

Information technology management practices: A descriptive analysis of the challenges facing information technology managers

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Abstract

The paper intended to study managerial impediments which may hinder effective managerial practices by IT managers and their co-workers. The managerial drivers included: rules, initiatives, emotions, immediate action and integrity. This paper described the drivers of managerial practices by managers in information technology departments. The findings on Perception of IT managers and administrators towards the drivers of managerial practices by IT managers put a lot of emphasis on immediate action with regards to emergencies and driver of rules (lack of commitment) to explain the impediments faced by IT managers. Purpose: This research sought to find out if IT managers were facing challenges resulting from administration and management practices. This research was carried out to investigate on the impediments facing IT managers. The study involved effective drivers of management adopted from Sabourin (2009) experiential leadership model, with managerial drivers of; rules, initiatives, integrity, immediate action and emotions to better identify key obstacles that face information technology managers and their management practices.

Methodology: A mixed method of qualitative (focus group discussion) and quantitative (a survey with a questionnaire) approaches was applied to this study. These involved group discussion of IT technicians and administrators in the selected organizations in a Canadian province. The total number of surveyed managers was 149.

Findings: With regards to the drivers of management practices, it was established that the driver of immediate action holds the highest consideration towards managerial practices by IT managers. This driver had, a frequency recorded 131, mean of 3.1897, median of 3.200 and standard deviation of 0.75874. The driver of rules was after analysis found to have a frequency of 132, a mean of 2.5773, median of 2.500 and standard deviation of 0.72983. The driver of emotions had a frequency of 131, mean of 2.5530, median of 2.400 and standard deviation of 0.71773. The driver of integrity had a frequency of 130, mean of 2.6969, median of 2.600 and standard deviation of 0.70603. The driver of initiatives had a frequency of 130; mean score of 2.8923, median of 2.800 and standard deviation of 0.80602. The summary of the report has been presents in table 2.

Conclusion: This study focused on the challenges experienced by IT managers and co-workers as they execute their management practices. Taken as a whole, our findings suggest that, there are some impediments associated with drivers of Emotions, immediate action, Rules and initiatives as well as integrity. Even if these obstacles are in multiple levels to develop and promote IT management practices, it is imperative to study with more depth obstacles faced by IT managers in order to better understand how the obstacles they face represent an impediment to the development of their competencies and effective performance in IT.

Paper type: Research paper

Keywords: Managerial drivers, managerial practices, Information technology (IT), Information management

1.0 Introduction

The current field of management has through research, seen the need to study the rising challenges that impede information technology management practices. Due to globalization that has come as a result of the

society accepting and making use of the technological products and advancements, there have arisen a number of management hindrances that face the information technology specialists. According to Martin (2009), there is an urgent need to investigate and underscore the overall importance of information technology managers and their co-workers as away to help create effective management practices. These dimensions, as inferred by Yoo et al., (2006) are repository to human resource management in organizations and information technology management being an important department within the organization, will in one way be affected by management decisions and practices of the top decision making bodies within the organization (Huub, 2008; William, 1980; Barbara, 2001; Caudle, 1991). The way and the manner in which information technology managers exhibit their management practices are determined by a number of factors and drivers. Some of these factors according to Bob (1994) include performance management, best management practices, information technology products, services and delivery processes.

Information technology (IT) products, services, and delivery processes are important resources for results-driven government programs and operations (Drucker, 2007; Gee-woo, 2005; Kara, 2007). For purposes of this research, information technology (IT) also includes the organizational units and contractors primarily responsible for delivering IT. Line managers, the operational customers relying on IT products and services and information technology managers themselves, want to know "How are information technology products and services, including the information infrastructure, supporting the delivery and effectiveness of the enterprise's (agency) programs?" As pointed by Philip (2003), successful organizations rely heavily on performance measures to operationalize mission goals and objectives, quantify problems, evaluate alternatives, allocate resources, track progress, and learn from mistakes (Lucas, 1975; Hal, 1992; Yoo, 2006; Thomas, 2009). Operational customers and IT managers in these organizations form partnerships to design, manage, and evaluate IT systems that are critical to achieving improved mission success coupled with effective managerial practices (Kling, 1980; Keen, 1992).

How IT performance management and practice is designed, implemented, and sustained in each organization depends on many factors, including; the organization's culture, whether the management practices supports information technology performance management (Lesile, 2007, Yoo, 2006; Huub, 2008) and reflects this support in its program and personnel appraisal and reward systems which include; the importance of IT to program (mission) delivery, the accepted utility of IT in the organization, the allocation of IT responsibilities in the organization, including whether IT is centrally managed or responsibility is dispersed and the availability of resources (e.g., skills, people, tools, money) to support performance management practices.

