# Implementation of business intelligence framework for Malaysian halal food manufacturing industry towards initiate strategic financial performance management

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| CHRONICLE | ABSTRACT |
|---|---|
| | The utilization of Business Intelligence (BI) to yield financial management among manufactures has been one of the main advantages of managing businesses through strategized financial performance. The BI can be conceptualized as a decision-making process, which is an emerging topic within technology management and financial decision making. Furthermore, such factors influencing the adoption of this type of strategized decision-making process are under extensive investigation. The main objective of this research is to develop a BI framework to provide a data analytics and action plan to help Malaysian Halal Food Manufacturing Industry (MHFMI) strategize financial performance. The specific objective of the study is to assess and validate the relationship between the adoption of BI and MHFMI. The methodology of the study starts with the theory adoption of BI parameters and methods, followed by the development of the adopted and adapted theoretical models using the conceptual framework developed and MHFMI involvement into the strategic financial performance management. The managers of the MHFMI is requested to provide the necessary information about their companies, perception of BI and financial performances. Reliability analysis is used to validate the constructs and test measurements in variance. The study applies regression analysis to determine the effects of different decision making strategies on BI. The research output indicates that the BI data analytics and the action plan as well as the conceptual framework could improve the financial performance by the adoption and the adaptation of the conceptualized strategy among MHFMI. |

## 1. Introduction

The domain of Malaysian Halal Food Manufacturing Industry (MHFMI) has obtained expanding volume of attention between practitioner and academician as the contribution of MHFMI is important to the development of a nation (Azmi et al., 2018). This can be verify where MHFMI's contribution to Asia's Gross Domestic Product (GDP) is as excessive as 40 to 80 percent and engage between 45 to 95 percent of the manpower (Wan, 2016). It was reported that the increment of rising overhead cost, cash flow scenarios and raw material prices remain the major issues confronting MHFMI on the Gross Domestic Product Second Quarter 2017, (DOSM, 2017). Furthermore, some managerial scenarios include problem of finding good workers, undedicated employees and MHFMI faces stiff price competition (MITI, 2016).

However, many past literatures regulated on execution of Business Intelligence (BI) were not in the MHFMI context and were also not regulated in a developing country (Petrillo et al., 2018). Many researchers found out that BI can make the organizations more competitive (Jayakrishnan et al., 2018c). BI is a tool or capability needed by a stakeholder to expound a problem or attain an objective of the organizations (Gulati & Soni, 2015). Moreover, BI requirements include a set of capabilities and related properties necessary to realize system-to-be from system-as-is (Jayakrishnan et al., 2018a). BI systems is to solve a hard problem; it is enabled not by new analytical technology alone but by a new use of intelligence technology to solve the problems of an organization (Gulati & Soni, 2015; Aithal & Kumar, 2016; Bestman et al., 2016; Jayakrishnan et al., 2018b). Furthermore, BI can be defined as digitalization model of a real world created with analyzing tool of big data context, which is usable to analyze and monitor the status of the financial performance; higher yield, higher quality and also lower operating cost of an organization by preventing financial crisis (Kohtamaki & Farmer, 2017; Rutendo, 2017; Jayakrishnan et al., 2018).

It should be prominent that emerging countries such as Malaysia and China possess presently have begun to maintain well planned financial management and manage it strategized systematic as their long-term objectives ideally depend on cheap operating costs to excite foreign investors (MITI, 2016). Moreover, MHFMI in these evolving countries are also starting to play, a great part, in contributing to their countries economy (Ahmad & Zabri, 2016). Therefore, there is a necessity to study MHFMI, the outcomes originated is more related for other evolving countries compared with learning guided in inaugurated or western countries for optimizing the organizational financial performance. We have inaugurated an approach, or a survey, for perceiving a comprehensive and typical organizational financial factor employ with the MIT90s, McKinsey 7S's and UTAUT framework as the baseline information framework towards development of a conceptual financial performance framework for MHFMI.

## 2. Research problems

Some recent studies related MHFMI include a work by Abdul Manaf et al. (2013) on how MHFMI can exploit the basic resources with small number of employees. They proposed that workplace familyism stimulate employees to be further innovative and usher to an improving organization performance with the context of Organization Learning (OL) potential as a performance factor. With a wealth of e-business that covers economics and marketing literature directing Internet-cognate scenarios, to the optimal of our knowledge, the adoption and implementation of BI utilization have never been indicated (Vassilakopoulou & Grisot, 2013). Poor decision making process has been pointed out as a factor contributing directly to the problems of organization failures (Dwivedi et al., 2015). It has become the main reason to require contemporary position and research regulation, to yield insights and further direction for executives on factors empowering organization victory and avoid ant organization failure (Gulati & Soni, 2015; Jayakrishnan et al., 2018). Most of the problems occur in decision making process related to Information System (IS) for strategic decision-making process from multiple positions, to advance beyond confined considerations of the organization artifact and to progress into underexplored organizations contexts of Big Data Analytics (BDA) (Kohtamaki & Farmer, 2017; Lee, 2015). We have ascertained this problematical context as crucial factors in order to achieve superior financial performance of our research questions:

1. What are the suitable BI framework in implementing and managing financial decision-making process in MHFMI?
2. What are the factors to be considered for financial decision-making process for BI framework in MHFMI?
3. How to verify the financial decision-making process for BI framework in MHFMI?

## 3. Research objectives

The most relevant work is Qady & Kandil, (2015) who discussed Knowledge Management (KM) procedure such as knowledge acquisition and knowledge application and found that they are important in influencing MHFMI decisions to adapt and adopt e-business in their financial management. Various questions emerge in such a position: will the financial implementation under the BI context be preferable than under a traditional context in which the manufacture strategized decision making? Further, is it profitable for the manufacturer? Can BI guide to strategized-optimal implementation and if not, what structure of action plan can coordinate the financial management?

