Project report on:

The Impact of BPMS implementation on Business Process (Management) Maturity

Submitted To

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Ahmed Imran kabir

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Subject: submission of a report on The Impact of BPMS implementation on Business Process (Management) Maturity

Dear sir,

It is indeed a great pleasure for me to be hand over the result of my hardship of the thesis which is an impact of BPMS implementation on business process management maturity. This report contains importance of BPMS system in the organization system automated. I sincerely believe that this project helped me to learn and gain new experience and will help enrich my adaptability quality in the long run when I will be involving in practical field. I am grateful for your valuable advices and great cooperation. I tried my best to go deep into the matters and make full use of my capabilities in making this formal report meaningful, though; there may be some mistakes and shortcomings. I will be pleased to answer any kind of query you think necessary.

So, therefore pray and hope that u would accept my report and oblige therefore. for any of your queries I would be at your disposal convenience.

Thank You

Sincerely yours

Tanjina alam

_____

ID: 111161126

Declaration of the student

I the undergraduate declare that the project report ‘’THE IMPACT OF BPMS IMPLEMENTATION ON BUSINESS PROCESS MANAGEMENT MATURITY’’ is based on my own work. It was carried out during the period of my study under the supervision of ‘**Ahmed Imran Kabir’** Sir.

I assert that the findings and conclusions drawn on this project are an outcome of my word. I further certify that:

i. The project report was completely done by me under the supervision of my supervisor.

ii. The work has not yet been submitted for any other degree/ diploma/ certificate in this university and any other university.

iii. I have followed the guidelines provided by the University for preparing this report.

iv. Whenever I have used any materials or taken any help from other sources, I have given credit to them and included the details in the references.

Thank You

Tanjina Alam

ID:111161126

Acknowledgement

Firstly, I am thankful to Almighty who gave me strength and made me able to complete this report. At the time thanks to all the people who helped me a lot in this pandemic situation. Without these helps, I have probably not finished this report on time, so I would like to express my gratitude to all of you.

Secondly, I would like to express my gratitude to my honorable project supervisor **Ahmed Imran Kabir** for his valuable advice, encouragement, guidance and supervision and for his support in completing this project. I am grateful to him for supporting me and giving me the proper direction.

In addition, I am also thankful to those who were both directly and indirectly related to the report work, provided me with crucial information that helps to complete this report. Heartfelt appreciation is expressed to them for their valuable time and cooperation. I would like to express my profound towards my parents for their co-operation and encouragement, which helped me a lot to complete this project.

Finally, I would like to give a special thanks to the United International University for giving me the opportunity to work on the project by which I learned a lot of thing about research work, data analysis tools and methods and so on. By making this type of report, I was able to enrich my knowledge as well.

Abstract

This thesis paper report on The Impact of BPMS implementation on Business Process (Management) Maturity. This report base on business process management maturity. It's a process where a system has automated the whole process like an organization or business need many things to control. Such as marketing, HR, IT. Finance etc. This all function can work by the software BPMS. This software implement on the organization. How the design made and findings all about the report describe in report. So for the authentic result made a questionnaire send to senior employees in IT department of United (hospital sector). By this survey get a result which can measure by SPSS software and made a reliability test, hypothesis test, find out the co relation between independent and dependent variables. There are13 hypothesis test were made such as design of purpose, design of context, design of documentation, performerer of knowledge, performer of skills, performer of behavior, owner of identity, owner of activities, owner of authority, infrastructure of informion system, infrastructure of human resource system, matrics of uses, and metrics of definition are applied for accepted or rejected

In the end, the result showing 5 hypothesis test are accepted which are design of context, design of purpose, owner of identity, infrastructure of information system, metrcs of uses. These process enablers are improved on BPMS implementation successfully. On the other hand rest of the hypothesis test were showing rejected.

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Chapter i: Introduction

- Background of the study
- Problem statement
- Motivation of the study
- Limitation and scope of the study
- Projet limitation

1.1 Background of the study:

A way to make processes more predictable and lss relying on specific people is to define processes, harmonize, control, and improve them, based on the insights provided by the execution of these processes. Creating a professional environment in which a company can track, harmonize and improve processes is a complex transition, which cannot be achieved instantly. Therefore, both scientists and professionals came up with ways to deal with this complexity, which formed the base for the Business Process Management domain.

The key concepts of this work is devided into 2 groups. There is the paradigm of Business Process Management Maturity and other is the field of BPMS. The challenge that many companies face is that, they do not know where to start when it comes to processing improvement and increasing process orientation. The research on business process maturity and process orientation implicitly assumes a positive relationship between the technical support and management maturity to increase process management capability for the organization.

1.2 Problem Statement:

This research motive is to find out the impact of BPMS implementation on management maturity. Therefore, this research explores the influences of BPMS implementations on the level of process orientation of an organization, more specifically on different aspects of BPMM. Both in the fields of BPMS as in BPMM, the goal is to support businesses properly performing for their processes. This study explicitly tries to bring these concepts together by indicating that these two fields could emphatically strengthen each other. The five processes of enabler (PEMM) model for 13 elements to cover the research as like design, performers, owner, infrastructure, metrics, and 13 elements are documentation, purpose, context, knowledge, identity, activity, skill, behavior, use, definition, and authority were the elements to see pre-assessment or post-assessment better by implementing the survey

Mainly research statement is-

“How business process management system impact on the business process management maturity of an organization applicant*?”*

1.3 Motivation of the Study:

Research always have some motivation to do. Some motivation need to follow ; those are-

- Desire to make a research for better consequences and benefit as well.
- Need to solve some gap of research
- Need to make creative work which could be uniq..
- Have to finish research successfully.

1.4 Limitation and scope of the study:

- Identifying what is the scope for the project.
- Identify main project scope
- Evaluate the main project

1.5 The project limitation:

- Time limited
- Budget limited
- make a small size
- some research gap need to complete
- some access limited on project
- cant take any unethical issue or inproper data for research

Chapter ii: literature of the Review

- Literature review
- Maturity models
- PEMM for BPMS implementation impact on management maturity

2.1 Literature review:

A literature review is a paper where current knowledge is establishing with theoretical and methodological overview present different kind of findings.

