Integrating business analytics with performance management

Sultan Gashgari

Abstract: Current paper analyses the role of business analytics for managing performance and discusses the way business analytics can be integrated with performance management. Business analytics consist on chain and Bayesian models. In addition, it also plays an important role regarding data involvement and structuring to gain the objectives in performance management. Business analytics enables management to take rationale and affective decision making based on historical data. However, its affective implementation requires supportive organizational culture, stakeholder awareness and support from top-level management. Integration of business analytics require consideration of internal and external factors of the organizational business environment, identifying performance drivers, integrating performance drivers with performance and management action and control system.

Key Words: Business analytics, Performance management systems, Management control systems, Decision making, Knowledge management, Performance measurement, Business performance, Business analysis, Managerial Analysis, performance drivers, control system, Performance management.

Introduction:

The advancement in business analytics for intelligence management resulted in powerful instruments for performance management. The business analytics instruments, such as data mining, support systems and expert systems offer different algorithms to perform complicated operations to draw meaningful conclusions from the data to manage performance. In today's era, instruments in business analytics provide valuable support for managing the performance of the employees in the organization. However, information overload is often faced by the decision makers who wanted to process all information to manage the performance (Morrison & Birkinshaw, 2009).

The problem of information overload has been deepened with the development of various data storage opportunities, which are also more comprehensive. Therefore, proper integration of business analytics is an important aspect to overcome this problem. There is plenty of data available for companies to utilize for answering queries regarding organizational issues and problems.

Data supply require comprehensive knowledge of organizational and employee level performance management. This knowledge is necessary for affective application of business analytics for the management. Thus, integration of business analytics in performance management has become crucial for affective decision-making. Current paper addresses two key elements in the realm of business analytics and performance management. First, competitive advantages gained by business analytics is analyzed with the assessment of the association of performance with business analytics (Mason, 2007). Secondly, integration of business analytics with performance management has been discussed to facilitate managerial decision-making. In addition, current state of business analytics as well as factors affecting the application of a business analytics in intelligence management is also elaborated.

Factors promoting business analytics

Three key factors have been addressed in current research that promotes the need for the application of business analytics. These factors are excessive data, organizational interdependencies and need for holistic approach to implement business analytics. These factors emerged due to individualization as well as globalization in business environment. Therefore, consideration of these factors is important for the sake of implementing business analytics.

Excessive data

Excessive amount of data give rise to the problem of data overload. Management often has limited data processing capabilities. Numerous factors in internal and external environment of the organization need to be analyzed for affective decision-making. Therefore, this problem intensified and need for business analytics to filter relevant information and integrating with performance management is necessary for decision makers to identify key performance indicators and success factors.

Adequate amount of data is necessary to make viable conclusions about the problem or issue under investigation, however excessive amount of data create discrepancies that need to be eliminated through filtering data and retaining only relevant information (Neely, 1999). Business analytics perform that task, retain value bale data, and discard irrelevant. Therefore, affective decision-making is possible with the use of business analytics. Proper management of dat and its implementation is possible. Although, adequate amount of data is quiet needed, it is worth necessary to manage excessive flow of information. Where, inadequacy is a problem, excessive amount of data is also unnecessary for decision making. Balance approach is necessary to take affective decision making in the organization.

Organizational interdependencies

Complex organizational environment and interconnection between various practices in organization require holistic approach to identify performance. Lack of holistic approach makes performance data worthless until it is translated in to meaningful way. Therefore, holistic approach of data analysis through business analytics contribute for more objective decision-making for performance creation through linking performance affects with business analytics. Organization does not operate in isolation.

Its process and operations are interrelated with each other. Therefore, it is necessary to adopt holistic approach to collect relevant data that is need to be evaluated simultaneously (Smith & Goddard, 2002). Making decisions based on a certain factor do not provide complete picture of the issue. Therefore, it is necessary that all interdependencies of an organization should be evacuated.

This is essentially done through business analytics. Business analytics provides holistic approach to consider all organizational interdependencies and provides rationale and affective decision-making. Often, issues arise from inadequate picture of the situation going to be

confronting by the management. This is the responsibility of the individuals engaged in decision making to consider all facets of decision-making. Organizational interdependencies form integrated view of operations and processes that requires ken observation of integrated elements of performance in organizational processes and operations. Therefore, such integrative view of organizational processes and operations should also be reflected in business analytics.