The rate of organization failure remains high because, organizations fail to explore and utilize their IS structure and system for decision making process (Maier et al., 2015). Organization failed to have a systemic framework for decision making process to represent a broad scope of practicable factors that may influence organizational implementation and the utilization of the framework to characterize and determine the influence for strategic planning and process as a formalized technology-enabled IS (Laumer et al., 2014). Therefore, this research will explore various approaches in decision making process to address the data silos, data errors, information bottleneck, sharing information and information exchange between the people. This BI information framework suggested will address the identified gaps in the MHFMI financial decision-making process. The determination of this research is to focus specifically on the adoption and adaption parameters of BI financial management among the MHFMI and analyzing the adoption factors towards the performance of the MHFMI. We have scrutinized specific dominant factors that impact decision making process in an organization-MHFMI. These significant perspectives will be used as factors for reconstructing and redesigning existing composition as a problem-solving mechanism for the decision-making process. Our research objectives are:

1. To identify and define the suitable BI framework for implementing and managing financial decision-making process in MHFMI,
2. To identify the factors and develop the conceptual framework of financial decision-making process for BI framework in MHFMI,
3. To develop a dashboard to verify the financial decision-making process for BI framework in MHFMI.

The research embarks to focus specifically on the adoption level of BI financial performance among the MHFMI and analyzing the adoption factors towards the financial performance of the MHFMI. The BI financial performance will be a decision-making process perceived as new to the MHFMI, powerful pedagogical tool that can be used in various levels of entrepreneurship learning from the strategic decision-making perspectives. As an outcome, we would develop an integrated BI financial performance management framework and is encompassed as a decision-making process tool that is new to organization-MHFMI.

## 4. Literature review

Information possess a significant tool and utilize it to a recipient in a situation (Petrillo et al., 2018). It yields the user with the knowledge to produce the vital determination (Evelson, 2015; Holger et al., 2015; Saadat et al., 2016). However, many organizations are encountering imbalanced data, concept changes and BDA failures due to the growth of holistic view in engaging factors of socio technical perspectives upon human behavior dimension (Phillips et al., 2015). MoE (2015) emphasizes the improvement or performance of the MHFMI by the implementation of decision making process and by defining "prescriptive analysis" as relatively new management systems and process for more efficient techniques and organizational effectiveness which could lead into better performances. Furthermore, the elements of an original proposition affect the analysis of it and the option to adopt and adapt it on the segment of the business (Rogers, 1995). Scholars possess inaugurate and improve various models of divergent of deci-

sion making process and a character of decision making process features possess occur pinpoint as determinants of adaption parameters of BI financial management among the MHFMI (MITI, 2016; Wan, 2016). We have come up with an adapted approach as a prescriptive tool framework by adapting and adopting the five (5) attributes of decision making process of MHFMI financial performance plan, as shown in Table 1.

**Table 1**
The adapted attributes of decision making process

| Attributes | Definition | References |
|---|---|---|
| Relative Advantage | The principal factor determining the value of adapting and adopting the decision-making process with character of sub-dimensions plus economical preliminary cost, lower probability, reduce in discomfort, time conserve and prompt benefit. | (Givens, 2008; Hussain, 2014; Rogers, 1995) |
| Compatibility | The ratio to which it is divine as reality compatible with the subsist significants, previously incidents and entails of the prospective adopter. It is agitated with the sameness of the decision-making process to a live decision it may ultimately addition, replace or complement as character of its function, activities and processes. | (Givens, 2008; Hussain, 2014; Rogers, 1995) |
| Complexity | A decision-making process which can be understood clearly by the possible adopter is probable to be adapted further quickly than a complex decision-making process, while a decision-making process that entails futuristic expertise and comprehension may yield an extensive time to be adapted. | (Givens, 2008; Hussain, 2014; Rogers, 1995) |
| Observability | The ratio to which the outcomes of a decision-making process are visible to others. Observability allows the adopter a chance to assimilate concerning and evaluate the decision-making process, which may facilities its adaption. It is significant that an organization may improving analyse a decision-making process via perceiving the outcomes of adapting it relatively than perceiving the decision-making process itself. | (Cerne et al., 2014; Hussain, 2014; Rogers, 1995) |
| Trialability | The ability to try on the decision-making process before adopting it and have a positive relationship between the trialability of a decision-making process and its adoption. | (Givens, 2008; Hussain, 2014; Rogers, 1995) |

Based on Table 1, the use of BI to strategized financial performance among manufactures has been one of the main advantages of doing business on the internet (Cerne et al., 2014). The main purpose of IS towards manufacturers to turn data into useful information that can be used for decision making process in an organization (Murugesan & Karthikeyan, 2016). BI has significant advantages over MHFMI (MITI, 2016). These advantages include strategizing average revenues, expenses and profits for competitive advantage (Bestman et al., 2016). According to Mitchell et al. (2016), decision making is the procedure to select and evaluate a surge of venture from a number of alternatives. Jaques (2017) claim that decision making in an organization, plays an important role by determining both organizational and managerial activities. Decisions in an organization expounded as a surge of venture, are intentionally determine to attain managerial or organizational goals or objectives (Evelson, 2015). According to Hussain, (2014), it is vital that changes triggering from decision making process adaption are compatible with the significant and the strategized decision making of the organization. Besides, the most basic Information Technology (IT) skills are needed among the manufactures, the successful implementation of BI requires the establishment of several parameters in the decision-making process for financial performance of an organization (Lee, 2015). Strategic decision making is a continuous process of creating organization mission, values, goals, objectives and indispensable component of managing organization for a particular action of plan in altering strategies based on observed outcomes (Kohtamaki & Farmer, 2017). Decision making process provides a critical evaluation of the relationship between decision making and performance in OL (Saadat et al., 2016), towards addressing the data silos, sharing information and information exchange among the people (Evelson, 2015). Furthermore, Elayyan and Shraah, (2015) claim that financial decision making process in OL is a systematic approach and consists of six (6) steps, namely: gathering of financial information and data, appreciating of financial problem, developing of alternatives, analyzing of financial data and information, evaluating of these alternatives and finally choosing of appropriate alternative. The most systematic decision approach in OL depends on (3) factors: managerial level, importance of financial decision making process and decision making styles (Lim et al., 2014). This conceptual framework proposition will be a problem-solving model in determining the gaps-principally on financial performance of an organization.

