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The Argument in Favor of Strategic Decision Making Based on Data

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Research Article

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Abstract

The argument for data-driven strategic decision making is examined in this paper. In organizational changes, the efficacy of executing the chosen strategies and the caliber of strategic decision-making are becoming more crucial. This necessitates the use of data-driven decision-making processes in strategy management. Strategic data-driven decision making is gathering data, interpreting it, distributing it to those who need it, using it to boost productivity and enhance performance, and sharing data-driven choices with important stakeholders. The many concepts and components of data-driven strategic decision making are described. The use of data in strategic decision-making in schools is taken into consideration. Data collection, analysis, and implementation into development strategies are made easier by this potent instrument in the education sector. Its superior value is in enabling well-informed decision-making, increasing overall school performance, and improving student success. Any endeavor involving data-driven decision making requires a proactive leader who can advocate for the cause and comprehend the vision. Making strategic decisions is a crucial part of putting a company on a path to long-term success.

Keywords: Information, strategic choices, models, performance, quality, instruments, and analysis

Introduction

Too little research has been done in the area of strategy management on the factors that affect strategic decision-making quality and strategy implementation effectiveness (Mulcaster, W.R. 2009). The financial crisis of 2008–2009 is a recent example that may have been prevented if banks had been better aware of the dangers involved in their investments. Data-driven decision making has become a key component of forward-thinking firms' policies and practices because of the dynamics in strategy management (Eden, 1998). In order to monitor and promote performance and improvement, managers in these kinds of businesses are using both domestic and commercial data-driven decision-making tools and support systems. Implementing numerous strategic data-driven decision-making techniques presents technological, resource, budgetary, and data quality issues. In fact, the hardest obstacles of all may simply getting started. In reaction to the perceived absence of well-informed judgments, data-driven decision making is a relatively new concept that has surfaced in the previous ten to fifteen years (Pfeffer, 1998). Organizations may strive toward continuous improvement, satisfy accountability standards, concentrate efforts, evaluate progress, and foster a sense of community via organizational learning, all of which are advantages of data-driven decision making. High-quality business choices are supported by a strong foundation of high-quality data. Strategic decision-making procedures are better in companies with strong performance trends in profitability, growth, and market reputation (Eisenhardt, 1999). When confronted with a variety of management options related to services, product quality characteristics, compensation, inputs, and distribution, strategic and operational decisions may increase or decrease corporate costs.

Data Driven Strategic Decision Making

The Linkages

Three competing theories were developed by Allison (1969) to explain the actions of the participants in the 1962 Cuban Missile Crisis. The rational actor model is consistent with

rational and planning viewpoints, which hold that individuals behave logically. As a result, the emphasis throughout the decision-making process is on choosing the best course of action after a thorough examination. According to the organization process paradigm, deeply rooted organizational routines impede rational conduct. Conflicting interests and goals result in processes of political positioning and maneuvering inside the organization, according to bureaucratic politics theories. According to Papadakis, Lioukas, and Chambers (1998), comprehensiveness/rationality, financial reporting, role formalization, hierarchical decentralization, politicization, and problem solving characteristics are the criteria used to make strategic choices. Decision-specific traits, such as perceived traits and objective typologies associated with strategic choices, are connected to the process aspects. Characteristics also depend on management and contextual elements, with an emphasis on the internal business situations and the external corporate environment. The most significant factor influencing the strategic decision-making process is decision-specific features. Decisions with various decision-specific qualities go through distinct stages.

Organizational leaders of today rely heavily on data to help them with decision-making, goal-setting and prioritization, progress tracking, need definition, goal-setting, intervention planning, and progress assessment. Effective organization management is the outcome of analyzing the discrepancies between organizational and performance goals. Operational decision making uses decision trees, which rank possibilities by gradually removing others (Johnson, 1984). The important criteria—growth, investment, and diversification—that will be included in next developments are identified via the elimination process. The amount of data required for the advancement of sustainable organizations must be sufficiently understood by data-based decision makers. The application of data analysis abilities will be improved by understanding fundamental concepts of measurement and evaluation. Technology is necessary to facilitate the use of data and enthusiastically include stakeholders in the analysis of data's strengths, weaknesses, dangers, and possibilities for long-term organizational growth. It is the responsibility of leaders to instruct employees on the organization's goals, vision, and purpose. The stakeholders are informed about their progress in achieving the mission's goals and objectives via the utilization of available data.