1.1 Purpose

The relevance and reliability of an Information technology system is evaluated based on the quality of products that comes out after successive training in managerial practices. The rise of IT managers has in a number of ways established the need to have review into their management theories and practices. This research therefore, sought to find out if IT managers were facing challenges resulting from administration and management practices. This research was carried out to investigate on the impediments facing IT managers. The study involved effective drivers of management adopted from Sabourin (2009) experiential leadership model, with managerial drivers of; rules, initiatives, integrity, immediate action and emotions to better identify key obstacles that face information technology managers and their management practices.

1.1.2 Research Objectives

1.1.2.1 General objective

The general objective was to critically establish the managerial challenges that impede IT managers while executing their leadership and management functions.

1.1.1.2 Specific objectives

- (i) To identify the status, problems and the needs of further managerial orientation within IT related organizations and departments.
- (ii) To investigate how IT managers execute their functions as they motivate junior employees and personnel.
- (iii) To establish how effective and relevant managerial drivers will be adopted by IT managers.

1.1.3 Hypothesis Formulation

H₁: Good and well structured policies and quality management approach by IT managers will have a positive impact on the performance of their employees in relation to driver of rules.

H₂: Given the nature of managerial impediments, IT managers and professionals would face challenges when initiating new changes in relation to driver of initiatives.

H₃: Stimulating the emotions of employees can help create better results and spur performance of an organization in relation to drivers of emotions.

H₄: Given the ever rising needs and decision to be made by managers, when faced with challenges managers will rely on the driver of immediate action.

1.1.4 Research Questions

In regards to the managerial practices adopted by IT managers and the impediments they face while exercising their managerial practices, the following questions were formulated,

Q₁ Would there be a tie-in between the IT professionals perceptions of their own organizations and the impediments related to drivers of rules?

Q₂ Would there be a link between the IT professionals perceptions of their own organizations and the impediments related to drivers of initiatives?

Q₃ Would there be a linkage between professionals perceptions of their own organizations and the impediments related to drivers related to emotions?

Q₄ Would there be a connection between the professionals perceptions of their own organizations and the impediments related to drivers related to immediate actions?

2.0 Literature Review

2.1 Overview of the Theoretical Framework

The current managerial requirements in technology development and innovations have installed a lot of pressure on IT managers to seek to perform to their best level. There are some key areas in IT that these managers have to monitor constantly and periodically to avoid any communication lapses and other technical hitches that accompany information delivery. These include; management practices, human resource control and information management

2.1.1 Management Practices: The Foundation of IT Performance Management practices

IT performance management and measures are considered subsets of overall performance management systems (Kara, 2007). In structuring an effective approach to performance management, it is also important to (i) differentiate between IT's impact on intermediate versus final program outcomes, (ii) use a good balance of different kinds of IT measures, (iii) understand that measures may differ by management tier within an organization, and (iv) evaluate both the overall performance of the IT function within an organization and the outcomes for individual IT investments (Gee-woo, 2005; Kara, 2007).

This approach suggests three primary practice areas that characterize IT performance management: IT systems with agency missions, goals, and programs; measures that determine how well IT is supporting strategic, customer, and internal business needs; and performance measurement mechanisms at various

decision-making levels within an organization. Two supporting practice areas are important to keep the overall IT measurement process working which provide performance data that is accessible, reliable, and collected in the least burdensome manner (Drucker, 2007; Gee-woo, 2005; Kara, 2007). The benefit of effective automated data and management information systems is that performance information can be effectively and efficiently used to make strategic, managerial, and day-to-day operational decisions. In addition, a commitment to the concept of continuous improvement used for organizations is essential for maintaining effective IT managerial practices (Keen, 1980).

Use of an IT results chain is only as good as the clarity and specificity of the overall organizational goals and objectives. Leading organizations build consensus among program managers, IT managers, customers, stakeholders, and staff to establish joint ownership for performance management. They work together to achieve a common understanding of goals, objectives, measures, and anticipated outcomes (Rapport, 1970). As a practical matter, those who will judge the success of programs and the supporting functions should agree on the links in the results chain from its purpose to the vital few measures (Wren, 1994). IT goals and measures flow directly from strategic goals. IT managers and staff do not develop performance management systems that optimize operational customer results without considering an enterprise wide perspective (Yoo, 2006). IT goals and measures in support of individual operational customers must meet IT department or unit objectives. In turn, IT department or unit objectives must map directly to both programmatic and enterprise wide strategic directions or goals (Drucker, 2007; Gee-woo, 2005; Kara, 2007). The result is that IT goals and measures track in a seamless fashion back to enterprise strategic directions or goals. If such mapping is not obvious when comparing measures and high-level goals, the IT function is probably not measuring the right things.