## 5. Framework analysis and design.

One of the fundamental objective of the organizational decision-making process literature is to recognize organizational features that dominates the adaption of a decision making process within the organization (Mitchell et al., 2016). These characteristics are involved with organizational size, financial performance position, decentralized organizational implementation, managers' decision making and financial strategy assimilation. However, MHFMI are further individualized thus this study eradicates the further factors understanding financial performance. Mina et al. (2014) found that, understanding organizations holistic culture makes the capacity to create strategic decision making for the future as a culture of adaptive learning work within a system thinking framework by application of IS communication to support identified critical success factors for an organization financial decision-making process:

### 5.1 Knowledge Management (KM)-Business Intelligence (BI) Perspectives

IS performs several vital roles in any type of contemporary organizations such as supporting organization operations, managerial decision making and strategic competitive advantage (Daft, 2006). Perhaps, IS contributing to the knowledge diffusion within an organization, grounds on the divergent degree of hierarchy in an organization (Rodgers et al., 2002). IS is defined in food manufacturing literature as "an applying key IT decision making process related the Internet of Things (IoT), analytics, advanced robotics and BDA, to promote operational implementation in the warehouse and in pivot enhance customer satisfaction and profit margins levels" (Tambe et al., 2012; Kohtamaki & Farmer, 2017; Jayakrishnan et al., 2018b). BI is divergent from several factors in the financial performance management complex previously expound in the literature in which the manufacturer is deluge with financial scenarios (Ahmad & Zabri, 2016). It diverges from the traditional consignment bond in which the manufactures hold (but does not know) financial situation (Mat et al., 2016) and decides what the financial policy should be-under BI, where the financial performance is monitored and strategized by the manufacturer (MITI, 2016).

Mina et al. (2014) found that, understanding organizations holistic culture makes the capacity create strategic financial decision making for the future as a culture of adaptive learning work within a system thinking framework by application of IS communication to support identified critical success factors for an organizational financial decision-making process. BI in financial scenario is an arrangement to view and strategized the organizations financial performance from time to time (Demirtas, 2013). The state of the Global Islamic Economy Report (MITI, 2016), indicates that more than 34% of manufactures use BI as the primary way to strategized financial performance and the BI was reported to be able to strategize the financial performance management of an organization. Under the rules of Knowledge Management (KM), there has been a great deal of work building on the knowledge creation (Qady & Kandil, 2015). KM can be defined as an intelligent administration, which is skilled to deploy the divergent type of knowledge that exists in the organization in order to increase implementation (Pandey & Dutta, 2013; Vinodh & Dinesh, 2012). The area of KM is broad, multidisciplinary perspective that encompasses strategy, structure, system and human resource. This unique critical approach provides a comprehensive and coherent overview of organizational issues (Shahrabi et al., 2013). KM is currently in favor in organizations (Burke, 2000). As a result, today many organizations are struggling to figure out the concept of KM and the organizations future (Edmondson, 2011). We need to begin to learn about KM in organization and to discover some of the issues by approaching KM today: Learning Organization (LO) that is capable of acquiring, creating, sharing knowledge and organizing and at claiming this knowledge to outline its organization behavior (Dobre, 2013). KM is a rotation of action that reinforce the OL ventures: recognizing knowledge demands, organizing, acquiring information and developing information, accumulate information, distributing information and using information (Antoniadis et al., 2015). Under the organizational KM paradigm, there has been a great deal of work building upon the knowledge creation ideas on tacit knowledge and explicit knowledge (Kohtamaki & Farmer, 2017). Together, this allows the manufacturer to adopt the BI for strategized financial decision-making process. Under BI, the manufacturer fortress the decision principles associated with financial strategies, while strategizing their knowledge on organizations financial performance in better insights (Pollanen et al., 2017).

## 5.2 Organization-Malaysian Halal Food Manufacturing Industry (MHFMI) Perspectives

Nowadays, due to the turbulence and the rapid change of an organizations environment, IS has reshaped the basics of an organization in various ways (Bolden, 2011). It is important to consider that IS is acquired to deal with tasks and problems within an organization (Tambe et al., 2012). Therefore, the need for proper dissemination of IS at various levels of management in organizations has become an important issue (Daft, 2006). Classification of IS into different levels, is an empirical ability for scheming systems and considering the implementation to refine a multiplex hurdle through a significant domain of commonality between different scenarios (Schermerhorn, 2001). Organizations continue to progressively disburses attention to the conception of OL in line to surge decision making process, effectiveness and competitive advantage (Lee, 2014). According to Popova and Cseh (2015), the composition of the learning arises due to the impact of assorted factors such as environment, structure, technology, strategy especially IS and culture on OL. Therefore, the complexity of OL and connections amid its levels of analysis can benefit from the use of IS (Bestman et al., 2016). IS can aid to achieve effective OL thereby enhancing organizational performance (Saadat et al., 2016). Hollweck (2016) stated that causal research study is a research strategy underlying themes and heuristic in-depth investigation that explores a phenomenon within an organizations real-life situation. To have better perceptive, this research reviews the financial performance approach in IS research and focal point on the value of selecting "critical cases" on their robustness. Therefore, this research is conducted as a causal research on providing the rational for case selection that relates to organization strategies especially on food manufacturing industry-financial performance, a MHFMI to the specific objectives of the case research inquiry. Furthermore, the adapted parameter for an organization as a causal research comes from the theoretical background of the study emerges from two theoretical streams of the strategic performance management: the MIT90's model and McKinsey 7S's framework, as demonstrated in Fig. 1 and Fig. 2. Based on Fig. 1, the MIT90's model was designed to encourage organizations to understand the dynamics of transformation in regards to the acquisition of technology that focus on internal technological environment: strategy, structure, technology, management processes, individual and roles and also on external technological environment: socio-economic environment and science and technology development (Oviatt, 1999). The MIT90's model can be utilized to highlight some fundamental areas of financial management for structuring its perspective to benchmarking organizations performance, in deriving the parameters of information and obtaining actionable insights, that comprises of five (5) dynamic equilibrium, where changes in any of the component, requires an adjustment to the others, as shown in Table 2.
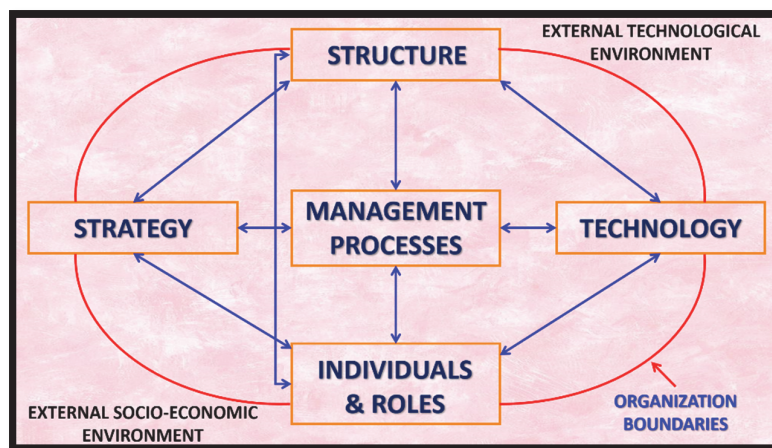