Need for holistic approach to implement business analytics

Although business analytics are applied for business intelligence in the organizations, they are often applied in parts majorly in planning process. Therefore, one of the reasons behind failure of strategic management decision making is problems during implementation phase. Current research also lacks in providing meaningful clue for implementing business analytics. Therefore, holistic approach to implement business analytics enables managers to understand interdependencies among inputs, processes, out puts as well as outcome in performance management (Malmi, 2009). Decision based on targeting specific aspect of organization provides inadequate information for decision-making.

For instance, is employee performance is declining, it is necessary to focus on both individual and organizational level factors. Ignoring any of the factors could lead to the ineffective evaluation of data for making decisions. Therefore, it is quiet necessary to focus on holistic approach to implement business analytics in the organization.

Integrating business analytics with performance management

A performance management system incorporates multiple layers in managing performance that are inputs, processing, out puts and outcomes. Business analytics are applied with the consideration of these layers. There is absence of approach that provides incorporation of all elements in a comprehensive manner. Therefore, presence of such approach could help managers to identify which type of analytics should be used in performance management. Such approach is helpful in improved decision-making process to sustain the effectiveness and efficiency of performance management. Management uses multilayer approach in which it has to keep an eye on input, outputs, processes and numerous outcomes to make further decisions. These layers include Internal and external factors, identifying performance drivers, integrating performance drivers with performance and management action and control system. These factors are discussed as under.

I. Internal and external factors

Internal and external factors are present in the business environment of the organization. These factors are incorporated while applying business model. Therefore, data about these factors is an integral part of business analytics. Such data is necessary for acquiring relevant and useful information about drawing meaningful conclusion to take decision about the organizational environment though business

analytics. Organizational environment is always dynamic and complex and business analytics play an important role of processing data about internal and external environment. Environmental scanning provides sufficient data about different external and internal elements such as political changes, competitors and competitions. When such data is collected business, analytics process that data into useable information.

This information can be used to draw meaningful conclusions about the decision needed by the company. Therefore, business analytics is integral for utilizing internal and external factors in the environment. Environmental scanning set the basis for setting strategic objectives for the organizational and that ultimately leads towards competitive advantage for the organization. Such processing of information is not possible without the use of business analytics. Therefore, business analytic integration is crucial for environmental scanning to identify internal and external factors and related information.

II. Identifying performance drivers

Performance drivers hold key position in performance management. Performance drivers enable employees and the organizations to meet expected level of performance. Business analytics process important data on inputs, processing, outputs and outcomes. Such processing results in identification of important performance drivers. Performance drivers could be identified from already implemented performance management system or bench marks. These performance standards could be tangible or intangible. Benchmarks are also available, how firm can develop their own benchmark for the sake of performance management. Business analytics analyses the processes, operations and job descriptions and specification of the employees to evaluate performance standards.

Therefore, business analytics is essential for integrating performance management and developing performance standards that are essential to evaluate performance. Evaluation of organizational processes and operations as well as job description and specification is key element in setting up performance drivers. Therefore, business analytics is important to set performance drivers that are evaluated on each review period by the immediate supervisor or the manager.

III. Integrating performance drivers with performance

After the identification of performance drivers through business analytics, it is necessary to link them with actual performance. Business analytics analyses such linkage through cause and effect relationship. It is important to consider time lags while depicting such connections. Business analytics could verify such cause and effect relationship in essential and adequate manner. Once, the connection is established, it is possible to verify the performance on specific performance indicator. After the identification of performance drivers, it is important to make a link with performance as well. Until and unless, the link is not created, performance cannot be measured.

Business analytics play that role and provide information regarding cause and effect relationship through utilization of raw data and converting it to useable information.

Business analytics make sure that performance drivers actually measure performance and they are valid to evaluate whether performance is being measured accurately or not. Business analytics take performance data and performance drivers that evaluate under the actual performance of the employees. Another drawback of lack of integration is exertion of efforts in wrong direction. Although employees perform up to performance drivers, however they are less integrated with performance outcome, and in result, performance measure goes futile.