The organizational theory literature on learning curves and continuous improvement provides the theoretical foundation of data-driven decision making (Pfeffer, 1998). Data-driven strategic decision making involves gathering relevant data, meaningfully analyzing that data, distributing the data to those who require it, utilizing the data to boost productivity and enhance performance, and sharing data-driven choices with important stakeholders. Mulcaster's Managing factors framework, which tackles this problem by identifying 11 factors that need to be integrated into the decision-making and strategy execution processes, is one method. Time, competing forces, politics, perception, holistic impacts, contributing value, incentives, learning capacities, opportunity cost, risk, and style are the eleven forces. An alliance or cooperative partnership is a much more desirable choice than an acquisition when competence is taken into account in border choices (Thomson, 1993). There are opportunities to end a strategic partnership if circumstances change, particularly in situations where the market is unpredictable and changing quickly. The decision-making process must be appropriately structured in alliances and cooperative partnerships with foreign businesses in order to quickly take corrective measures as technological and competitive developments occur at an extremely rapid pace. The lowest organizational level capable of making prompt, competent choices should be given decision-making responsibility (Thomson, 1993). Effective strategic decision making may be used at the corporate level to explain significant turning moments in strategic decision-making, at the unit level to improvise company strategy, and at the multibusiness level to develop collective strategy and cross-business synergies (Brown, 1998). Reviewers use pre-designed and piloted forms to independently collect data from all included

research. The research design, goals, methodological quality, setting, participants, and results in respect to the review objectives will all be reflected in the extracted data (Khatri & Alvin, 2010). The correctness and completeness of the extracted data are compared. As the data is processed by the extraction, transformation, and loading tool, it is examined for missing, inconsistent, and incorrect items. Errors are fixed, and conflicts are settled by the review team's consensus or by consulting a third party. Big data refers to collections of data sets that are challenging to handle using manual data management tools and even conventional data processing software because of their size and complexity. According to Couldry & Turrow (2014), the ecology of corrections that unite individuals and groups through information, organization, empathy, and celebration as members of a common social and civic space will be impacted by the integration of big data into personalized marketing and content creation. The dangers will cause the corrective media measures that are necessary for a functioning democracy to be eliminated. Because of the resource conflict this causes, the most important applications or subworkloads inside the application must be given precedence. Research need to be diversified, having a range of theoretical foundations. (Alvin & Khatri, 2010).

A data warehouse is where the information is kept. A data warehouse is a subject-oriented, non-volatile, integrated, and time-variant collection of data that supports management decisions, according to Inmon's (1996) classic definition. Data warehouses provide historical information about a company that decision-makers must examine; thus, they must be developed within the framework of a strategic business strategy. The engineering strategies suggested for goal-oriented requirements are predicated on gathering the necessary knowledge via conventional methods and modeling objections. The conventional methods include checklists, templates, interviews, and formal language. Current organization objectives, change goals, future company goals, and assessment goals are the goal models. In order to assist the decision-making process, the decision makers examine the historical data and transform it into storage information (Giorgini et al, 2008). A database that collects and saves data from diverse distant and heterogeneous information sources is the source of a data warehouse (Al Nasser, 2014). It functions as an information system that can extract knowledge from the company's operational data storage (see fig. 1). Information is given on markets, suppliers, consumers, and financial results. The ability of data warehouses to transform data into strategic information facilitates higher-level organizational decision-making.

The process by which members of an organization gather and use knowledge to modify and carry out action is known as organizational learning (Pfeffer, 1998). Organizational learning occurs in organizations that have systems where information is dispersed throughout many departments and personnel while also being ingrained in the organization's culture, values, and routines. Organizational learning may be accelerated by data. Information from various sources and kinds is referred to as data. Data may be used by leaders to build systems that facilitate both individual and group learning from data. The knowledge that may be gleaned from the data, the processes that are altered as a consequence, and the additional data that has to be gathered are all beneficial. An organization's professional standing and organizational learning are well-supported when its culture promotes data exchange and dispersion. In reality, many teams that can support data-driven procedures should be in place for data to be beneficial to the company. Gaining a competitive edge, resource optimization, cost reduction, value creation, accuracy and accountability, and uncertainty hedging are all made possible by data (Kavale, 2012).

Strategic Decision Making Models

After examining the many options, the management must decide which will be the

organization's future strategy. Figure 2 depicts the organizational settings in which decision-making might occur, together with the particular decision models that will be used. Individuals, groups, organizations, social institutions, and society are the settings (Comerford, 1985).

2.1.1 Personal Background

The decision models concentrate on organizing or elucidating the decision-makers' mental processes. Rationality, limited rationality, incrementalism, intuition, and adaptive techniques are the elements for each individual decision maker. The maximization of net value achievement occurs in rational decision making when the sacrifice of one value associated with a choice is larger than the gain in the attainment of another value. Establishing operational objectives with weight inventory values and resources with weights, having alternative strategies or solutions, and estimating the costs and benefits of each strategy or solution option are all part of the process. Each option's anticipated value is calculated, and the option with the greatest expected value is chosen.

The foundation of bounded rationality is accepting and settling on acceptable outcomes in order to accomplish objectives. When a set of criteria exists that explains minimum acceptable alternatives and the alternatives either meet or surpass all of the requirements, then satisfactory alternatives are accessible. Establishing a thorough set of operational objectives and determining priority values and available resources are prerequisites for using the limited rationality decision model for strategy selection. A collection of options for an action plan is created by taking organizational capabilities into account. Each option's important costs and benefits are calculated, and the option with the highest net benefit is chosen.