Maturity of models:

There are many maturity models where represent some theory of stage based progress for basically describing the stages and progress ways. Characteristics of every successive stages need to analyse and explained logical relationship between them. As far Application practices in maturity models mainly intention to get desirable maturity models and included with respective improvement measures. There are some following application specifically use which can be differentiate. Such as-

- Descriptive: this maturity model used for diagnosis tool where current capabilities of the entity are under investigation. After make this model this model can handover to internal and external stakeholders.
- Perspective: this maturity model basically serves a purpose of identifying desirable maturity levels and serve some guidelines on improvement measures which can be specific and detailed about the application.
- Comparative: This maturity model purpose of use for internal and external standard make. From large number of data give specific and short historical data. Some maturity levels of similar business units are discriminated by corporation.

2.2 PEMM for BPMS implementation impact on management maturity:

The Process and Enterprise Maturity Model (PEMM) is a kind of descriptive model for assess the maturity of an enterprise or department concerning its processes and the enterprise as a whole. Because of its descriptive nature, it does not specify what certain processes should look like, but it provides an insight into the steppingstones towards a higher maturity level.

Constructed in collaboration with both industry and academy, the model describes an assessment method that is thought to be easy to administer and can be used to assess a company's maturity. Consecutively, it could be used to identify which things has to be established to achieve higher maturity level. Likewise most of the maturity models, the higher levels build upon lower maturity levels, which means one has to satisfy all aspects of lower levels to reach higher maturity levels.

Process enablers

This subsection discusses the details of the Process-part of PEMM. The five process enablers are represented by 13 elements to cover the different aspects that together form the 5 process enablers. The first Process enabler is called "Design", which is related to the understand ability of the process descriptions. They discusses the different aspects of the Design-enabler, with its three sub-enablers: Purpose, Context, and Documentation. Per sub-enabler, the different maturity levels are represented by one statement, which all have to be valued as discussed earlier.

The first process is **design** which is related with some different aspects. Such as context, purpose, and documentation, these three aspects represent design part. Which describe below-

Purpose of the design:

The process designed based on end to end basis. Functional manager's inheritance design primarily as a conditions of functional performance improvement. The process redesigned end to end basis for better performance. The process had designed to fit venture IT system and venture process for increase highly the performance. The process also designed to fulfil the external customer requirement and supplier process for optimistic the performance

Context of the design:

This process for input, output and suppliers are identified. This process mainly needs for customer known and agreed on the process. The process owner makes the networking for mutual performance with other process. This will work same for customer and supplier as well for mutual expectation on performance.

Documentation of the design:

The documentation process mainly for identifying the interconnections between the corporation which involved to execute the process. It is also end to end process

design. This process interprets the interfaces, expectation of other IT system and make a link with it. If electronic representation wants to change the process or reconfigure based on performance and environmental changes it can support by analysis and business management.

The second process is **performers**, its related to three sub aspects which are knowledge, skill, and behaviour describe in below-

Skill of the performers:

performers are skilled on business decision making. Performers are skilled in problem solving and improvement of process. They are skilled in teamwork and self-improvement. It also used for change management and implementation.

Knowledge of the performers:

Performers can identify the process and execute the metrics of performance. They can describe the whole process flow how the customers affect, employees include in the process, also make difference with required performance and actual performance level. They are known with main business concepts and who initiate the process and what affects to the customer's performance that also describe. They also evaluate enterprises base and trend to describe what performances affects in inter enterprise decision.

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Behaviour of the performers:

performers have some loyalty towards to the process. They follow the min design of process, rules regulation to follow then perform it correctly and effectively. They try to ensure the process result successfully achieve he enterprise goal. They can change the process based on performance and also can improvement it.

The next process is **owner** which related with some aspects such as identity, activities, authority describe below-

Identity of the owner:

The process owner can be individual or group which is responsible for changing the process or improvement. They make the official position for the enterprise management with a senior manager post for taking the responsibilities. The whole

process first comes through process owner for mind share, design of the process and goal of the process. The process owner is main person in the enterprises most senior.

Activities of the owner:

The process owner see the process based on communicate with other members convince them to implement it. They also set the future goals and improvement the process. Sponsors make redesign, implementation the process, ensure to connect the process design. The process owner works with the other process to achieve the process goal. They develop the strategic plan for the process

.

Authority of the owner:

The Process Owner can only motivate to Operational Management make changes. They can convincee a process redesign team and implement the new design and aso make control over the budget of techonology for the process.. The Process Owner controls the IT systems for support the system and if needed make changes for the process. The Process Owner controls the process' budget and based on make budget for the personnel assignments and evaluate it.

The next forth process is **infrastructure** which related some sub enabler are information system and human resource system thee describe below-

Information system of the infrastructure:

IT systems support the process. An IT system start from functional components support the process. An IT system designed with the process and mind sharing to enterprise standards. They also make standard for inter-enterprise communication system process.

Human Resource System of the infrastructure:

Managers give intensive to performers who fulfil the process work functional. This process design makes job description, role model, competency work, incentive work, recognition of performance take initiative for results compare to expected performance for enterprises. Hiring, development content describe everything needs for customer and internal employees.

The last Process-enabler is “**Metrics**”, defined as the measures that indicate the process’ performance. The two sub-enablers are Definition and Uses. Describe in the below-

Definition of the metrics:

This process has some basic rules, Cost, quality base for performance. It is also end to end process based on requirements of customers. This process also performs by strategic goals. This metrics derived from interenterprise set goals.

Uses of the metrics:

This process use for better performance, identity and make less mistake for the performance. If need any improvements for the process based on result make the targets. Managers motivate the customers for the performance increase. Managers use the dashboard for make the day to day activities

Chapter iii: Research methods

- Research framework
- Sample
- Questionnaire development
- Data Collection

3.1 Research Framework:

I performed this project in United Organization. The company was in the early stages of implementing a BPMS to harmonize and automate its processes in Bangladesh. This provided a suitable business environment to gain insight into the influence of the implementation on the various aspects of organizational process maturity.