IV. Management action and control system

Management action and control system is important to manage the performance. Once the cause and effect relationship between performance drivers and actual performance is established, management control verifies whether actual performance standards are being met or not. Business analytics indentifies the management action and control for performance measurement. Design for management control and action can be derived from the cause and effect relationship of the management. Feedback loop is an important factor that can be used to revise and regulate performance drivers. Mere implementation of performance drivers is not sufficient.

Evaluation of management control and action plan is important to make sure that performance is going in right direction. In case of lack of performance, action plan and evaluation form the management is necessary to bring the performance on the right track. Business analytics evaluates which method is useful for evaluating performance and what sort of action plan is required to monitor, evaluate and to take corrective actions to bring the performance on the right track. Evaluation of performance reviews, review meetings and employee and supervisions meetings could be evaluate din this regard. Therefore, it is also an important part in performance management, which needed to be integrated with business analytics.

Business analytics, value addition and implementation problems

Business analytics provide value addition for the organization through utilization of sophisticated and agile methods of statistics, mathematics and economics. Business analytics can work on traditional and more sophisticated methods that include financial statements and performance drivers. Accounting data from balance sheet, income statement and profit and loss statements could be essentially utilized by business analytics.

On contrary, performance drivers, critical success factors as well performance indicators are essential and adequate part of business analytics (Emblemsvåg, 2005). These sources are also utilized by business analytics that provide authentic and accurate information to take performance decisions. Business analytics pave the way for more

quantifiable use of analytics for the relationship between inputs, processe4s, outputs and outcomes.

Therefore, the affective usage of business analytics can be identified with integration of three crucial elements that include analytical methods, accounting based applications as well as IT based applications. Some of the IT based application includes data mining. In addition, other prominent elements are target-costing, mapping, cost driven analysis and other processing. Moreover, additional operations involve regression and balanced scoreboard to have a fine decision making process. (Vera-Baquero, 2015).

Business integrates with these practices and offer different analytical methods such as envelopment processing in different operations. Other officering are auto regression and different chain based models, designed for specific tasks in an organizations. These models are used to make the business process effective and efficient. Statistical analysis is aggressively used in business analytics. Different statistical and analytical tools are used in business analytics. Therefore, affective usage of business analytics is achieved through integration of these three activities. Working in isolation without any integration with management accounting application and IT based application do not provide desired results. Management accounting applications provide important and relevant dat about financial and non-financial performance of the origination.

IT based application provide necessary tools to extract the data business analytics analyses this data to draw meaningful conclusions that needed to be implemented in the realm of performance management. There is certain issue that hinders the effectiveness of business analytics thus affecting its value creation capability. Therefore, there is need to address these issues as well. Comprehensive amount of data is needed to implement effectively the business analytics in the organization for performance management.

Therefore, large number of organization collects lot of excessive data for decision-making. This problem occurs when organization's management believe that they can measure only those aspects in performance management that are able to measure. In fact, measuring performance itself is not a driver. The performance measurement contributes in achievement of competitive advantage. Therefore, key concern is to understand performance data and transforming in to useable information that can be utilized to make decisions in performance management. The problem of causal linkage between performance drivers and actual performance can be best identified through business analytics. Hence, there is always need to exploit such benefits and improve areas of deficiencies for the sake of affective decision-making.

Challenges and advantages of business analytics:

Managers often face critical challenges to achieve competitive advantage. Affective use of business analytics improves strategic decision making for managers and the can manage performance to achieve competitive

advantage. Business analytics facilitate understanding of business dynamics for business managers. It is helpful in identifying shifts in business trends and changes in internal and external environment. This is important to test strategic decision-making. Proven assumption and identification of environmental factors though business analytics allow managers to implement performance management that is aligned strategic direction of the company (Schläfke, 2013).

Therefore, they are in position to identify whether strategic decisions taken are producing desired performance or not. They are in position to alter the strategy or make minor changes in existing strategy to bring back perform at desired level. Operational efficiency can be improved by the business analytics. Business analytics identifies the more efficient ways of processing and operations in terms of cost and time. Therefore, risk of time schedule and resource required can be eliminated affectively. Moreover, business analytics make it possible to learn market and customer behavior. Customer, market and transactional data provide important insight regarding the business trends.

