

The Impact of Strategic Management Tools and Techniques on Organisational Performance Management: Mid-Level Managers' Perceptions

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Strategic management and its factors are among the most important factors affecting the efficiency of business and increasing its competitive advantage among others. One of the most important components of this is the Business Intelligence System (BI). Concern in this regard has always been confined only to the views of senior managers, both in choosing the technology that helps the business to implement its strategic plan and put it in the scope of actual implementation in what works for the benefit and development of the business or regarding the (BI) system and its impact. This neglect of the perspectives of middle managers is the basis for this research, as it should be highlighted unlike researches that have been done before. The main purpose of this study is to evaluate BI systems as viewed by mid-level managers. Finally, this study concluded that from a medium-level perspective, a comprehensive strategic plan model can be made. This study also demonstrated the effectiveness of BI systems in improving the performance of business strategic management. After collecting and analysing data, the researcher found that there is a relationship between organisational alignment and business activities, and a relationship between organisational alignment and the efficiency of the CPM process. However, the researcher did not find possible ways to influence the organisational alignment itself.

Key words: *Business Intelligence (BI), Organisational Performance, Mid-Level Managers, Strategic Management.*



Introduction

It goes without saying that strategic management is one of the reasons for business success. It provides an opportunity for managers to reach the most favourable decisions in the business's interest through its various techniques. This is due to the multiple roles played by this strategic management as it is not only limited to developing a strategic business plan, but also follows up on the implementation of this plan and its results.

It should be noted here that the business intelligence system occupies a very important position among the strategic management tools for the advantages it provides to assist in making professional decisions in the service of business. BI systems also provide the company with ways to reach its goals by always providing the most recent information and data. All these privileges are what drew the attention of researchers and practitioners towards BI systems and their use to enhance the efficiency of decision making.

Gartner explained that strategic management in most companies tends to invest in BI systems due to the ongoing development of this system, and this continuation makes these systems the first choice for CIOs' when it comes to spending on company sales. Gartner also expects to increase global revenue for the analytics software market to US\$22.8 billion in 2020.

On the other hand, there are deficiencies in the work of BI systems in terms of accurate evaluation of investments, although these systems are considered to create a value of business. There are also other shortcomings of these systems regarding their interest in the financial performance of business and the preparation of administrative reports, despite the efforts of many companies to amend this.

As for the role of BI systems in relation to the organisational performance of the company, it works efficiently to combine management work with information technology. Hence, the organisational performance systems of the company can play a role in making the appropriate decision for the facility in its best form. Nevertheless, Johnson stated that he was not very interested in BI systems and did not know what would result from dependence on the company.

As for the topic of our research, which is the impact of strategic management systems on the efficiency of business, especially BI systems, Richards explained that research in this regard has always been limited to the views of senior managers while neglecting the views of middle-level managers, although their views may give a way to us to explore new aspects of BI systems. This is necessary to improve the company's performance and implement the plans that work in its best interest. As we said, this research attempts to answer a specific question, which is: to what extent can the effects of strategic management tools on managing organisational performance reach from the point of view of mid-level managers? Whereas, the role of these

managers in the organisation and in improving its performance cannot be ignored, as Richards said, recommending that research should be conducted targetting the impact of BI systems on OPM from mid-level managers.

This research will also shed light on bridging the gaps in previous research that did not partially cover the impact of SMTTs on OPM as it includes central practices in OPM planning and implementing organisational strategies and conducting measurements and analyses. SMTTs strongly support planning and measurement. However, not all SMTTs provide the capabilities that decision makers need. Consequently, an investigation of the effectiveness of SMTTs may indicate their importance for organisational performance.

Literature Review

Strategic Management Tools and Techniques (SMTTs)

Regarding the first study, it becomes clear that SMTTs are an unavoidable part of the company as they have many advantages both in improving decision-making efficiency or assisting managers in strategic management operations within the company. As the author of the study says: "Strategic management can be conceived as a set of theories and frameworks, supported by tools and techniques, designed to assist institutional managers in thinking, planning and behaving strategically" (p. 853). The researcher also suggested that SMTTs systems are not limited to one type or method, but they multiply over time and all share the goal of improving business and reaching its goals.