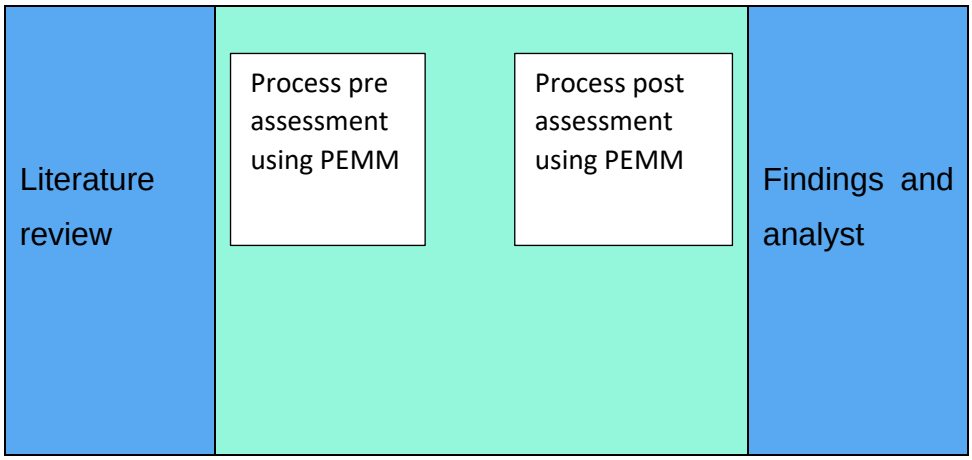


Figure01: Research framework

In investigating the potential influence, we applied quantitative research methods within the research to support methodological triangulation. First, with the participation of several employees working in different divisions/locations we assessed the maturity of a particular group of processes (Contract Management) of the company before and after the BPMS implementation. We did this to identify in quantitative terms any statistically significant difference in the level of maturity as measured by pre-and post-assessments of that process group.

For the assessments, we looked for a maturity model that shows descriptive properties, since the main objective is to assess process maturity (rather than to guide process improvement, as in prescriptive models). Therefore, we used the PEMM mainly due to its rich descriptive properties that make it effective and easy to use for process assessments. PEMM is also the most cited descriptive maturity model in the literature. The assessments were conducted using surveys among 15 employees of

the company located in 3 different categories. All employees who participated in the survey, take part in the execution of these processes, contributed to the development of the processes, or are managers responsible for the successful operation of the processes.

In the sections that follow, we describe the research including the research organization and the business context at the time of the research conduct. Next, we describe the results of the pre-and post-process assessments that used PEMM in the organization. .

3.2 Sample:

The sample of participants consisted of the people working in the departments of IT sector. They are upper level employee in the organization who knows well about BPMS. That's I collected data from them. There included some process which are pre assessment benefiial or post assessment that's wht asked from them.

3.3 Questionnair development:

I performed a series of statistical tests to test for statistically significant increases between the pre-and-post-BPMS-implementation process assessments. The assessments were in the form of self-assessment in which participants were asked to rate each maturity characteristic (through an online questionnaire) of a process sub-enabler in the PEMM. For each maturity characteristic the following rating options were provided. Before performing quantitative/statistical analyses, the results of the questionnaire for each sub enabler were encoded as follows:

- Agree (80-100% correct) □ 3
- Strongly agree (20-80% correct) □ 2
- Disagree (0-20% correct) □ 1
- No idea □ 0

The responses leading to the value of '0' (no idea) were treated cautiously. If a maturity characteristic of a particular sub-enabler by a specific participant is '0' in the pre-

implementation assessment, the corresponding answer in the post-assessment was also marked ‘0’, and vice-versa (the same procedure is applied also when this is the case in the post-assessment). This was done to help prevent biased statistical comparisons between the pre-and post-assessments.

The data resulting from the assessments originated from metrics that use an ordinal scale (the values describe the nature of the information within the numbers assigned to the variables in the ranked order., largely true: 3; somewhat true: 2, etc.). Accordingly, using parametric tests (Student t-test) that assume normality in the data does not fit well. Hence, we mke a test to identify any differences between pre-and post-implementation assessments.

A commonly used option as a non-parametric test is Mann Whitney U test, which uses two independent samples. However, as the samples we used in our assessments are relatively dependent (the same set of participants provided values for pre-and post-assessments using Mann Whitney U test would not be appropriate. Therefore, we used the Wilcoxon Signed-Rank test as our statistical method, which focuses on the differences between the pairs of pre-and post-assessments coming from the same participant.

3.4 Data Collection:

The assumptions of the Wilcoxon Signed-Rank test are given -

1. Data taken from same population which are paired.
2. Individual pair can be taken randomly which is also independent.
3. The dependent variable is measured by normal scale.
4. The distribution of the differences describe which is in symmetrical shape

(Note:questionnair given in appendix.)

Chapter IV: Research Findings

- **Interpretation of Wilcoxon signed-rank test**
- **Histograms**

Variable's Type	Variables	Wilcoxon Signed-Rank test
Independent	Purpose	0.013
Independent	Context	0.023
Independent	Documentation	0.518
Independent	Knowledge	0.91
Independent	Skills	0.94
Independent	Behaviour	0.76
Independent	Identity	0.018
Independent	Activities	0.688
Independent	Authority	0.845
Independents	Information system	0.087
Dependent	Human resource system	0.73
Dependent	Definition (metrics)	0.004
Dependent	Uses (metrics)	0.0267

Table01: Reliable test of independent and dependent variables

4.1 Interpretation of Wilcoxon signed-rank test:

Design of purpose:

The Wilcoxon signed-rank test is 0.013, the number of participants is 15. which shows a significant increase since all statements have been delivered independently. process had not been designed based on an end-to-end basis. Post assessment is higher than pre-assessment. that's why the purpose of design significantly true.