Forecasting of sales, demands and seasonal peaks can be identified through trend analysis. Management takes right decisions at the right time. This is done through affective business analytics. In addition, management also learns about the mistakes in analysis and prevention measures in future. Business analytics incorporate formal and objective decision making in performance management (Klatt, 2011). Objective decision-making provides more realistic and authentic decision making to respond to the performance objectives. Besides, above-mentioned advantages associated with business analytics, there are constraints that hinder its affective implementation. Another important advantage associated with objective decision-making is authenticity. Objective decision making authentically addresses the performance level and its implementation in the organization.

For instance, organizational culture plays an important role in affective implementation of business analytics. Without the support of top-level management, organizational culture acceptance as well as acceptance from stakeholder, it is not possible to reap the benefits of business analytics in adequate and essential manner. Stakeholder need to accept that decision-making is done through historical data (Bose, 2009). Role of top-level management is particularly important. Top-level management is involved in decision making in the organization. These are the policies and framework established by the top-level management that implements strategies. Therefore, if top level is committed in the organization, the implementation of the business analytics will be affective.

Decision making based on historical data always pose threats, because, actual scenario could be different because of change in the business environment. Moreover, this is the responsibility of the organization to provide opportunity to its

employees that they develop sense of business analytics within themselves. New skills in IT and management accountant as well as business analytics is necessary to improve information development for decision making.

Conclusion:

Importance of business analytics is realized by both practitioners and scholars. It is discussed that business analytics is associated with affective decision making and better performance management. Proper integration of performance management with business analytics provides basis for affective and rational decision making for the management. This is an important aspect to achieve competitive advantage. Lower perfuming firms can achieve advantage from such analytics.

Therefore, recommendation for integrating business analytics with performance management, make managers understand about value addition for analytical toolbox. Role of IT applications, business analytics and management accounting applications and their integration is important for the business performance. The major concern regarding failure or inadequacy of business analytics is lack of such integration. Majority of the firms face such dilemma and they regard performance management as performance indicator. There is immense need to understand the way business data can be processed into information to draw meaningful conclusions.

Only then, benefits of business analytics could be reaped. Besides, it is necessary that proper environment should be present in the organization that supports implementation of business analytics. Organizational culture, acceptance of stakeholders as well as role of top-level management is crucial. If organizational culture is not supportive and it does not provide support for business analytics, it cannot be implemented with complete integration. Moreover, stakeholders should aware about the implementation of decision making in the organization that is backed by business analytics.

Employees need adequate autonomy to implement business analytics within their day-to-day tasks and activities. Top management provides support in this regard. If top management is not committed to implement business analytics, its integration with performance management, employees will also discouraged and business analytics will not b implemented in the way it is requisite for achieving competitive advantage. Therefore, careful consideration is required to exploit the benefits associated with business analytics and addressing hindrances associated with its implementation.

References:

Bose, R. (2009). Advanced analytics: opportunities and challenges. *Industrial Management & Data Systems*, *109* (2), 155 - 172.

Emblemsvåg, J. (2005). Business analytics: getting behind the numbers. *International Journal of Productivity and Performance Management, 54*(1), 47 - 58.

Klatt, T. (2011). Integrating business analytics into strategic planning for better performance. *Journal of Business Strategy, 32*(6), 30 - 39.

Malmi, T. (2009). In Search of Management Accounting Theory. *European Accounting Review, 18*(3), 597-620.

Mason, R. B. (2007). The external environment's effect on management and strategy: A complexity theory approach. *Management Decision, 45*(1), 10 - 28.

Morrison, A., & Birkinshaw, J. (2009). International Attention and Multinational Enterprise Performance. *Journal of International Business Studies, 40*(1), 108-131.

Neely, A. (1999). The performance measurement revolution: why now and what next? *International Journal of Operations & Production Management, 19*(2), 205 - 228.

Schläfke, M. (2013). A framework for business analytics in performance management. *International Journal of Productivity and Performance Management, 62*(1), 110 - 122.

Smith, P. C., & Goddard, M. (2002). Performance management and Operational Research: a marriage made in heaven? *Journal of the Operational Research Society*, 247-255.

Vera-Baquero, A. (2015). Leveraging big-data for business process analytics. *The Learning Organization, 22*(4), 215 - 228.