As for the result of the study conducted by the author, he concluded that SMTTs are considered the cornerstone of building companies and that the company should make the best use of this part to improve its performance, efficiency and quality of decision making. In this regard, another study of Avonina and Chalowski confirmed that SMTTs have many special privileges that would give the organisation a different position for the better.

Business Intelligence (BI)

As for the previous studies related to the system of business intelligence, there is a study that implies that this system was originally created through successive updates in the rest of the strategic management systems in the late nineties. As for the difference that occurred in companies as a result of using BI systems as well as other systems, the owner of the study has clarified here that there is a contemporary interest in the mechanism of the work of these systems and their impact on organisational performance. It is this concern that has found that these systems provide the most appropriate environment for decision-makers to do so in a way that serves the interests of the institution. BI systems provide opportunities for companies to integrate and analyse vast amounts of data as they seek to identify opportunities and threats.

Most BI systems include different technologies, such as databases, visualisation tools, and (OLAP), that help decision makers view, interpret, and manipulate subsets of data.

Moreover, studies in this regard regarding the advantages of BI systems revolve around clarifying 3 advantages as follows: Firstly, BI systems have become a first choice for business owners if they want to pursue management practices and develop organisational performance. Secondly, BI systems have evolved in recent times with the development of the Internet, which has provided the opportunity to increase the sources of information of these systems, which they use to collect, analyse and store data. This gave it the ability to contain data no matter its size and mobile BI. Third and lastly, these systems are equipped with an analysis feature that enables them to prepare forecasting reports and inquire about what is related to the strategic management of the institution.

However, these characteristics did not prevent some institutions that relied on these systems from being exposed to failure to use them. Statistics showed that 70% to 80% of BI projects failed to achieve their expected returns, which motivated researchers and practitioners alike to evaluate a set of strategic and tactical methods to measure the effects of BI systems.

Organisational Performance Management (OPM)

The third part with regard to previous studies includes what Williams mentioned, where he said that the value of BI's business is clearly visible within the Department of Commercial Operations. Hence, the OPM concept has emerged as an ideal context for demonstrating BI value for a company. Whereas, with the development of the Internet and the huge amount of information that can be accessed through it, competition has increased for the survival of companies. Also, the benefits of BI systems show their benefits in an evolutionary manner that appears on the strategic management in the organisation and not in the form of tangible benefits.

Waiganjo also explained in his study that it is difficult to measure organisational performance as this measurement depends on several factors: profitability, productivity growth, and employee satisfaction. As for the study conducted by Kargar and Parnell, they defined organisational performance as assessing the good or bad performance of the facility, financially or otherwise. And for Gartner, it tended to define it as a term that is based on all the processes, methodologies, standards and systems necessary to evaluate and manage the organisation and follow up its performance.

Some other studies have also indicated that the process of measuring and managing organisational performance is a complex and difficult matter that requires a large arrangement and practice and familiarity with how to overcome the effects of that measurement, as it is considered one of the challenges facing the institution. To do this, steps must be taken, the most

important of which is the identification of key performance indicators. Organisational performance is measured by various methods and tools, including BI systems. However, the relationship between BI systems and organisational performance is still not understood.

The Role of Middle Management

As for the previous studies that pertain to the role of middle management in the establishment, there are those who said that the development of organisational performance needs the cooperation of all departments in the institution, whether senior or intermediate, in order for the institution to be able to succeed in developing the strategy and making the right decisions.

When it goes to the definition of mid-level managers, Schmid and others defined them as: these people whose tasks are to combine access to senior management and knowledge of operations” (P. 143). Supervision is from the first level, and accordingly, the direct supervision function in most institutions belongs to the members of middle management, and the middle managers have also been referred to as: those who specialise in dealing with lower-level employees and who are responsible for addressing management priorities and driving performance.