Sub-enabler	Wilcoxon signed-rank test		
15 Purpose	Significant	P-value	N
	YES	0.013	15

Table02: Design of purpose hypothesis test

Design of Context:

The Wilcoxon signed-rank test is 0.027, the number of participants is 15, it shows the contextual part of the process design seems to have improved during the BPMS implementation. So it's significantly true for the design context.

Sub-enabler	Wilcoxon signed-rank test		
Context	Significant	P-value	N
	Yes	0.027	15

Table 03: Design of context hypothesis test

Design of documentation:

The Wilcoxon signed-rank test is 0.512, the number of participants is 15, which shows the process documentation has been improved. It can be end to end and process-oriented. it's significantly not true for the process of the system.

Sub-enabler	Wilcoxon signed-rank test

	Significant	P-value	N
Documentation	No	0.512	15

Table04: Design of documentation

Performers of knowledge:

The Wilcoxon test is 0.91, the number of participants is 15, which shows the performers slightly decreased, we can conclude, there was no measurable effect on knowledge in terms of PEMM caused by the BPMS implementation. This performer of knowledge is not significantly true.

Sub-enabler	Wilcoxon signed-rank test		
	significant	P-value	N
knowledge	NO	0.91	14

Table05: Performers of knowledge hypothesis test

Performers of skill:

The Wilcoxon signed-rank test is 0.94, number of participants is 15. It seems that at least in this early stage there have not been significant increase and not affected to the skills of performances. So its not significantly true.

Sub-enabler	Wilcoxon signed-rank test		
	Significant	P-value	N

Skill	No	0.94	15

Table06: Perfrmers of skill hypothesis test

Performers of behaviour:

The Wilcoxon signed rank test is 0.76, number of participants is 15. It seem people did not yet fully rely on BPMS implementation and preferred to use legacy system in this early stage after implementation. So its not significantly true.

Sub-enabler	Wilcoxon signed-rank test		
Behaviour	significant	P-Value	N
	NO	0.76	15

Table07: Performers of behaviour hypothesis test

Owner of identity:

The Wilcoxon signed-rank test is 0.018,number of participants is 15. It seems some people tried to interpret this question by thinking of somone who fullfills this role informally. Its significantly true.

Sub-enabler	Wilcoxon signed-rank test		
identity	significant	P-value	N
	Yes	0.018	15

Table 08: Owner of identity hypothesis test

Owner of activities:

The Wilcoxon signed-rank test is 0.688, number of participants is 15. It does not show significantly increase for activities. There might have been some development during BPMS implementation.

Sub-enabler	Wilcoxon signed-rank test		
Activities	significant	P-value	N
	NO	0.688	15

Table 09: Owner of activities hypothesis test

Owner of authority:

The Wilcoxon signed-rank test is 0.845, number of participants is 15. This might be related to the fact that the Product Owner actually had the power to steer for process changes and had more than “some control” over the technology budget. So it significantly not true.

Sub-enabler	Wilcoxon sgned-rank test		
Authority	significant	P-value	N
	NO	0.845	15

Table10: Owner of authority hypothesis test

Infrastructure of Information system:

The Wilcoxon signed-rank test is 0.087, number of participants is 15. it looks like the Information Systems subenabler clearly improved because of the BPMS implementation. This implies that the Information Systems did have a better fit with the process after the BPMS implementation. S its significantly true.

Sub-enabler	Wilcoxon sined-rank test		
Information System	sigificant	P-value	N
	Yes	0.087	15

Table11: Infrastructure of information system hypothesis test

Infrastructure of human resource system:

The Wilcoxon signed-rank test is 0.73, the number of participants is 15. It seems there does not seem to have occurred a lot of change. The Wilcoxon Signed-Rank test shows a result that is not even close to being significant.

Sub-enabler	Wilcoxon signed-ran test		
	significant	P-value	N
	NO	0.73	15

Table12: Infrastructure of information system hypoyhesis test

Metrics- definition:

The Wilcoxon signed-rank test is 0.004, the number of participnts is 15, Definition is one of the sub-enablers with the clearest increase for all P-levels. So it significantly true.

Sub-enabler	Wilcoxon signed –rank test		
Definition(metrics)	significant	P-value	N
	Yes	0.004	15

Table13: Metrics of definition hypothesis test

Metrics of uses:

The Wilcoxon signed-rank test is 0.0267, the number of participants is 15, The last sub-enabler shows an increment for all statements. This was caused by some people indicating decreases for the uses of metrics, not resulting in a statistically significant increase of the Uses sub-enabler

Sub-enablller	Wilcoxon signed-rank test		
Uses(metrics)	significant	P-value	N
	NO	0.0267	15

Table14: Metrics of uses hypothesis test

4.2 Histogram

Design-purpose:

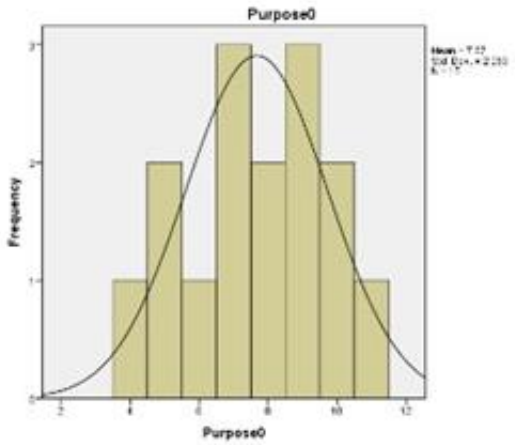


Figure1:Pre assessment of purpose

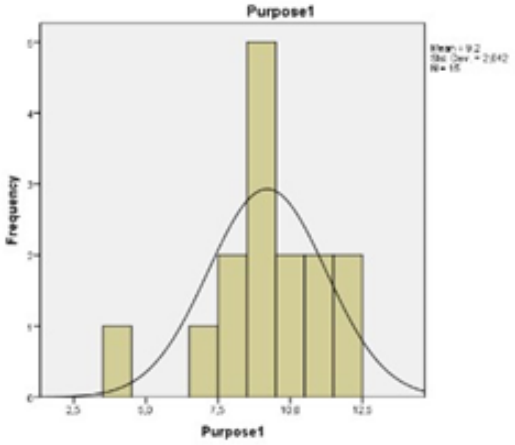


figure2:post assessment of purpose

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Purpose0	15	4	11	115	7,67	2,059	4,238
Purpose1	15	4	12	138	9,20	2,042	4,171
Valid N (listwise)	15						