**Fig. 1.** The MIT90's Model – for critical success factors for Information Technology (IT) and organizational digital transformation (Adapted from Scott Morton, 1991)

**Table 2**
The MIT90's model five inter-related companies

| Components | Dynamic Equilibrium in Financial Management | Definition | References |
|---|---|---|---|
| Strategy | Vision and direction (Market line and division for products are to be plan, operation is to be financed and profit objectives). | A structure of policies, mission, objectives and outstanding measure utilization scenario express in such a procedure as to define what position the organization is in and the kind of business it is or is to be. | (Amarilli, 2014; Caroline, 2018; Jayakrishnan et al., 2018b) |
| Structure | Organization and coordination (Financial cost that consists of organization and coordination in the business). | The flow of communication, authority and workflow in the organization. | (Amarilli, 2014; Caroline, 2018; Jayakrishnan et al., 2018b) |
| Technology | Information Technology (Tools, equipment and machinery used in the transformation process and their financial costs) | Confine all of the elements that personally invade into the transfiguration of organizational inputs into organizational outputs. | (Amarilli, 2014; Caroline, 2018; Jayakrishnan et al., 2018b) |
| Individuals & Roles | Human Resources (Financial cost for skills and people requisite to employ the technology). | Outline of assignment entail to utilize the technology and technological experts of organizational body in the organization. | (Amarilli, 2014; Caroline, 2018; Jayakrishnan et al., 2018b) |
| Management Processes | Planning and control (Methods are derived and utilized efficiently and effectively in the operation of the organizations financial intention). | Assure the logical production of services and goods by planning the procedure on aims, on the method used to obtain these aims and on the strategy that are to regulate the possession. | (Amarilli, 2014; Caroline, 2018; Jayakrishnan et al., 2018b) |

Based on Table 2, the MIT90's model defines the internal factors- structure, technology, strategy, management process, people and their roles and also the external factors such as science, society, technology and economy. Next, we focus on McKinsey 7S's framework as strategic financial planning tools. Based on Fig. 2, the McKinsey 7S's framework is a model for analyzing organizations (analytical technique used for evaluation of critical factors of the organization) and their effectiveness synthesized and also integrated in strategic management model (Reilly et al., 2014).
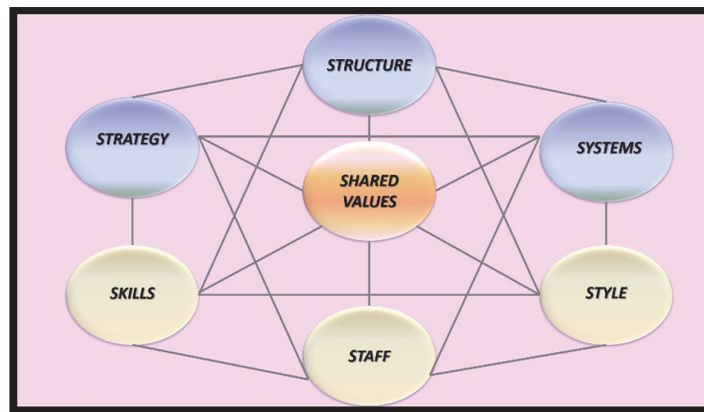


**Fig. 2.** The McKinsey 7S's framework – key organization capabilities needed to implement strategy successfully (Adapted from Singh, 2013)

The fundamental premise of the model is that there are seven (7) internal features of an organization that require to be positioned if it is to be thriving (Singh, 2013). These seven (7) criteria influence on the success of an organization strategic plan. Systems, strategy, structure, staff, style, skills and shared values are interrelated and possess to be observe cooperatively to attain an improving combination for linking

organizational application and organization strategy financial performance (Diop & Yorote, 2014). The McKinsey 7S's framework is a tool that analyses and identifies the effectiveness of an organization financial performance towards achieving its objectives, and comprises of seven (7) dynamic equilibriums, where changes in any of the components, requires an adjustment to the others, as shown in Table 3.

**Table 3**
The McKinsey 7S's framework seven inter-related components

| Components | Dynamic Equilibrium in Financial Management | Definition | References |
|---|---|---|---|
| Strategy | Digital business (Obtaining suitable budgets and revealing, providing significance and ROI from budgets). | The interpretation address for an organization to attain its objectives, focusing on proposition for the designation of organizations insufficient expedient, over time and to extend discern objectives. | (Singh, 2013; Gokdeniz et al., 2017; Jayakrishnan et al., 2018c) |
| Structure | Organizational formation to underpin digital business (Combination of e-commerce or digital marketing teams for brand and direct marketing). | The organization of expedient inside a business into divergent teams and groups, that relates each other: decentralized, functional divisions (top-down) and centralized. | (Singh, 2013; Gokdeniz et al., 2017; Jayakrishnan et al., 2018c) |
| Systems | Evolution of procedures, processes or IS to pillar digital business (Integrate reporting of digital marketing integrated technology solutions and effectiveness). | Organization procedures, process and the applied policy used to underpin performance on how dominant work is to be finished, focusing on performance systems and financial systems. | (Singh, 2013; Gokdeniz et al., 2017; Jayakrishnan et al., 2018c) |
| Staff | Failure of workforce in designation of their characteristics and background in IT (Workforce development and training for virtual working environment ). | The group of workforce and how they are retained and attracted in the organization, focusing on the types and numbers of workforce within the organization. | (Singh, 2013; Gokdeniz et al., 2017; Jayakrishnan et al., 2018c) |
| Skills | Characteristic ability of key workforce (Workforce skills environment such as project management, supplier selection and specific financial management). | Capabilities to complete different activities and characteristic ability of workforce of the organization as a combination. | (Singh, 2013; Gokdeniz et al., 2017; Jayakrishnan et al., 2018c) |
| Style | Key managers act in attaining the organizations objectives and the cultural practice (Long-term vision for role and transformation of the e-commerce or digital marketing in determining strategy). | The culture of the organization in expression of interactions between staff and leadership and other stakeholders on how key managers behave in achieving the organizations goals. | (Singh, 2013; Gokdeniz et al., 2017; Jayakrishnan et al., 2018c) |
| Shared Values | Managing conceptualization of the digital business (Enhancing the perception of the effectiveness and importance of digital business among staff and managers for marketing and IT). | Summarised the organization vision and mission as the interconnecting centre of organization financial performance. | (Singh, 2013; Gokdeniz et al., 2017; Jayakrishnan et al., 2018c) |

Based on Table 3, the McKinsey 7S's framework was designed for an effective organizational performance capability from different viewpoints to understand the expression of the compound relation linking hard elements (directly influence on the organization hierarchy)- structure, systems and strategy and also soft elements (influenced by culture of an organization)- staff, style, skills and shared values (Quarterly et al., 2014). Moreover, the McKinsey 7S's framework possess has been widely used by practitioners and academics and remains as one of the most accessible strategic organization mechanism (Kok & McDonald, 2017). Furthermore, it also furnishes a suitable method of examining whether or not an organization has the mandatory environment for executing strategy financial performance management.