However, Scheffer and Ginterre emphasised that the tasks of middle managers in the institution are as important as those of senior managers in the strategic planning and decision making process. The current studies also emphasise the importance of cooperation between different levels of management for the success of the institution, noting that the participation of different levels of management in the strategic planning process is important to acceptance of the company's strategies among its employees and thus works for the common good of the institution.

Concerned for the importance of the role of middle managers in companies, it can be described as a link between senior management and workers at the lower level. They also participate in facilitating operational matters and implementing the strategies followed by the institution – but mainly they are also working to encourage operational staff and increase their morale in order to achieve organisational goals.

Previous studies also showed that middle managers are considered one of the most important components of OPM, due to their ability to control the operational efficiency of the company, which results in the development of the strategic plans of the institution. Jansen and Samuel, of the middle managers, mentioned one of the reasons why companies succeed in actual experiences is because the more the company benefits from their efforts, the faster it will reach its goals.

Research Model and Hypotheses

This research is based on a model and hypotheses that support the subject of the study, namely: the impact of SMTT systems on the organisational performance of business from the point of view of mid-level managers. In order for the researcher to cover the important aspects of this topic in detail, he relied on the findings of the researcher Hartl et al (as shown in Figure 1). The figure shows the structures that have a clear effect on both SMTTs and thus on OPM through the effects of both BI and CPM. The researcher was able to find that the main structures identified for OPM are closed-loop business processes, organisational alignment, and overall process effectiveness and efficiency. As for BI systems, the main structures identified were data quality and availability, and pre-defined data analysis. All of this led to the researcher's reliance on formulating hypotheses for the research based on what Hartel found, as follows:

H1: Quality data is the primary influence on closed-loop business processes.

H2: The second effect of closed-loop business operations is to analyse this data after it has been identified and aggregated.

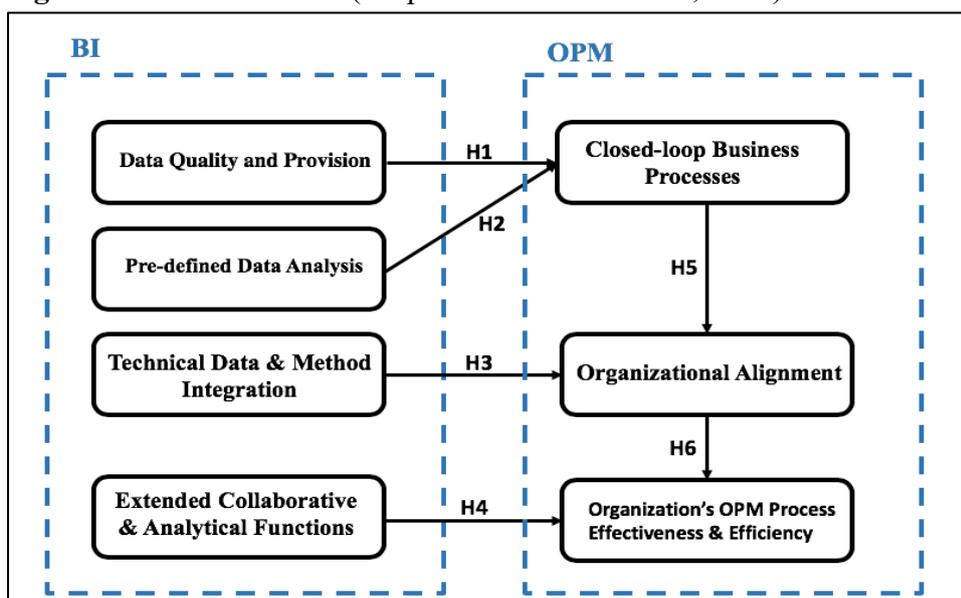
H3: Organisational alignment most favourably affected by it is technical data and road integrity in BI systems.

H4: The efficiency and nature of the organisation's OPM business is determined by the appropriate and correct work of the expanded analytical functions.

H5: The efficiency and nature of the OPM business is determined by another limitation: closed-loop business operations.

H6: The latest determinants of OPM's efficiency and nature of work for the organisation are organisational alignment and its working mechanism.