Table15: design of purpose

Design-context:

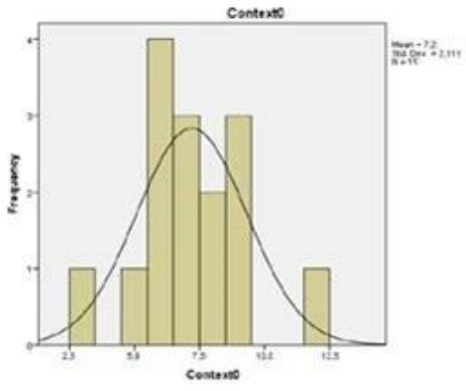


Figure3:pre assessment of context

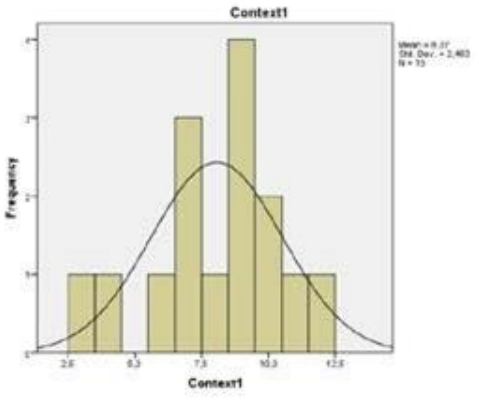


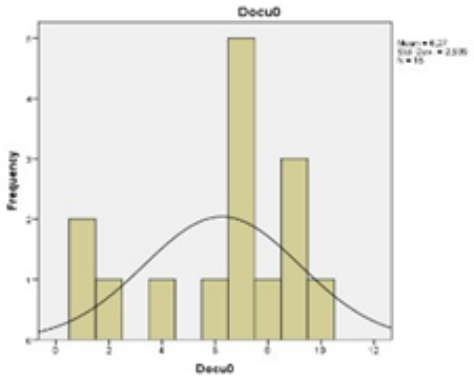
figure4:post assessment of context

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Context0	15	3	12	108	7,20	2,111	4,457
Context1	15	3	12	121	8,07	2,463	6,067
Valid N (listwise)	15						

Table16: design of context

Design-documentation:



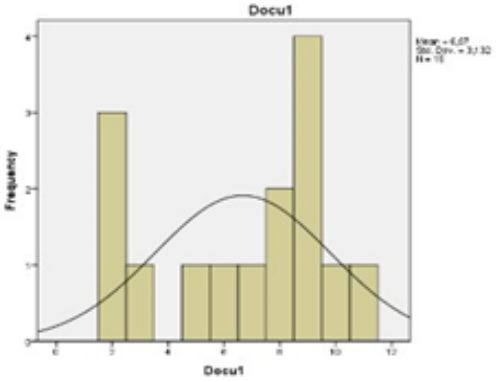


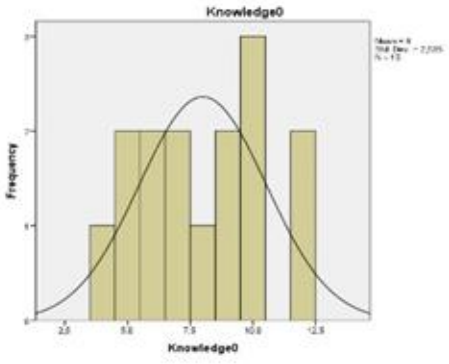
Figure 5:pre assessment of documentation figure 6:post assessment od documentatin

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Docu0	15	1	10	94	6,27	2,939	8,638
Docu1	15	2	11	100	6,67	3,132	9,810
Valid N (listwise)	15						

Table17:design of documentation

Performers-knowledge:



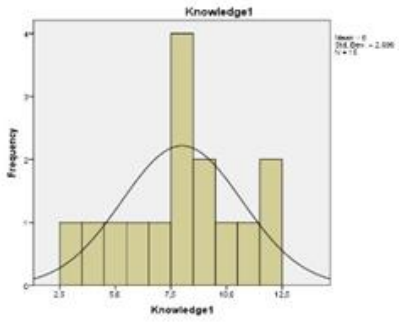


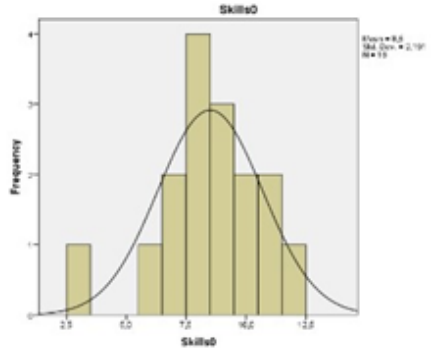
figure 7:pre assessmen of knowledge figure 8:post assessment of knowledge

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Knowledge0	15	4	12	120	8,00	2,535	6,429
Knowledge1	15	3	12	120	8,00	2,699	7,286
Valid N (listwise)	15						

Table18:performer of knowledge

Performers-skill



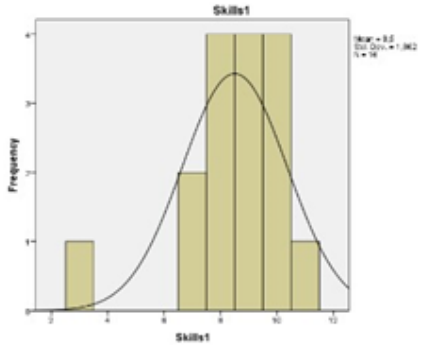


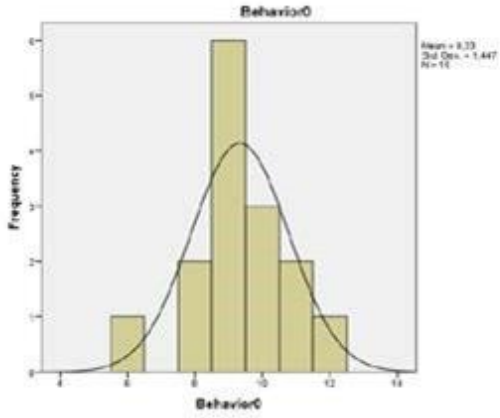
Figure 9:pre assessment of skills figure10:post assessment of skill