*5.3 Strategic Financial Decision-Making Perspectives*

In today's ultra-competition world, it is vital that organizations succeed in finding ways to stand out from the competition (Lee, 2015). Financial decision-making process remains an intuitive wealth of information to construct the accurate decisions, but financial decision making option frequently contemplates the perspectives on the character of strategy and how it should contrive (Parnell, 2005). Rayton and Yalabik, (2014), in their studies found that financial decision-making process is necessary to management as it permits a robust relationship linking growth, prosperity and the acceptance of the organization. In the present times, it is fetching very predominant  for managers to understand the solution scope of financial decision-making process strategy perceiving the reality that initiate the objective of strategized financial decision-making process can be a great challenge on its own (Lee, 2015; Kohtamaki

& Farmer, 2017). Financial decision making process is knowledgeable in the present times as an inter-active procedure is stimulated by goals and vision that usher jointly operational competence and business strategy with exterior markets (Tambe et al., 2012). According to Ward and Forker, (2017), in order to possess the most strong passion that increase the financial performance requirement through the organization, alignment is crucial as it pertained to the financial environment. Rogers (1995) stated that, the financial decision-making process involves knowledge, persuasion, strategic decision, implementation and confirmation. To improve financial decision-making process, organization needs a technology integration models, Venkatesh and Davis proposed the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2011), as shown in Fig. 3.
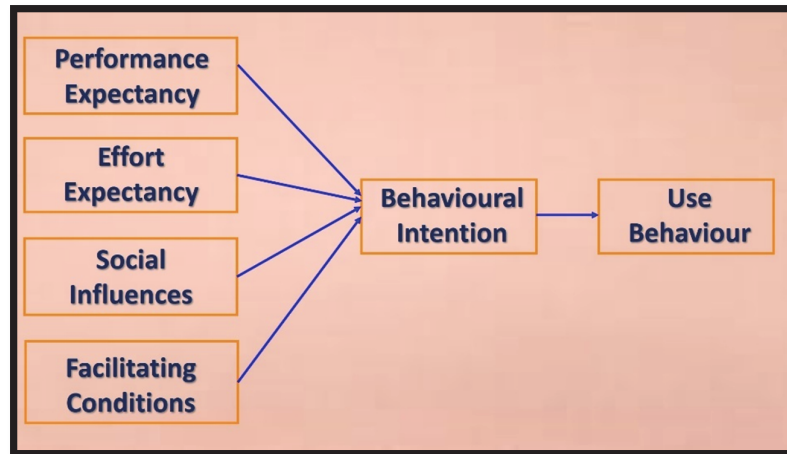


**Fig. 3.** The UTAUT framework– for technological and value issues (Adapted from Venkatesh et al., 2011)

Based on Fig. 3, the UTAUT framework was designed and established to allow managers, leaders and general business owners to evaluate the weight of new technology, predict user's behavior and explain the reasons in terms of statistics for technology acceptance in their business organizations (Bhatiasevi, 2016). UTAUT has four (4) key constructs which are facilitating conditions, social influences, effort expectancy and performance expectancy (Venkatesh et al., 2011). UTAUT framework is convenient for scrutinize scenarios involved in the recognition of competencies and skills and particular preparation to attain an assimilation of predictors of clear utilization of technology (Saravani & Haddow, 2011). The UTAUT framework objective to describe user intention to utilize an IS and eventually utilization behavior, as shown in Table 4.

Based on Table 4, the UTAUT framework explores behavior towards technology acceptance in financial decision-making process of an organization. The goal of financial decision making process is to allow for the easy interpretation of these large volumes of financial data (Tambe et al., 2012). Identifying new opportunities and implementing an effective financial strategy based on insights can provide organizations with a competitive market advantage and long-term stability (Foley & Guillemette, 2010). Financial decision-making process is defined as the invention and implementation of a new financial management practice, process or structure that represents a significant and novel departure from generally accepted or standard financial management practices and is intended to further organizational goals (Rayton & Yalabik, 2014).

**Table 4**
The UTAUT framework six components

| Components | Dynamic Equilibrium in Financial Management | Definition | References |
|---|---|---|---|
| Performance Expectancy | Perceived Usefulness (How organizations believe that use the technology will enhance the organizations financial performance). | The degree to which an individual believes that using the system will help him or her to attain gains in job performance. | (Bhatiasevi, 2016; Saravani & Haddow, 2011; Venkatesh et al., 2011) |
| Effort Expectancy | Perceived Ease of Use (How an organization believes that using technology, uses less labour efforts and is easy to use). | The degree of ease associated with the use of system, which means the system or technology is easy to use, learn, understand and lead to less individual efforts. | (Bhatiasevi, 2016; Saravani & Haddow, 2011; Venkatesh et al., 2011) |
| Social Influences | Social Factors (How an organization believes that the use of technology is influenced by others). | The degree to which an individual perceives that important others believe he or she should use the new system. | (Bhatiasevi, 2016; Saravani & Haddow, 2011; Venkatesh et al., 2011) |
| Facilitating Conditions | Facilitating Conditions (How an organization believes that infrastructure exists to support the use and acceptance of technology). | The degree to which an individual believes that an organizational and technical infrastructure exists to support use of the system. | (Bhatiasevi, 2016; Saravani & Haddow, 2011; Venkatesh et al., 2011) |
| Behavioral Intention | Attitude towards Behavior (The pattern of use and acceptance of the technology among the MHFMI). | To use an IS is expected to lead to actual usage by measuring the like hood of a person will adopt the system or technology. | (Bhatiasevi, 2016; Saravani & Haddow, 2011; Venkatesh et al., 2011) |
| Use Behavior | Affect toward Use (The actual behavior in the use and acceptance technology among the MHFMI). | An individual reaction to using the technology. | (Bhatiasevi, 2016; Saravani & Haddow, 2011; Venkatesh et al., 2011) |

In requisition to develop applicable generic framework, we have inaugurated addressing the principal and financial performance strategies into a new digitalization and visionary financial performance approach based on theoretical thinking of MIT90's model, McKinsey 7S's framework and UTAUT framework in adapting and adopting to generic business information framework, ideal thinking of academic research and practical function on financial performance implementation components for excellence and being analytics on strategic financial performance management of MHFMI. Derived from the above, we have come up with an integrated financial performance implementation as a prescriptive tool framework by adapting and adopting the five (5) component on the success of MHFMI, as shown in Table 5.