2.1.2 Information management

Implementing information technology solutions in a complex and ever-changing organizational environment is never easy (Graeme & Martin, 2009). The challenges inherent in information management projects mean that new approaches need to be taken, if they are to succeed. Users don't understand systems (Muhammad et al., 2009). When presented with six different information systems, each containing one-sixth of what they want, they generally rely on a piece of paper instead (or ask the person next to them). Educating staff in the purpose and use of a disparate set of information systems is difficult, and generally fruitless (Libicki 1995). The underlying goal should therefore be to deliver a seamless user experience, one that hides the systems that the information is coming from (Young-Mi, et al., 2007). This is not to say that there should be one enterprise-wide system that contains all information. There will always be a need to have multiple information systems, but the information contained within them should be presented in a human-friendly way (Libicki 1995; Tanya & Huub, 2008).

Successful information management is about organizational and cultural change, and this can only be achieved through strong leadership (Kendall et al 1987). The starting point is to create a clear vision of the desired outcomes of the information management strategy. This will describe how the organization will operate, more than just describing how the information systems themselves will work. Effort must then be put into generating a sufficient sense of urgency to drive the deployment and adoption of new systems and processes (Libicki 1995). Stakeholders must also be engaged and involved in the project, to ensure that there is support at all levels in the organization. This focus on leadership then underpins a range of communications activities that ensure that the organization has a clear understanding of the projects and the benefits they will deliver (Kraemer et al 1981). When projects are solely driven by the acquisition and deployment of new technology solutions, this leadership is often lacking. Without the engagement and support of key stakeholder outside the IT area, these projects often have little impact.

In practice, anyone looking to design the complete information management solution will be trapped by 'analysis paralysis': the inability to escape the planning process. Organizations are simply too complex to consider all the factors when developing strategies or planning activities. The answer is to let go of the

desire for a perfectly planned approach (Robert et al., 2009). Instead, project teams should take a 'journey of a thousand steps'. This approach recognizes that there are hundreds (or thousands) of often small changes that are needed to improve the information management practices across an organization. These changes will often be implemented in parallel (Gee-Woo et al., 2005).

2.1. 3 Conceptual framework

To develop our conceptual framework, the researcher explored the previous model developed by Sabourin (2009) on the drivers necessary for effective performance. This model consisted of the five drivers namely; rules, emotions, immediate action, initiatives and integrity. These drivers have been presented in the diagram below. The following is a brief description of the drivers as inferred by Sabourin (2009)

(i)Rules: This deals with the clarification and alignment of the manager's objectives. The driver gathers variables that refer to factual and rational analysis of given situations. This perspective leads to concept forming and formulation of generalizations that integrate the observations and the reflections. The economic planning and the analysis are prevailing in this dimension. Obstacles deal with figures, figures and protocols. Decision-making is based on facts and abstract principles.

(ii)Emotions: The driver of emotions deals with getting a commitment to the manager's objectives by its employees. This driver gathers variable dealing with topic such as fetching a commitment, clarifying problems, reconciling the divergent points of view and establishing consensus. In this second situation, we make a thoughtful observation that consists of making observations on the experience lived by the persons and of thinking about their meaning.

(iii)Immediate Action: The driver of immediate action gathers variables that reflect creating value-added action or immediate actions in response to urgent matters in the execution of objectives. It addresses concrete action and those that allows rapid actions on small scale to obtain quick results. Thus, the variables deal with quick decision taking without respect to an established plan.

(iv)Initiatives: The driver of initiatives deals with translating managerial objectives into concrete projects for employees. It gathers variables dealing with introduction of new projects and ideas that results in more willing and more capable employees. This third driver relies on the active experiment of initiatives; realize projects and continuous improvements to the existing activities.

(v)Integrity: The driver of integrity deals with executing objectives in the context of integrity of values and principles. It gathers variables associated with executing objectives in respecting organizational values and principles. These variables refer to obstacles faced concerning organizational values. This is the capacity to realize the organization objectives in the respect of the integrity under pressure.