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Skills0	16	3	12	136	8,50	2,191	4,800
Skills1	16	3	11	136	8,50	1,862	3,467
Valid N (listwise)	16						

Table19:performer of skills

Performers-behavior



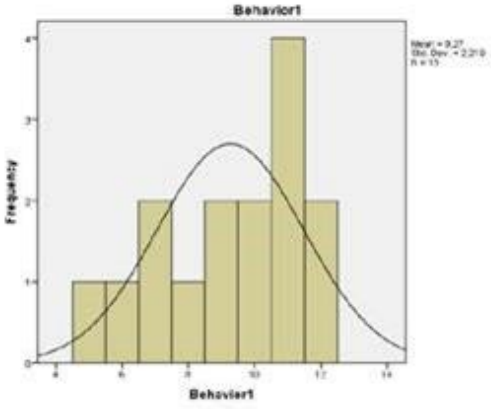


Figure11:pre assessment of behaviour

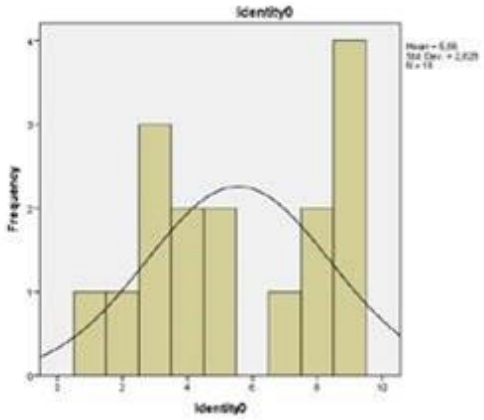
figure 12:post assessment of behaviour

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Behavior0	15	6	12	140	9,33	1,447	2,095
Behavior1	15	5	12	139	9,27	2,219	4,924
Valid N (listwise)	15						

Table20: performer of behavior

Owner-identity:



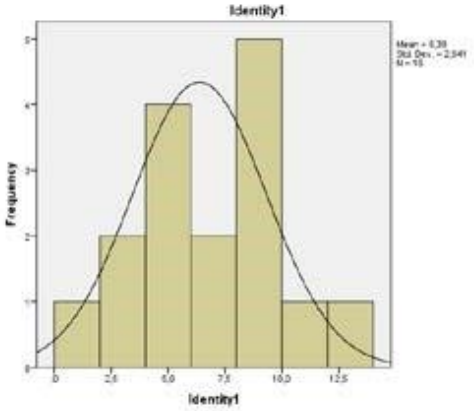


Figure13:pre assessment of identity

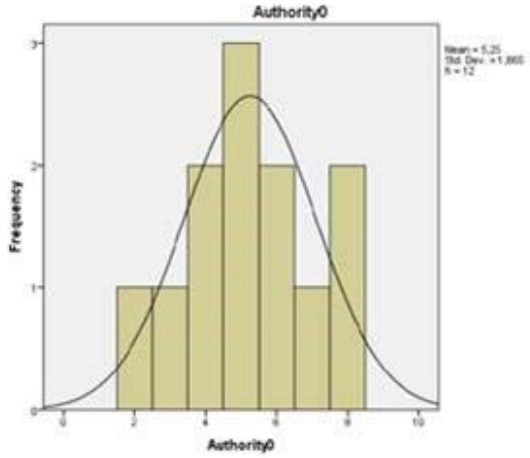
figure14:post assessment of identity

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Identity0	16	1	9	89	5,56	2,828	7,996
Identity1	16	1	12	102	6,38	2,941	8,650
Valid N (listwise)	16						

Table 21: owner of identity statistics

Activities:



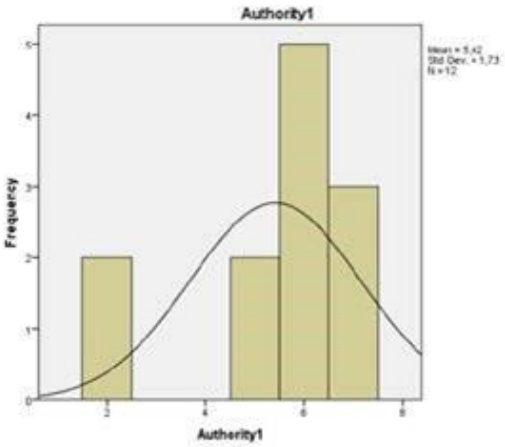


Figure15:pre assessment of activities

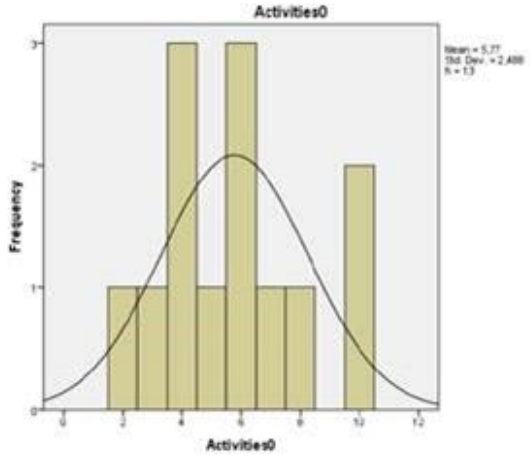
figre16:post assessment of activities

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Authority0	12	2	8	63	5,25	1,865	3,477
Authority1	12	2	7	65	5,42	1,730	2,992
Valid N (listwise)	12						

Table22:owner of authority statistics

activities:



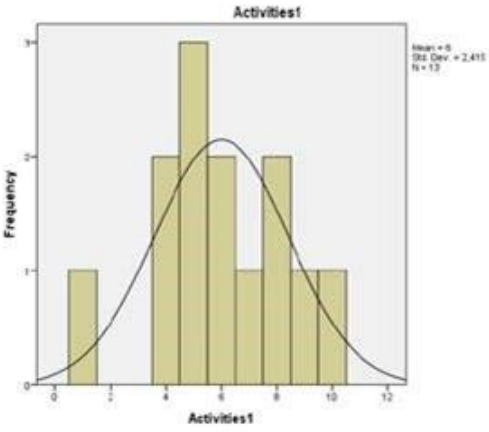


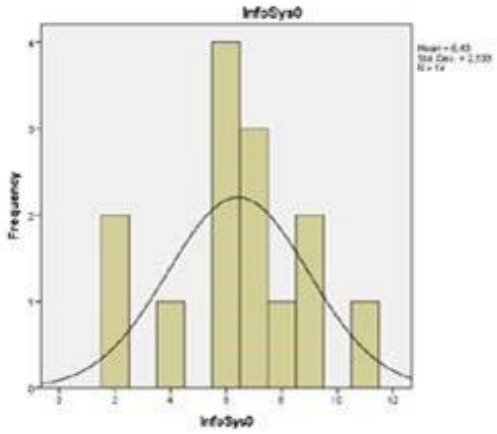
Figure17:pre assessment of authority figure18:post assessment of authority

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Activities0	13	2	10	75	5,77	2,488	6,192
Activities1	13	1	10	78	6,00	2,415	5,833
Valid N (listwise)	13						

Table23:owner of activity statistics

Infrastructure-information system:



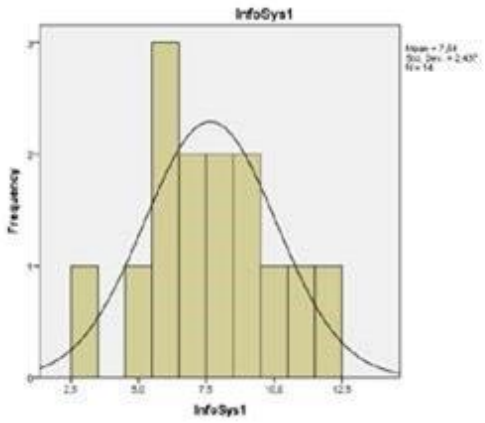


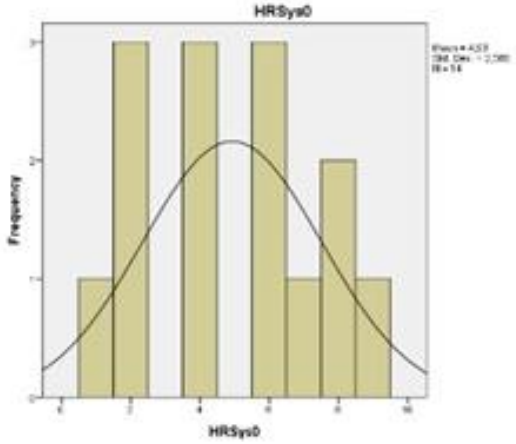
Figure19:pre assessment of info system figure20:post assessment of info system

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
InfoSys0	14	2	11	90	6,43	2,533	6,418
InfoSys1	14	3	12	107	7,64	2,437	5,940
Valid N (listwise)	14						

Table24:infrastructure of information system statistics

Infrastructure-human resource system:



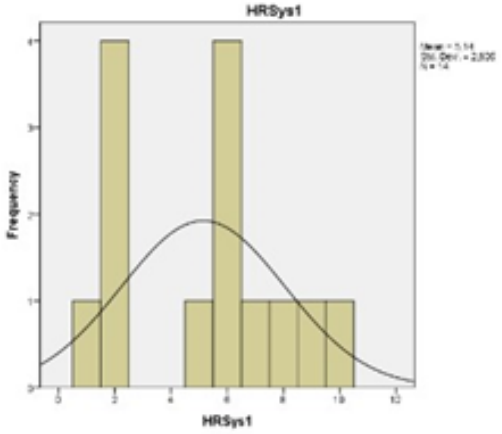


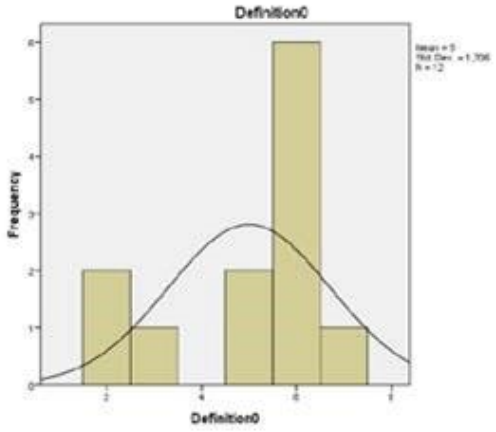
Figure 21:pre assessment of hr figure22:post assessment of hr

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
HRSys0	14	1	9	69	4,93	2,586	6,687
HRSys1	14	1	10	72	5,14	2,905	8,440
Valid N (listwise)	14						

Table25:infrastructure of human resource statistics

Metrics-definition:



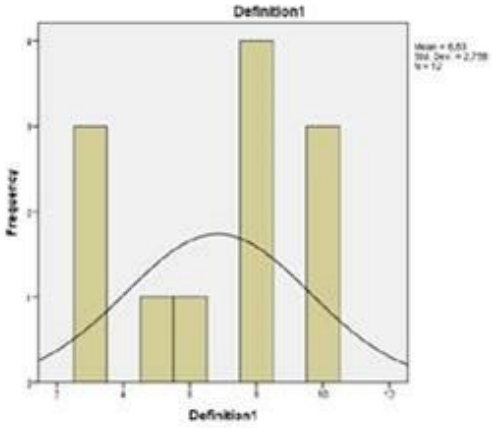


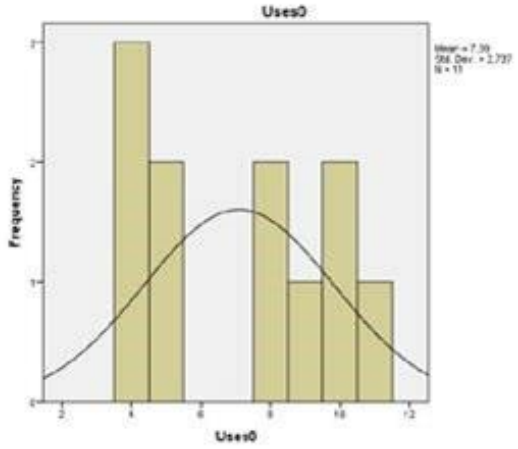
Figure23:pre assessment of definion figure24:post assessment of definition

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Definition0	12	2	7	60	5,00	1,706	2,909
Definition1	12	3	10	82	6,83	2,758	7,606
Valid N (listwise)	12						

Table26:metrics of defintion

Metrics-uses:



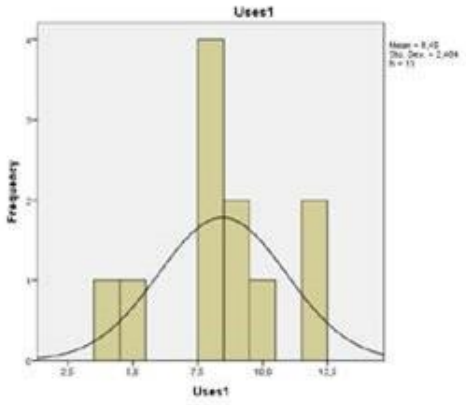


Figure25: pre assessment of uses

figure26:post assessment of use

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation	Variance
Uses0	11	4	11	78	7,09	2,737	7,491
Uses1	11	4	12	93	8,45	2,464	6,073
Valid N (listwise)	11						

Table27: Uses of metrics statistics

Chapter V: Discussion

- **Findings of the process of assessments**
- **Conclusions**
- **Suggestion for future research**

5.1 Findings of the process of assessments:

The findings of the statistical analyses performed over the data resulting from the process assessments performed using the PEMM. Among 13 sub-enablers, 5 of them show a significant increase when applying a Wilcoxon Signed-Rank test .This proves that already in an early stage of an implementation The results do not necessarily mean that people agree on the current level of maturity. However, it shows that there was an increase of maturity level for 5 sub-enablers, compared to the participants' own pre-assessments. Hence, regardless of what the post-assessment was, it can be concluded that the maturity of those 5 sub-enablers significantly increased during the BPMS implementation. The result of the Identity sub-enabler can be considered unexpected, since no official Process Owner role was going to be created. However, this could indicate that people related this role to similar roles. For instance, people could refer to the Subject Matter Experts or Product Owners who contributed to the development of the BPMS.

Moreover, the p-value of sub-enabler Uses is also close to being significant ($p < 0.05$). When relating this to the findings, sub-enabler Uses can be related to the Operational & Visual Management efforts, since these will have a contribution towards the use of the metrics,Therefore, this sub-enabler is expected to increase as the required developments are in place and start to be used by the business. In addition, although statistical analysis for the Documentation sub-enabler was not found to increase significantly, the interviews with the participants indicate an increase for that aspect, the BPMS project can lead to a significant increase in some certain aspects of process maturity.

5.2 Conclusions:

This research provides a holistic view on the positive relation of BPMS on the different aspects of BPMM. As we now know the research statement is-

“How business process management system impact on the business process management maturity of an organization applicant?

This thesis shows that the implementation of a BPMS has an impact on a broad set of capability areas as defined can be seen on the previous pages. Furthermore, the outcomes of the statistical test based on the PEMM show that the Purpose and Context of the process’ Design, the Definition of Metrics and the Information Systems (as a part of Infrastructure) have improved within the early stages of the implementation. Furthermore, the values related to the Identity of the Owner indicated an increase as well, although this was unexpected due to the absence of an official Process Owner role.

5.3 Suggestion for future research:

I faced some limitations completing this project. From these drawbacks, future researchers can learn a lot. In addition, I come up with some recommendations for future researchers from my experience completing this project.

 If possible, researchers could use a larger dataset to get more accurate result.

 Learn deeply about the design of BPMS system.

 Learn more and more about the factors.

 Increase knowledge about the organization system and what is this business for, will help a lot to get higher accuracy model.

 More browse about the topic and research based on this

Appendix:

Quesstionnair:

Implementation of BPMS after and before difference:

1. in design view does the purpose are related with the process?

- Agree
- Strongly agree
- Disagree
- No idea

2. Does the context of design are familiar with the process?

- Agree
- Strongly agree
- Disagree
- No idea

3. Does the documentation are fulfilled to make understand by customers in design view?

- Agree
- Strongly agree
- Disagree
- No idea

4. Performers are enough skilled to make the process?

- Agree
- Strongly agree
- Disagree
- No idea

5. Performers are enough knowledgeable about the process?

- Agree
- Strongly agree
- Disagree
- No idea

6. Does performers act accordingly based on skill and knowledge of the process?

- Agree
- Strongly agree
- Disagree
- No idea

7. Does owner make the identity for the process?

- Agree
- Strongly agree
- Disagree
- No idea

8. Does the owner satisfy the customer by making process according to activities?

- Agree
- Strongly agree
- Disagree
- No idea

9. Does owner make their authority in use of better result of the process?

- Agree
- Strongly agree
- Disagree
- No idea

10. Does the IT system help fully for the process make?

- Agree
- Strongly agree
- Disagree
- No idea

11. Does human resource system work with internal and external enterprises for the process?

- Agree
- Strongly agree
- Disagree
- No idea

12. Does whole process based on basic and describe it properly to the customer?

- Agree
- Strongly agree
- Disagree
- No idea

13. Does the performance of the process based on strategic goal set?

- Agree
- Strongly agree
- Disagree
- No idea

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