**Table 5**
The MIT90's, McKinsey 7S, UTAUT and Malaysian halal food manufacturing industry frameworks integration

| Variables Elements | | MIT90's Model + McKinsey 7S's Framework Component | | UTAUT Framework | MHFMI Framework Integration |
|---|---|---|---|---|---|
| Hard | 1 | Strategy | Strategy | Performance Expectancy (Independent Variable) | Financial forecasting and planning |
| | 2 | Structure | Structure | Facilitating Condition (Independent Variable) | Financial control |
| | 3 | Technology | Systems | Effort Expectancy (Independent Variable) | Funds management |
| Soft | 4 | Individuals & Roles | Staff | Social Influences (Independent Variable) | Internal auditing |
| | 5 | | Skills | | |
| | 6 | | Style | | |
| | 7 | Management Processes | Shared Values | Behavioral Intention to Use Technology (Dependent Variable) | Implementation of BI system |

Based on Table 5, we have built a potential Strategic Financial Performance Management System for MHFMI BI Framework with typical elements of MIT90's, McKinsey7S's and UTAUT business excellence model with the existing strategic financial components of the MHFMI, where the Performance Expectancy to be mapped with the Strategy, Facilitating Condition will be mapped with Structure and Effort Expectancy to be mapped with Systems as financial strategic hard areas for measurements. Meanwhile, the Social Influences is to be mapped with Staff, Skills and Style as financial strategic soft areas for measurements. Finally, the Shared Values will be adapted as structural application of the MHFMI's Excellence System (Behavioral Intention to Use Technology) for measuring quality financial objectives, financial standards and financial features of critical success factors as the organizational BI conceptual framework. This will be the fundamental template for the stipulation of a precise dashboard framework application as an infographic mechanism, as shown in Fig. 4.
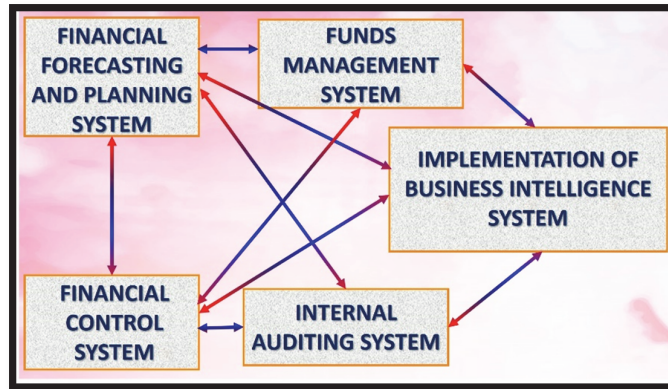


**Fig. 4.** The Proposed Organizational Excellence MIT90's, McKinsey 7S's and UTAUT- Malaysian Halal Food Manufacturing Industry BI design Framework

Based on Fig. 4, we have derived the inaugurate perspective to configure the financial IS based on external sources, such as custom produced reports and on-line databases, especially in the environment of funds management, financial control, internal auditing and financial forecasting and planning through preliminary survey study on financial performance by perceiving a generic organizational business performance MIT90's, McKinsey 7S's and UTAUT baseline information excellence framework and BI technologies. Next, we develop and design the financial factors (components closely interact with one another) of the organizational financial performance dashboard framework – a mashup conceptual design (changes to any of the components will entail changes to the others to drive their activities and objectives back into alignment), as shown in Fig. 5.
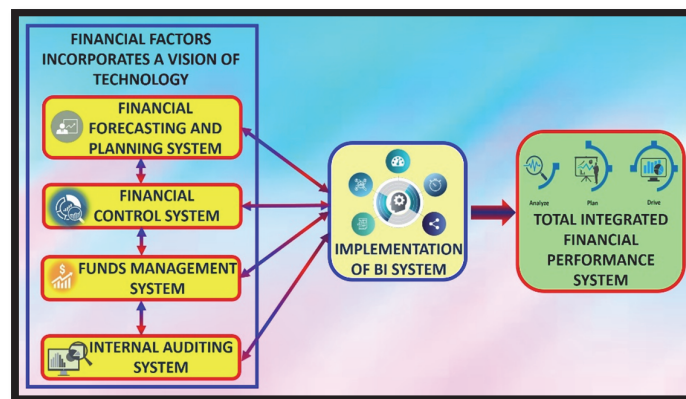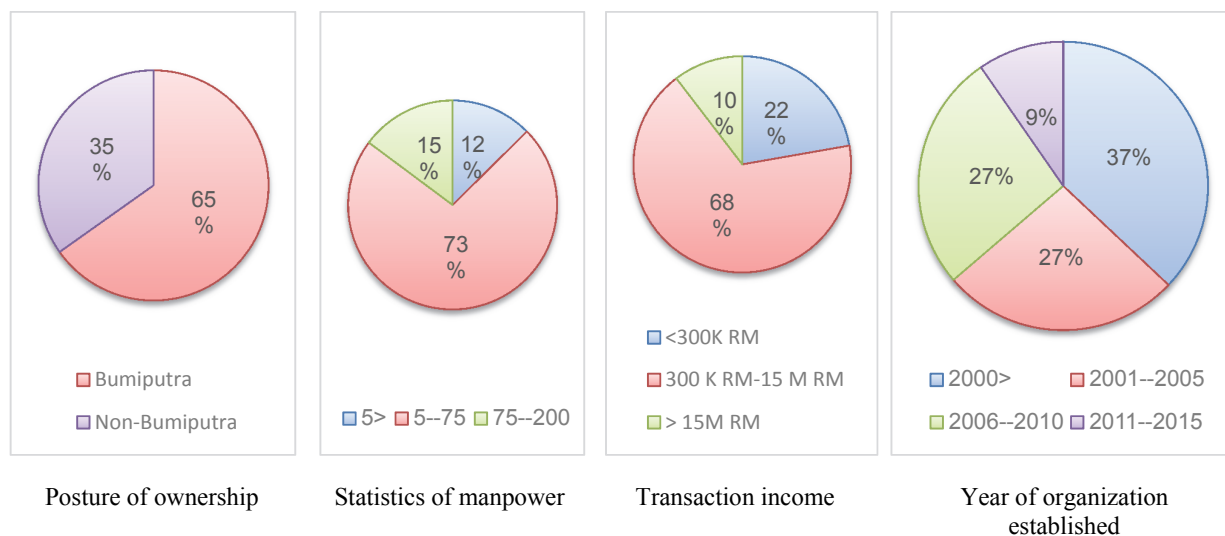