3. 0 Research Methodology and Design

3.1.1 Study design

The research involved qualitative and quantitative studies to explore the research objectives and findings. The use of a "mixed-methodology" approach, both qualitative and quantitative methods, benefited the researcher by giving a wider view and more evidence to analyze the issues. A focus group and a survey were involved in the respective stages (qualitative and quantitative) of this research in Canadian province. Firstly, focus group (IT technicians) findings served the purpose of providing information for the next stage. The data gathered from the focus groups was analyzed to identify how IT specific themes match the variables in the identified in the literature. Secondly, an online survey was used to explore in depth some of the impending issues which IT managers face while executing their objectives.

3.1.2 Participants Sample

The eligible study participants were degree prepared and qualified IT technicians and administrators from various IT systems and institutions operating within the Canadian province selected for study. For the specific purpose of this study, a survey of 149 information technology managers was completed and analyzed using the descriptive statistics analysis for which 5 categories of obstacles faced by information technology managers were identified.

Before undertaking this study, we developed a specific instrument capable of measuring management practices adopted by information technology managers in their organizations. To do so we completed a set of 15 focus groups with information technology managers to survey from a qualitative perspective, the set of obstacles that they faced. They were gathered under the 5 categories of the previous research carried out by Sabourin (2009).

3.1.3 Focus groups with managers to identify managerial obstacles

Before undertaking this specific study, we completed focus groups with information technology managers to list the various obstacles they face from each of the drivers previously identified. Fifteen focus groups were conducted with an average of 10 information managers per group to identify obstacles faced by managers. We identified 5 obstacles from each of the 5 drivers totaling to 25 obstacles. The obstacles were selected based on the frequency among the participants for each of the focus groups. The obstacles identified were used as input to elaborate the measurement instrument related to obstacles.

3.1.4 Development of a measurement instrument

We further developed an instrument tool to measure the role of the 25 obstacles that were identified with managers in focus groups. We used the verbatim of the focus group to elaborate a survey to validate these obstacles. A pre-test of questionnaire was administered and the questions were sequentially adjusted with fifteen groups of approximately 10 managers per group before being rolled out to a larger sample of managers. Several adjustments were made in these 5 pre-test to insure the statistical behavior of each questions. The table below presents each of the 25 questions that were completed by the participants. This has been presented in table 2.

3.1.5 Surveys of information technology managers

The step 4 consisted of surveying a group of 149 managers in a governmental Department of a Canadian province. The participants were all managers and project managers with an information technology background and were in charge of supervising information technology projects. The group was selected to insure the homogeneity of the respondents in terms of origins, task and functions.

In the specific context of this research, we surveyed this specific group of managers in public services going through the context of information management to better understand obstacles facing information technology managers. These managers were undertaking transformation of their administrative systems with information technology activities in government institutions.

3.1.6 Data Analysis

For the purpose of this research, data analysis was descriptive in nature. To simplify the interpretation, degree of agreement with statements was aggregated into two categories of yes and no. Responses were analyzed as single cohort for the respective obstacles and variables that constituted the drivers. Online survey data were downloaded to an excel spreadsheet and then imported into standard statistical package for social sciences software for descriptive analysis. Responses were categorized into two general categories of "Yes", and "No" to simplify data interpretation. Incomplete surveys were included in the analysis, provided that the basic demographic information and a response to a particular question were provided.

4.0 Findings and Results

4.1.1 Results

One hundred and forty nine (149) online survey accesses were recorded during the designated survey collection period. This represents 45% of all IT managers practicing in Canada. None of the surveys were

found to contain no responses or respondent duplicated survey attempts and thus none was neglected. We noted that not all participants provided responses to all the survey questions.

4.1.2 Frequency demographics based on research variables with regard to managerial practices adopted by IT managers

The frequency demographic and respondents characteristics are summarized in table 2. This was based in the years of practice in administrative and management positions since commencing the employment. The analysis of the data involved a purely descriptive analysis, which had frequency, percentage, valid percentage and the means of central tendencies which included mean, median and standard deviation (Table 3).

4.1.2.1 The driver of rules

Below is a description of what the data gathered from the survey regarding each of the variables of this driver. The driver had variables labeled V_{29} to V_{33} . With regards to V_{29} it was noted to have mean score 2.28, median of 2.00 and standard deviation 0.844. V_{30} : noted a mean score 2.02 median of 2.00, and standard deviation 0.933. V_{31} : the variable came out with a mean score 2.54, median 2.00 and standard deviation 0.668. V_{32} : had noted mean score 3.08, median of 3.00 and standard deviation 1.373. V_{33} : emerged with a mean score 2.99, median of 3.00, and standard deviation 1.190.

