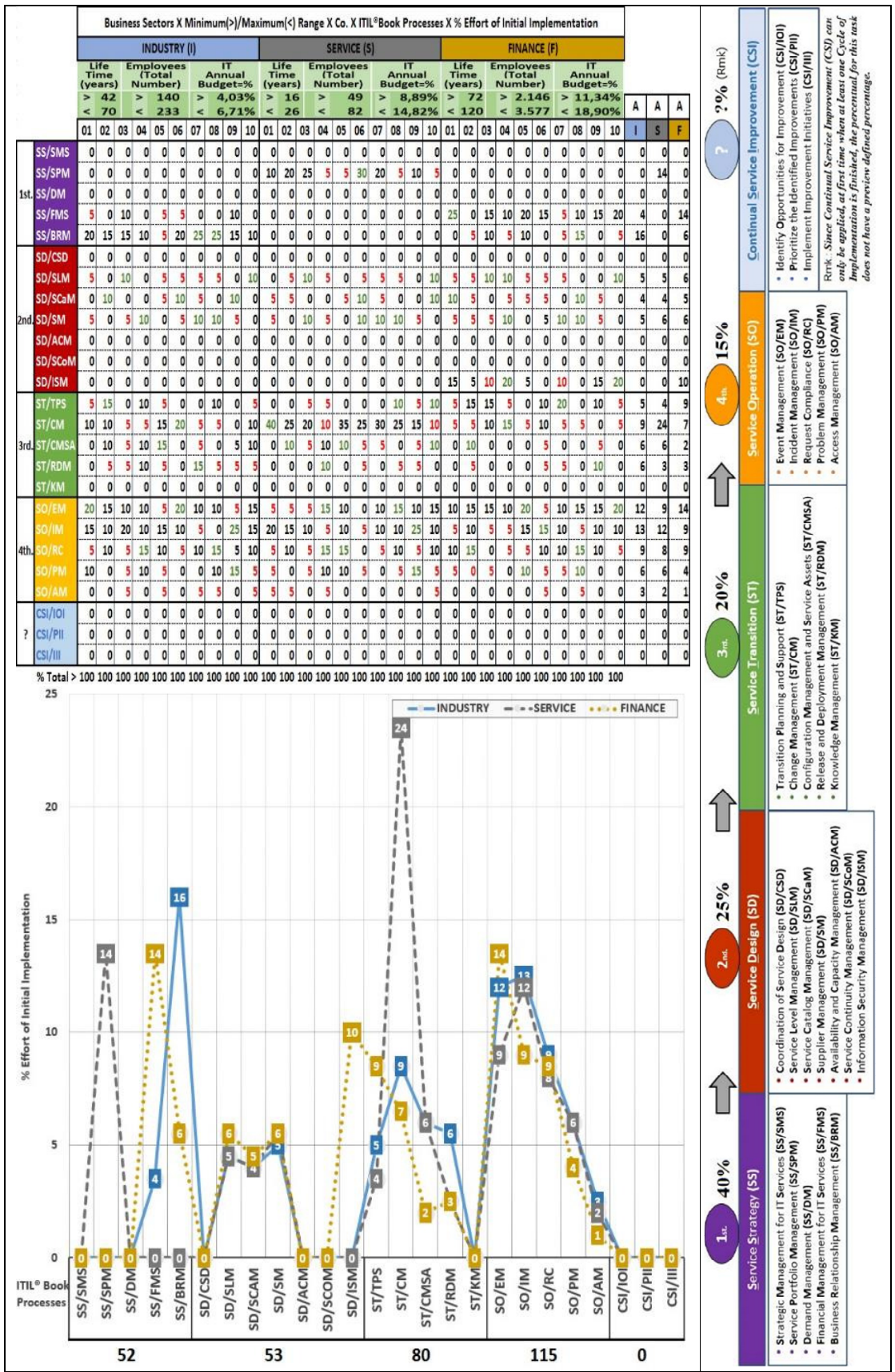
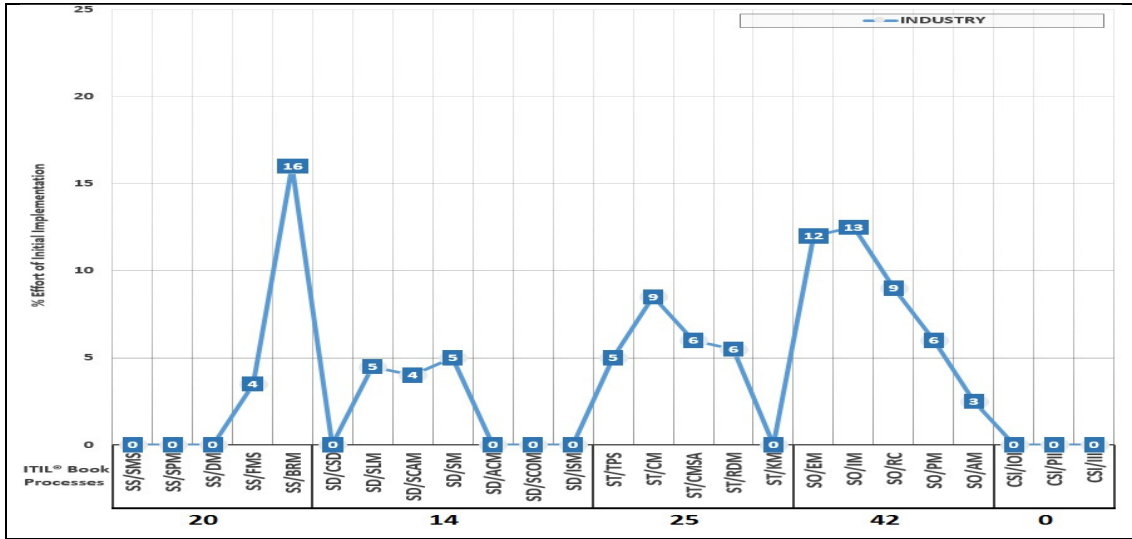Figure 6 - Data Table + Data Graphic + Logical Order of Implementation (Theory)