**Fig. 5.** The Finalized Perspective of an Organizational MIT90's, McKinsey 7S's and UTAUT - Malaysian Halal Food Manufacturing Industry BI design for Financial Performance Diagnostics – a Dashboard Framework

Based on Fig. 5, we summarized the above-proposed framework as a total integrated excellence system that yet expounds the Financial Performance Management model for Malaysian Halal Food Manufacturing Industry. The components are integrated as significant volumes of fund management, financial control, internal auditing and financial forecasting and planning system respectively from their computer-automated environments and propose that all characteristic of organizational operations must be synchronized and co-aligned.

## 6. Data analysis and finding based on the survey

This research utilizes the quantitative method using a survey to obtain information from respondents. The origin data arise from a survey of 135 respondents, focusing on the integrated financial performance and utilizing BI together, as an approach through analyzing financial decision-making process, which typically comes from the financial element for the MHFMI towards developing financial performance management for an organization. This is the primary procedure of an organizational analytical mechanism to determine and monitor transformation in the financial factors of MHFMI, which enabled us to configure the survey (Jayakrishnan et al., 2018). As we analyze the data analytics perspective that consists of four (4) types – descriptive, diagnostic, predictive and prescriptive framework for the MHFMI, we undergo further evident and measurable of financial factors for all four independent variables, as shown in Table 6. Based on Fig. 6, the majority of the business owner was the Bumiputra with 88 companies and for Non-Bumiputra with 47 companies. The statistics of the manpower was between 5-75 measured as 72.6%, followed by 14.8% for between 75-200 manpower and 12.6% for less than 5 manpower. Furthermore, the earliest year of an organization established was in the year below 2000, showing that 37.0% (50 companies) started their business, pursued by 26.7% (36 companies) started their organization in the year 2001-2005 and 2006-2010. The year 2011-2015, shows only 9.6% (13 companies) started their business. Furthermore, the mass organization region is situated in Wilayah Persekutuan Lumpur and Negeri Sembilan with 21 companies (15.6%). Kedah shows 17 companies (12.6%) in the region, followed by, Wilayah Persekutuan Labuan and Johor with 15 companies (11.1%). Besides, Sarawak, Selangor, and Kelantan show 10 companies (7.4%) in the region. Meanwhile, Perak and Melaka indicate 4 companies (3.0%) in their respective region. Terengganu shows 3 companies (2.2%) in its region and Sabah has 2 companies (1.5%) in the region. Additionally, Pulau Pinang, Putrajaya, and Pahang have 1 company (0.7%) only in the region. We have performed reliability analysis before advancing to additional analysis, as shown in Table 6. A Cronbach Alpha greater than 0.60 is conventionally accepted for exploratory research to unveil stability of the measurement, identically, however, a value greater than 0.70 is more recommended (Bagozzi, 1994).
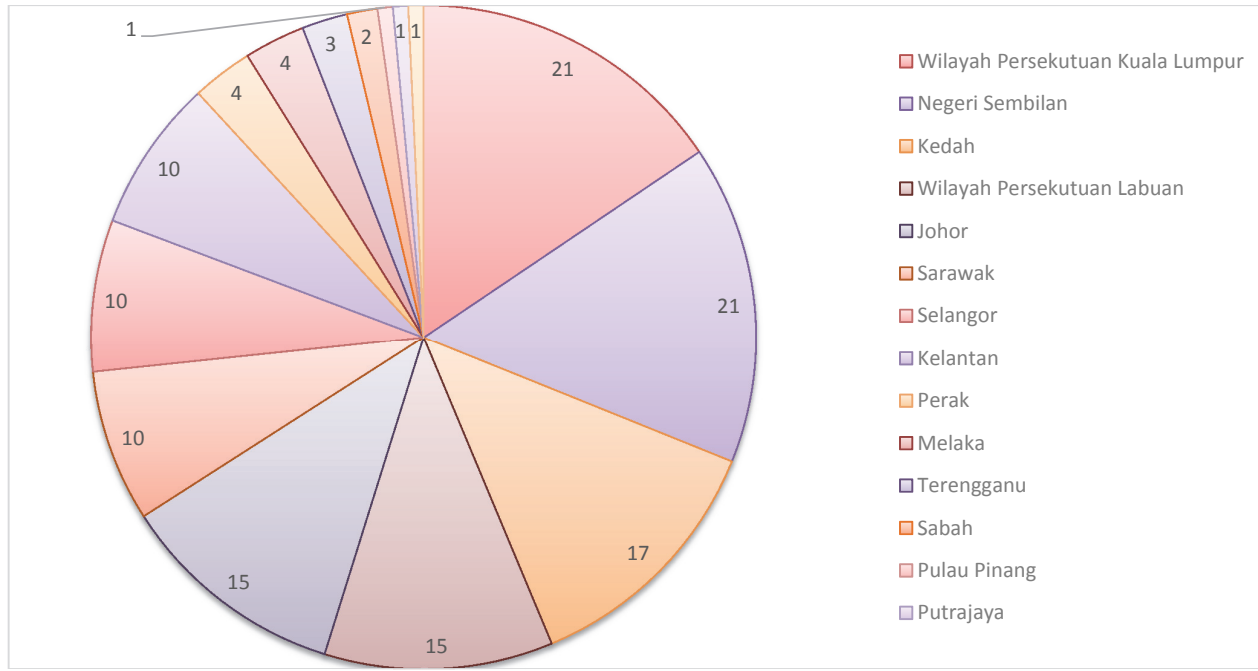


| Posture of ownership | Statistics of manpower | Transaction income | Year of organization established |

*Organization region*

**Fig. 6.** Personal characteristics of the participants

**Table 6**

Cronbach's alpha reliability test result

| Construct | Items | Cronbach's Alpha (N=135) |
|---|---|---|
| **Financial Factors** | | |
| Performance Expectancy | 3 | 0.86 |
| Facilitating Condition | 3 | 0.92 |
| Effort Expectancy | 3 | 0.87 |
| Social Influence | 3 | 0.93 |

We perceive further by performing the correlation analysis. In this study, correlation analysis explores the relationship of each independent variables toward the behavioral intention that consists of performance expectancy, facilitating condition, effort expectancy and social influence. From this correlation results, the strength and direction of relationship between those variables is described. A correlation of +1.0 is a perfectly positive correlation, while -1.0 is a perfectly negative correlation (Sekaran & Bougie, 2016).