4.1.2.2. The driver of emotions

The driver had its variables labeled as V_{34} to V_{38} . V_{34} : had a mean score: 2.61 and, median of 2.50 and, standard deviation: 0.862. V_{35} : noted to have a mean score 2.50, median of 2.00 and standard deviation 0.906. V_{36} : was observed to have a mean score 2.86, median of 3.00 and standard deviation 0.906. V_{37} : only reported a mean score of 2.24, median of 2.00 and standard deviation 0.901. V_{38} : after analysis, we noted a mean score of 2.36, median of 2.00, and a standard deviation of 0.934.

4.1.2.3 The driver of initiatives

The driver had important variables labeled V_{39} to V_{43} . V_{39} : For this variable the median score is 2.55, median of 2.00 and the standard deviation is 1.014. V_{40} : noticed a mean score 2.92, median of 3.00 and standard deviation 1.064. V_{41} had a mean score 2.77, median of 3.00 and standard deviation 1.020. V_{42} : had a mean score is 3.26, median of 3.00 and the standard deviation is 1.118. V_{43} : From the data analysis, the mean score 2.99, median of 3.00, standard deviation 1.079.

4.1.2.4 The driver of immediate action

The driver had variable labeled V_{44} to V_{48} . V_{44} : From the analysis, this variable had a mean score of 2.92, median of 3.000 and standard deviation of 1.123. V_{45} : scooped a mean score was of 3.34, median of 3.00 and standard deviation 1.152. V_{46} : The analysis of the data gave rise to a mean score 2.93, median of 3.00 and standard deviation 1.210. V_{47} : This variable screened a mean of 3.80, median of 4.00 and a standard deviation of 1.137. V_{48} : managed to hold a mean score of 2.94, median of 3.00 and a standard deviation 1.334.

4.1.2.5 The driver of Integrity

Under this driver there were variables labeled V_{49} to V_{53} . V_{49} : after analysis had a mean score of 2.61, median of 3.00 and standard deviation 0.984, V_{50} : screened a mean score of 2.89, median of 3.00 and a standard deviation 0.954. V_{51} : Overall, this had a mean average score of 2.72, median of 3.00 and standard deviation 0.901. V_{52} : was noted to have a mean average score of 2.31, median of 2.00 and standard deviation of 1.010. V_{53} was observed to have a mean score is of 2.94, median of 3.00 and standard deviation 0.954.

4.1.3 Perception of IT managers towards the drivers of managerial practices and leadership

With regards to the drivers of management practices, it was established that the driver of immediate action holds the highest consideration towards managerial practices by IT managers. This driver had, a frequency recorded 131, mean of 3.1897, median of 3.200 and standard deviation of 0.75874. The driver of rules was after analysis found to have a frequency of 132, a mean of 2.5773, median of 2.500 and standard deviation

of 0.72983. The driver of emotions had a frequency of 131, mean of 2.5530, median of 2.400 and standard deviation of 0.71773. The driver of integrity had a frequency of 130, mean of 2.6969, median of 2.600 and standard deviation of 0.70603. The driver of initiatives had a frequency of 130; mean score of 2.8923, median of 2.800 and standard deviation of 0.80602. The summary is presented in table 4.

Our analysis therefore brings to light, the modern perspective of five drivers of management for IT managers. The analysis of the data highlights how IT management gathers multidimensional practices with varying complementary facets. The following is a brief discussion of the drivers.

The driver of immediate action is considered as the foremost management driver due to its high score in mean of 3.1897 and median of 3.200. In other words, emergencies and last minute rush would always arise and if puzzled well, they contribute to successful execution of management and objective achievement. The findings related to the driver of initiatives can be applied in the area of identification of training and developmental needs of IT managers and employees, to fulfill the competency gap. Conversion of goals into concrete projects, techniques used for team based management, techniques used as self resolution for solving managerial dilemmas all need a set of unique competency.

The findings related to the driver of rules also have managerial and leadership implications for IT managers. This driver focuses on the clarity of communicating the expectations, systems to evaluate the results and supportive parameters and the process used for regular reviews and it calls for precise identification, design and implementation of communication systems, evaluation systems and monitoring systems respectively. Hence the management should design perfect systems to ensure that the drivers of rules are followed by IT managers and technicians.

Though not all management skills will be needed, the study shows that the driver of emotions has a crucial impact when IT managers are achieving their organizational objectives, especially with well motivated employees. Though the driver of integrity was not widely commented, with regards to this study on IT management and leadership exercising, there is need that managers ensure that their actions are clean and focused on the overall attainment of the organization's objectives and goals. The summary of the report has been presents in table 3.