Figure 1. Research model (adopted from Hartle et al., 2016)



Research Method

Instrument Development

The researcher relied on data collection tools suitable for the research and its aspects. First, the most important previous studies dealing with such a topic were presented. Then, the researcher designed a response scale consisting of 7 points, which consist of (does not apply at all that takes No. 1) until (it applies strongly that takes No. 7). Then the next step was for the researcher to use the pre-test tool as he conducted a test on a sample of 10 industrial experts, BI users and specialised professors. Then the researcher analysed the answers he obtained.

Data Collection

This paper deals with research on a specific topic which is: The impact of SMTT systems on the OPM from the point of view of mid-level managers. Because this topic is important and wide in the field of business management, it was necessary to collect the data required to reach the target result by doing a questionnaire. The researcher collected a sample consisting of mid-level managers who work in facilities that depend on BI systems. In order for the researcher to do this, he did a search on the Internet to collect this data and we formulated a questionnaire to cover all research hypotheses. This was done by the researcher following a few steps, firstly, sending invitations to these managers using the email to invite them to answer the survey questions. Second, the researcher received the sent answers, and the number was 120, complete. Third, the researcher analysed the data obtained after examining it and excluding others from it on what contains an error from the sample. Finally, the researcher used a partial square approach (PLS), using SmartPLS, to complete data analysis and hypothesis testing. (Table 1 shows the result of the questionnaire search tool).

Table 1: Descriptive statistics and demographics of participants (N = 120)

Item	Frequency	Percentage (%)
Gender		
Male	48	40
Female	72	60
Age (Years)		
18–20	2	1.66
21–30	15	12.5
31–40	38	31.66
41–50	26	21.66
51–60	27	22.5
61–70	9	7.5
71 and over	3	2.5
Company Size (number of employees)		

1 - 99	26	21.66
100 - 249	18	15
250 - 999	26	21.66
1000 - 2999	20	16.66
3000 - 4999	11	9.16
5000 and more	19	15.83
Company Size (revenue)		
Less than \$10 million	29	24.16
\$10 to \$50 million	22	18.33
\$50 to \$100 million	25	20.83
\$100 million to \$1 billion	16	13.33
\$1 billion +	19	15.83
Did not disclose	9	7.5
Years of Experience Using BI systems		
Less than 1 year	19	15.8
1 to 5 years	36	30
6 to 10 years	39	32.5
11 to 15 years	13	10.83
16 to 20 years	6	5
21 years or longer	7	5.83
Industry Type		
Banking and Financial Institutions	11	9.16
Construction	9	7.5
Education/Higher Education	6	5
Electronics	2	1.66
Energy and Petroleum	5	4.16
Government military	9	7.5
Healthcare	22	18.33
IT Services	12	10
Insurance	3	2.5
Professional Services	10	8.33
Real Estate	3	2.5
Retail	15	12.5
Telecommunication	3	2.5
Transportation	11	9.16
Organisation Type		
Public	63	52.5
Private	57	47.5

Research Results

The Model Measurement

The researcher measured the model by using it for the Confirmed Factor Analysis (CFA) vs. Micro-Partial Squares (PLS) technique. This is to ensure the correctness of the overall model. And so, the researcher can know the accuracy of the scale. As explained by DeVellis, alpha Cronbach (CA) above 0.7 was acceptable; alpha Cronbach of CLBP, OA, PEF, DQP, PDDA, TDDI and ECAF were 0.90, 0.88, 0.87, 0.91, 0.90, 0.91 and 0.91 respectively. This confirms that the reliability of all formulations is of a high standard (as shown in Table 2). As for the internal reliability measurement, the compound reliability (CR) was used, as the results showed that all combinations have high internal reliability values exceeding 0.70 (as shown in Table 2).

Table 2: Results of the reliability and validity tests (N = 120)

	Number of items	AVE	Composite reliability	R ²	Cronbach's Alpha
CLBP	7	0.632	0.932	0.519	0.902
OA	7	0.534	0.889	0.613	0.889
PEF	6	0.540	0.874	0.748	0.871
DQP	7	0.668	0.933		0.916
PDDA	4	0.781	0.935		0.907
TDDI	4	0.737	0.918		0.918
ECAF	6	0.803	0.942		0.918

To measure the validity of the distinction, the researcher made cross-loads. Table 3 shows these values. The extracted mean variance (AVE) was also calculated to measure the convergence validity. The result, as shown, is that the AVE values for all combinations are much higher than 0.50.