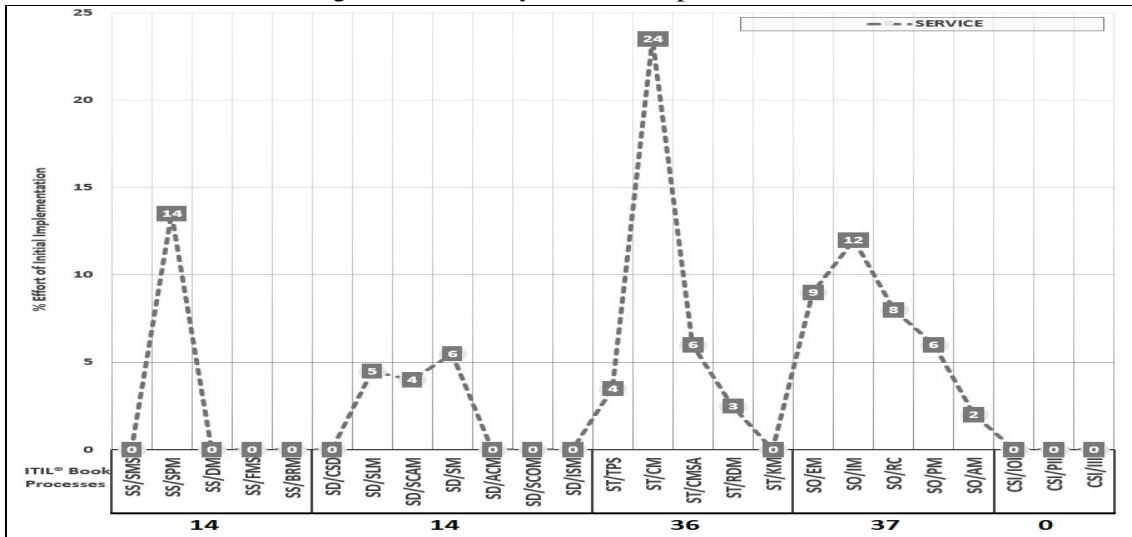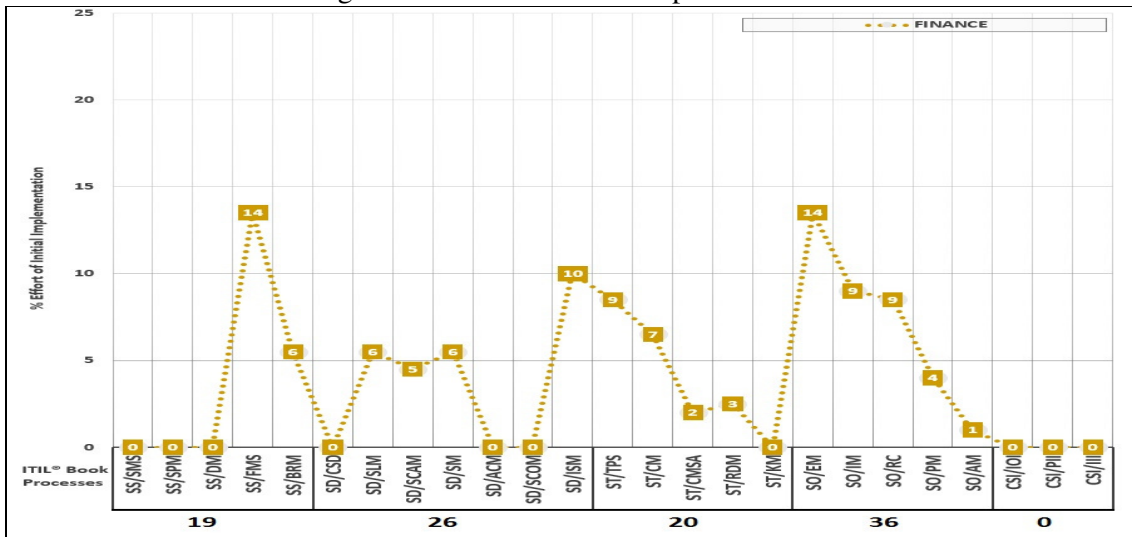Figure 7 - Industry Flow of Implementation

Figure 8 - Service Flow of Implementation

Figure 9 - Finance Flow of Implementation

Study about approaches