4.1.4 Hypotheses confirmation and the research drivers

This section examines and discusses all our hypotheses formulated earlier. With respect to the findings on the subject of exploring the obstacles faced by IT managers in their managerial practices, we intend to examine to what extent each of our hypotheses were supported. The results of the empirical analyses have provided answers to our research questions. Apart from examining the hypotheses formulated we also wish to elucidate other potential observations of our research to existing literature on IT management practices. Our conceptual model shows that the obstacle drivers in relation to the implementation of organizational strategies are different in terms of importance.

Drivers of rules: The rules remain a significant dimension in the implementation of the objectives of an organization. As such, the ability of managers to master the rules of procedure in conjunction with the development needs of the company is sometimes associated with the work experience and entrepreneurial culture, which have been implemented.

Q₁ confirms the hypothesis H₁: Good and well structured policies and quality management approach by IT managers will have a positive impact on the performance of their employees in relation to driver of rules.

Drivers of Initiatives: Risk-taking is a critical factor in the development of a business and in the cohesion of the working groups. This risk-taking is often very carefully calculated so that the company and its employees are given some leeway to act in the direct interests of the organization.

Q₂ confirms the hypothesis H₂: Given the nature of managerial impediments, IT managers and professionals would face challenges when initiating new changes in relation to driver of initiatives.

Drivers of Emotions: Indeed, the study shows that the driver of emotions has a crucial impact when IT managers are achieving their organizational objectives. In response to the question Q₃, we confirm through

the hypothesis H₃: Stimulating the emotions of employees can help create better results and spur performance of an organization in relation to drivers of emotions.

These results also confirm the studies of many other authors who emphasized the organization's ability to define problems and classify them (Drucker, 2007); to tackle resistances to change and to improve the coordination. All these abilities must be seen as one of the key factors, which can impact on an employee's level of perception.

Drivers of immediate action: Under the drivers of immediate action, our hypothesis states that IT managers would anticipate many emergencies and last minutes requests and changes as a key obstacle since there is volatility in the IT environment, especially with software security and information management. The descriptive analysis supported this hypothesis.

Q₄ confirms the hypothesis H₄: Given the ever rising needs and decision to be made by managers, when faced with challenges managers will rely on the driver of immediate action.

5.0 Discussion

Based on the responses of the focus groups, the findings and literature review arguments, it remains relative that information technology managers face a multiple of challenges in their managerial practices. These challenges range from information management, human resource controls and managerial practices. As reported in the research drivers and confirmed in the previous research, the driver of rules according to Sabourin (2009) focuses on the clarity of communicating the expectations, systems to evaluate the results and supportive parameters and the process used for regular reviews and it calls for precise identification, design and implementation of communication systems, evaluation systems and monitoring systems respectively. This driver would present some management barriers especially when employees try to oppose new rules. The ranks and chains of command remain to be necessary tools in effective management practices. With regards to the driver of emotions, it is relative that managers try to establish some of the amicable ways of stimulating the emotions of their employees so as to avoid any form of managerial problems. Managers have to fetch the commitment of their co-workers notably by creating positive emotions as a reliable climate, common perspectives which see to it that people have the necessary motivation to carry out the objectives.

Informational managers have always to ensure that their approaches do not turn out to be slow. They have to be able to take immediate action when faced with an urgent need in their information management. This is in line with the holding of the driver of immediate action. This driver of immediate action allows managers to act in a concrete way, on a small scale to obtain results quickly. With this driver, managers have the privilege of a fast decision-taking, in an established plan or in consensus. So, they can make consultations only as far as it gives results quickly. Successful information management is about organizational and cultural change, and this can only be achieved through strong leadership (Kendall et al 1987). The starting point is to create a clear vision of the desired outcomes of the information management strategy. This will describe how the organization will operate, more than just describing how the information systems themselves will work. Effort must then be put into generating a sufficient sense of urgency to drive the deployment and adoption of new systems and processes (Libicki 1995).

Any initiative taken by information technology managers will have an impact on their managerial practices as noted from the driver of initiative. This driver aims at translating the objectives of the organization into concrete projects by giving responsibilities to each of the teams and ideally to each of the members in the organization. Such initiatives have the effect of increasing considerably the sense of the responsibilities and the initiative of the employees. This driver turns the more capable and voluntary employees towards the realization of a given objective. This driver rests on the implementation of new ideas and improvements of information and communication approaches.