**Table 7**

Correlation between constructs UTAUT and behavioral intention

| Variables | Performance Expectancy | Social Influence | Facilitating Conditions | Effort Expectancy | Behavioral Intention to Use |
|---|---|---|---|---|---|
| Financial Factors | | | | | |
| Performance Expectancy | 1 | | | | |
| Social Influence Facilitating | 0.509** | 1 | | | |
| Facilitating Conditions | 0.285** | 0.295** | 1 | | |
| Effort Expectancy | 0.494** | 0.575** | 0.595** | 1 | |
| Behavioral Intention to Use | 0.515** | 0.598** | 0.252** | 0.551** | 1 |

Based on Table 7, there are correlations between factors of the UTAUT framework and behavioral intention to use BI technology among MHFMIs. The correlation of variables will be separately discussed. First, a measure of correlation relationship between independent variables which are performance expectancy, facilitating condition, effort expectancy and social influence was conducted, followed by the dependent variables from UTAUT with behavioral intention to use. From the results, the highest correlation

is between social influence and behavioral intention to use with a positive correlation coefficient of 0.598. The positive linear relationship will cause an increase in one variable if the other is increased. Whereas, the low correlation value belongs to the relationship between facilitating condition and behavioral intention to use. Its correlation coefficient is at 0.252. The other variables correlation between independent variables and dependent variables mostly are positive. Therefore, the positive linear relationships will cause increase in one variable of the other is increased. The next step, we will discuss on multiple regression result, as shown in Table 8.

**Table 8**
Result of multiple regression analysis (N = 135)

| Variables | Constant | Unstandardized coefficient (B) | Standardized coefficient (β) | p-value | R-square ($R^2$) |
|---|---|---|---|---|---|
| Financial Factors | | | | | |
| Performance Expectancy | | 0.053 | 0.110 | 0.057 | |
| Facilitating conditions | 0.442 | 0.034 | 0.032 | 0.593 | 0.562 |
| Effort Expectancy | | 0.480 | 0.520 | 0.000* | |
| Social Influence | | 0.133 | 0.120 | 0.200 | |

*Significant at 0.05 level; dependent variable=business performance*

Based on Table 9, the $R^2$ for the financial factors indicates 0.562, which shows that 56.2% of the variance in financial performance of MHFMI can be forecasted from the alliance of all independent variables in these factors. The study found that MHFMI played an ascendant personality in regulating the financial performance of MHFMI. The significant variable that propound financial performance includes effort expectancy (β=0.480, p=0.000). Concurrently, Performance Expectancy, Facilitating Condition and Social Influence had no significance on financial performance of MHFMI. Regression analysis estimates the conditional expectations of dependent variables given that the independent variables are the average values of the dependent variable when the independent variables are fixed (Bell & Bryman, 2015). The UTAUT framework and financial factors in this study include performance expectancy, facilitating condition, effort expectancy and social influence.

**Table 9**
Model summary for UTAUT framework and financial factors

| Model | R | R Square | Adjusted R square | Standard Error of the Estimate |
|---|---|---|---|---|
| 1 | 0.678[a] | 0.459 | 0.442 | 0.28497 |

[a]*Predictors: (Constant), performance expectancy, facilitating condition, effort expectancy and social influence.*

## 6. Conclusions

Studies in decision making process suggest that in future, researchers must concentrate more on decision making processes and also focus on strategized financial decision-making process for an organization. In addition, to enhance decision making process, future research is necessary to look for the roles of an organizational management activities and how an organization practices need investigation to give more insights to the practitioner to adopt the strategized financial decision-making process used to set priorities and focus on strengthening operations, ensuring that employees and other stakeholders are working towards common goals. It is a disciplined effort that produces fundamental decisions and actions that shape and guide what an organization must perform to improve the performance, establish agreement around intended outcomes or results, what it does, who it serves, assess and adjust the organization's direction in response to a changing environment with a focus on the future. Decision making process, on a strategic level, creates the information to be used in the forecasting of future results based on historical results; on the tactical level, it provides a basis for decision-making to optimize actions for overall organization performance and on an operational level, it provides just-in-time analysis of organization departmental performance for top-down or a bottom-up approach in an organizations performance.

Research on decision making process and adoption focuses mainly on financial management related to manufacturers managing their business through strategized financial performance. Although an increasing number of studies on strategizing and adoption of decision making process have been conducted during the past decade, there is still a lack of research regarding different types of financial management and especially on the adoption of strategized financial decision-making process such as business intelligence among MHFMI. This study contributes to the decision-making process literature through its focus on factors affecting the adoption of financial management towards BI technology. Furthermore, this study will develop a conceptual BI information framework to enhance financial performances of MHFMI which mostly strategized financial decision-making process of an organization. Besides, this MHFMI could benefit the financial performance, in term of funds management, financial control, internal auditing and financial forecasting and planning. Moreover, the overall findings of this research study may guide them to identify and assess the influence of the critical success factors which facilitate or hinder the adoption level of BI in particular and financial management in general. For policy makers the above issues point to action plans that they can take to foster the recognition of financial management and foster their uptake and better management. The research may be able to suggest government to play a role in developing awareness and understanding BI through promoting such as MHFMI workshops. This will also assist us in invading empirical research studies, archiving complementary nature and expounding the execution and profound influence operation of financial performance management as well as prospecting noticeable trend in the financial factors toward underlying the concepts, principles and reasons for such controlling and monitoring processes and mechanisms in the formation of ventures, complexities and context of BDA.

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