Table 3: Cross-loading (N = 120)

	CLBP	OA	PEF	DQP	PDDA	TDDI	ECAF
CLBP1	0.726						
CLBP2	0.826						
CLBP3	0.814						
CLBP4	0.890						
CLBP5	0.738						
CLBP6	0.764						
CLBP7	0.751						
OA1		0.773					

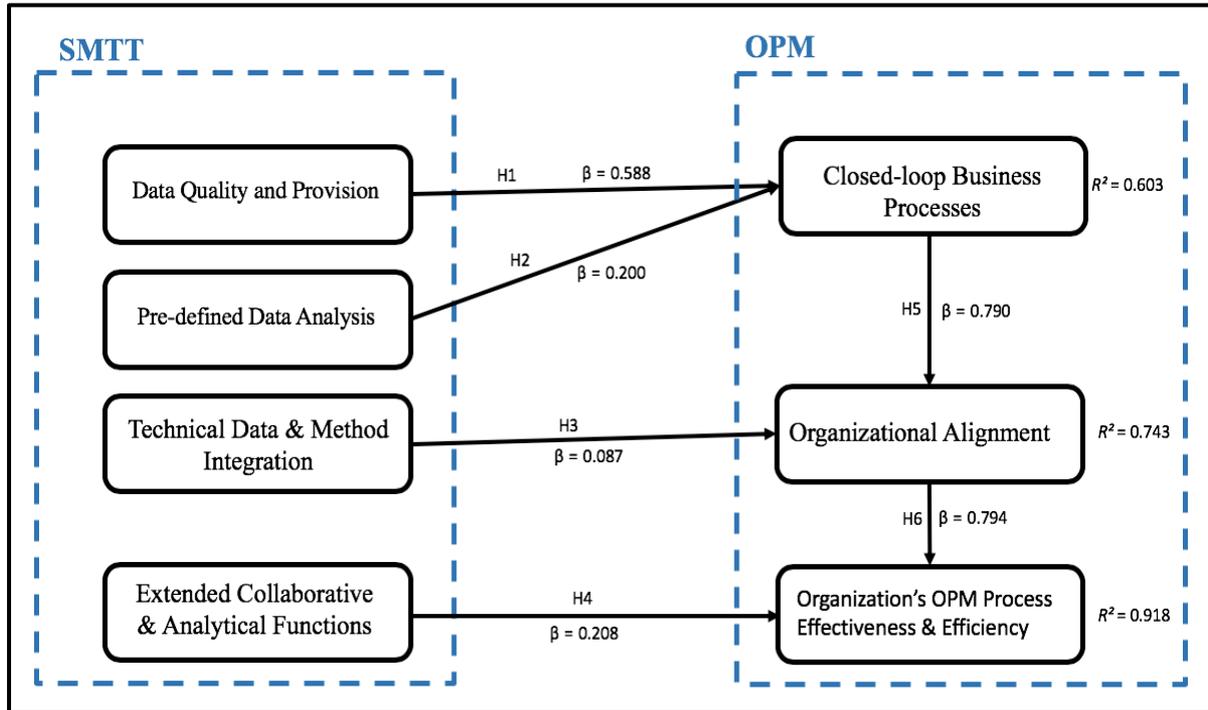
OA2		0.838					
OA3		0.778					
OA4		0.808					
OA5		0.775					
OA6		0.707					
OA7		0.742					
PEF1			0.810				
PEF2			0.663				
PEF3			0.881				
PEF4			0.709				
PEF5			0.850				
PEF6			0.760				
DQP1				0.796			
DQP2				0.734			
DQP3				0.785			
DQP4				0.884			
DQP5				0.883			
DQP6				0.835			
DQP7				0.793			
PDDA1					0.890		
PDDA2					0.871		
PDDA3					0.903		
PDDA4					0.871		
TDDI1						0.909	
TDDI2						0.886	
TDDI3						0.894	
TDDI4						0.894	
ECAF1							0.872
ECAF2							0.831
ECAF3							0.835
ECAF4							0.822
ECAF5							0.867
ECAF6							0.817

The Model Estimation

As for the evaluation of the model, the researcher used SmartPLS and presented the criteria R^2 , with the analysis of the path factor [50]. R^2 does an important job which is to preview the quality of the structural model.