When dealing with co-workers it is essential that managers be able to observe some sense of integrity in their management practices. When managers and co-workers have pressure, they have to make sure to work on the realization of their objectives in an integral way that is in harmony and in a coherent way with the values and principles of their organization. The members of the organization have to find in themselves their motivation to realize the objectives of the organization. The driver of integrity rests on the emotion to work for the overall good. This situation prevails in spite of the tendency of many organizations to set up an incentive payment.

5.1.1 Practical and Theoretical Implications for effective managerial practices by IT Managers

Our research has implication for the information management practices by IT managers. It shows that a specific focus should be regarding on the impediments IT managers have had to deal with. Even if this study emphasized many managerial impediments, it did not found the reason why IT managers encountered more obstacles related to immediate action. Consequently, the case of IT managers, a specific focus should be put for the impediments that are related to immediate action and rules. Our research has implications for social action in relation to the thorny subject matter of information quality. For instance an organizational context where IT managers and technicians are segregated could hinder their effort to perform and to access to top management position. Our research also has implications for IT managerial action in the sense that it will be always beneficial for our organization to let express different sensibilities and approach to problem-solving within the framework to promote participative management among IT managers and their technicians.

5.1.2 Limitations and Future Research

In the context of IT management practices, additional research with large samples will be necessary to support the current findings and its validity. Additional research is required to generalize these findings to the IT managers employed specifically in the government institutions and the private sector. Also global level categories have to be included in the additional research to generalize the current research findings.

5.1.3 Conclusion

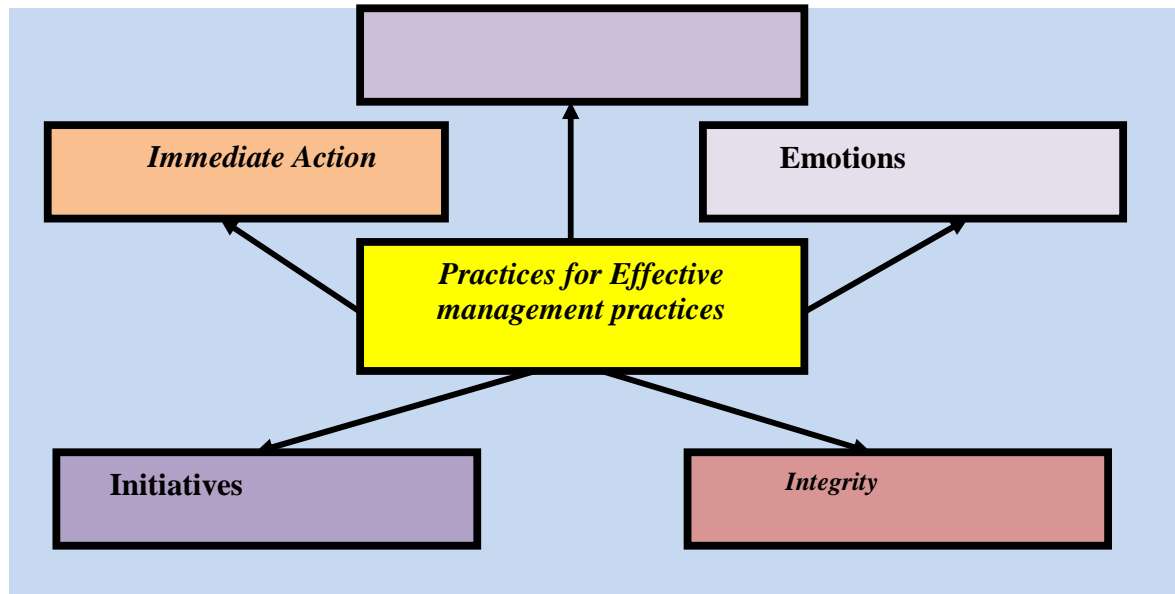
This study is focused on the challenges experienced by IT managers and co-workers as they execute their management practices. Taken as a whole, our findings suggest that, there are some impediments associated with drivers of Emotions, immediate action, Rules and initiatives as well as integrity. Even if these obstacles are in multiple levels to develop and promote IT management practices, it is imperative to study with more depth obstacles faced by IT managers in order to better understand how the obstacles they face represent an impediment to the development of their competencies and effective performance in IT.

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Fig 1: summary of the conceptual drivers



Source: Sabourin (2009). A model for Drivers of effective performance in strategy execution

Table 1: Description of measurement variables in the drivers

Drivers & Variables	Measurement-Questions
Driver of Rules	
V ₂₉	I have developed work techniques to clarify the expectations of our bosses.
V ₃₀	We have identified goals that focus on customer service.
V ₃₁	We have developed work techniques to help individuals stay focused on the results to be achieved
V ₃₂	We systematically conduct annual reviews of our activities with the other units within our organization.
V ₃₃	We are able to estimate the economic value of improvements we wish to make throughout the organization
Drivers of Emotions	
V ₃₄	We are able to encourage our workers to adhere to our goals so that they are fully aware of their importance.
V ₃₅	We are able to communicate a sense of urgency to our workers so that they are able to make rapid decisions..

V ₃₆	We are able to significantly increase the motivation and levels of engagement of our workers.
V ₃₇	We work closely with colleagues who are able to support us during the decision-making process.
V ₃₈	We are able to treat our employees fairly.
Drivers of Initiatives	
V ₃₉	We have developed a culture that fosters initiative and accountability.
V ₄₀	We translate our goals into concrete projects for all our employees.
V ₄₁	We know how to set team goals.
V ₄₂	We have developed techniques to increase self-resolution of problems for team members.
V ₄₃	In my organization, we use various techniques according to the level of importance of decisions and team-based management.
Drivers of Immediate action	
V ₄₄	We systematically provide improvements and contingency plans to effectively respond to emergencies.
V ₄₅	Over the past years, the number of emergencies we responded to has decreased.
V ₄₆	We systematically perform reviews to find durable solutions for repeat situations.
V ₄₇	I dedicate at least 2 to 3 ninety-minute sessions each week to work directly on their annual goals.
V ₄₈	We dedicate a maximum of one day each week to respond to urgent requests.
Drivers of Integrity	
V ₄₉	We clearly define the values of our organization.
V ₅₀	When under pressure, we are able to reinforce the values of our organization.
V ₅₁	I am able to recognize differences between the values of my employees and those of my organization.
V ₅₂	We have ways of contributing to the organization's reputation through the services we provide.
V ₅₃	We have work methods to systematically reinforce our employees' sense of obligation.

Table 2: Summary of descriptive analysis of the research variables

Driver	Variable	Percentage		Valid Percentage	Measures of Central Tendency		
		Frequency			Mean	Median	STD Deviation
Rules	V ₂₉	131	87.9	100	2.28	2.00	0.844
	V ₃₀	132	88.6	100	2.02	2.00	0.933
	V ₃₁	132	88.6	100	2.54	2.00	0.668
	V ₃₂	131	87.9	100	3.08	3.00	1.373
	V ₃₃	131	87.9	100	2.99	3.00	1.190
Emotions	V ₃₄	132	88.6	100	2.61	2.50	0.862
	V ₃₅	131	87.9	100	2.50	2.00	0.906
	V ₃₆	132	88.6	100	2.86	3.00	0.906
	V ₃₇	132	88.6	100	2.24	2.00	0.901
	V ₃₈	129	86.6	100	2.36	2.00	0.934
Initiatives	V ₃₉	132	88.6	100	2.55	2.00	1.014
	V ₄₀	131	87.9	100	2.92	3.00	1.064
	V ₄₁	131	87.9	100	2.77	3.00	1.020
	V ₄₂	130	87.2	100	3.26	3.00	1.118
	V ₄₃	129	86.6	100	2.99	3.00	1.079
Immediate action	V ₄₄	132	88.6	100	2.92	3.00	1.123
	V ₄₅	130	87.2	100	3.34	3.00	1.152
	V ₄₆	131	87.9	100	2.93	3.00	1.210
	V ₄₇	130	87.2	100	3.80	4.00	1.137
	V ₄₈	130	87.2	100	2.94	3.00	1.334
Integrity	V ₄₉	130	87.2	100	2.61	3.00	0.9840
		129	86.6	100	2.89	3.00	0.9540
	V ₅₀	129	86.6	100	2.72	3.00	0.9010
		130	87.2	100	2.31	2.00	1.010
	V ₅₁	130	87.2	100	2.94	3.00	0.954
	V ₅₂						
	V ₅₃						

Table 3: Summary of descriptive analysis of the managerial drivers

Driver	Frequency	Percentage	Valid Percentage	Measures of Central Tendency		
				Mean	Median	STD Deviation
Rules	132	88.6	100	2.5773	2.500	0.72983
Emotions	131	87.9	100	2.5530	2.400	0.71773
Initiatives	130	87.2	100	2.8923	2.800	0.80602
Immediate action	131	87.9	100	3.1897	3.200	0.75874
Integrity	130	87.2	100	2.6969	2.600	0.70603

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