In this study, its value shows the external latent variables (CLBP, OA, DQP, PDDA, TDDI, and ECAF) group effects on the internal latent variable (PEF). The results also show that R^2 for PEF is 0.748 and is therefore much higher than the acceptable threshold of 0.25, which indicates that the overall model is itself acceptable. (As shown in Figure 2).

Figure 2. Results of PLS analysis (n = 120).



To evaluate the relationships between combinations in a structural model, the researcher also used the path parameter to evaluate. The results show five tracks with significant relationships (DQP → CLBP and PDDA → CLBP and ECAF → PEF and CLBO → OA and OA → PEF) and only one path without significant relationship (TDMI → OA), (as shown in Table 4).

Table 4: Results of PLS analysis (N = 120)

Structural paths in model	PLS path coefficient	t-statistic	p-value	Significance level
H1: DQP → CLBP	0.472	3.108	0.002	**
H2: PDDA → CLBP	0.276	1.624	0.033	*
H3: TDMI → OA	0.190	2.137	0.503	NS
H4: ECAF → PEF	0.276	3.718	0.000	***
H5: CLBP → OA	0.633	7.438	0.000	***
H56: OA → PEF	0.656	10.840	0.000	***

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$. NS, not significant.

The p -value is used to validate the significance value in hypotheses testing. A small p -value (typically ≤ 0.05) represents strong evidence for discarding the null hypothesis, indicating that the hypothesis is supported. In this study, bootstrapping was used to generate p -values for all paths, which for H1, H2, H4, H5, and H6 were below 0.05, indicating that H1, H2, H4, H5, and H6 are supported.

Discussion

Through this research, the researcher was able to access the following:

There is a strong relationship between SMTT external variables and OPM internal variables as they help to predict them. Thus, any development that occurs in SMTTs will lead to an evolution in OPMs. The results also indicate that there is also a relationship between the positive impact on closed-loop business operations such as the quality and availability of data and the analysis of predefined data and the cost-per-thousand-impressions basis.

The study emphasised that the relationship between technical data, method integrity, and organisational harmonisation is not important. Whereas, as we have demonstrated through previous studies, SMTT like BI can provide tools and methods that help an organisation achieve its goals, but our study has demonstrated the opposite. Moreover, it was clarified that in the relationship between closed-circuit business processes and organisational alignment there is a positive correlation between them as this has been proven by experience.

The study also showed that there is a close correlation between the effectiveness and efficiency of the CPM process, organisational compatibility, and extended collaborative and analytical functions. The mechanism to reach the effectiveness and efficiency of cost-per-thousand impressions operations occurs when data integration is automated and exchanged, and when strategic planning is planned across all business units.

Implications for Practice and Theory

The importance of this study is that it mainly helps in developing organisations and increasing the chances of business success. Whereas, it provides an opportunity for any strategic administration to choose the most suitable system for it among SMTTs.

As for the theoretical significance of this research study, it boils down to providing an opportunity for those looking for OPM models and frameworks – to benefit from the insights of this study to ensure focus outside the BI factors used in this study, and thus absorb more SMTTs.



Conclusion

This paper deals with the topic of the impact of SMTTs on OPM from mid-level managers' perspective. It has reached the desired results, as it has been proven by statistical evidence that there is a positive correlation between SMTTs and OPM in the organisation. Although the study was unable to arrive at technical data and the integrity of the method, which has a strong impact on organisational compatibility, the cause of this should be further investigated. In general however, the results of this study confirm the value that SMTTs add to their remarkable contributions to helping the organisation achieve its strategic goals and hence its full success.

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