The disconnected incremental model is based on the ongoing pattern of gradually expanding from the existing situation. The practice of maintaining previous tactics with just minor adjustments is known as strategy choice. When the current strategy is acceptable and the chosen plan is similar to the current strategy, the incremental approach might be helpful. While evaluating the present state of affairs and estimating incremental changes to align with the issues, difficulties and incremental objectives will be identified. The effects of small changes are measured and their suitability is assessed. When the results of incremental modifications are acceptable, they are implemented.

The years of managerial expertise and high degree of confidence attained serve as the foundation for the intuitive approach. It will be applicable in the near future and need less preparation and forecasting. Using probability estimations in the strategy selection process is known as the adaptive method. The adoption of altering a plan in light of the current situation's prognosis is one of the qualities. Establish the lowest permissible values for the variable that represent the objective threshold, then use those values to reject solutions that fail to meet the minimal requirements. Ranking strategy decisions will benefit from the ability to reach the desired objective value. The likelihood of achieving each objective for the remaining methods is determined by the degree to which the environmental events have an impact. The anticipated value is calculated as the product of each goal's feasibility assessment and its reward for each remaining strategy option. The approach that has the highest predicted value is chosen.

2.1.2 Context of the Group

The Group and Elite models make up the decision models, which are based on groups as the primary influence on choices. The decision is the result of group interactions, and the decision maker is a member of the group. A method for balancing group interests is the group model for strategy selection. It may be used in public policy to balance the interests of coalitions, external groups, and internal group influence while choosing a plan. Business strategy may be chosen using the Elite model of public policy, in which Elites influence public opinion on policy issues. When desired choices and strategies are put into practice, management may be elite.

2.1.3 Context of the Organization

According to the system model, decisions are made based on a variety of inputs that come from

both internal and external sources. The organization decision process is included in system models as a phase that transforms strategy decision inputs into decision outputs. When the organization processes it, the result is a collection of outputs. Organizational inputs are the independent factors, and strategy is the dependent variable. Allison's organizational process model (II) places a strong emphasis on choosing a strategy via interorganizational negotiation, goal agreement, informally articulated expectations, and the first strategy option that is an acceptable way to meet those expectations. Allison's model will function inside a political framework. A strategy is chosen as a result of the political interactions between the organizations' different internal and external alliances.

2.1.4 The Institutional Setting

The main elements determining the choice of strategy are institutions. Adopted by a governmental entity, government policies are then put into effect and upheld. Strategy and company structure are related in an institutional setting. The instructional model is also used to the link between approach and other institutional characteristics.

2.1.5 Worldwide Context

When developing a plan, global considerations are taken into account. The conceptual level of the factors taken into account throughout the decision-making process is reflected in the strategy selection model. The specific decision variable is determined by the decision models. When developing a plan for the systematic examination of competitiveness in international industries, global forces come into play. The structural study of global industries will take into account international rivals, a wider range of prospective entrants, more potential replacements, the possibility that the firm's objectives and personalities will vary, and perspectives of what is strategically significant (Comerford, 1985).

Usage of Data in Strategic Decision Making in Schools

Facilitation

Data driven strategic decision making is a powerful tool is the education sector with greater emphasis on school improvements. Data driven decision making facilitates continuous improvement in school by usage of fit for purpose data collection, analysis and applications into the improvement plans. The frameworks of effective data driven decision making techniques are used to analyze test scores, student achievements, reduce achievement gaps between student subgroups, improvement of teacher quality, improvement of curriculum, sharing best practices among schools and regions, communication of education issues more effectively with key stakeholders, promotion of parental involvement in the education process and increase dialogue within the educational community (Messelt, 2004). Education authorities have collected student and institutional information based on test scores, enrollment data, budget and finance information and human resources data. Data driven making process is proven to be worthwhile when the technology infrastructure requires upgrading, enabling acceptance of data collection and its applicable data analysis. The correlation between student activity level in relation to student discipline, performance and attendance can be found. Data and information are easily available which is conducive to knowledgeable decision making which enhances performance in the education sector

Developing Knowledge

Data can develop a solid blueprint of knowledge with measurable results for continuous improvement through its proper use. Achievement gaps are significantly reduced by data through the availability of quantifiable evidence which takes out the psychologically aspects and guesswork by the education and school authorities. Regions have an opportunity of analyzing performance data of categories of students including addressing problems at the school. Data aids in the evaluation of student composition including profiling them. This enables equitable distribution of resources as per justifiable needs and redistributing students to the appropriate classrooms. Teaching quality by incorporating data is improved by having

systems which focus on specific professional development needs of region staff. Education officials and teaching staff are able to engage a proactive approach when reviewing curriculum design and development with the usage of data driven decision making systems. Demographic data obtains characteristics and personal profile of the students and the schools. In some cases when considering the effects of synergies a multi criteria methodology is adequate to compile objectives aspects and developing optimization leading to opportunities for decision makers preferences to be included (Alencar & Almeida, 2008)

Data aids education officials and teachers to garner information which they might not otherwise have possessed. This includes identifying programs which are not performing and the root causes of problems. In such scenarios it's possible to have interventions such as holiday tuition, extra classes after normal time and other after-school programs as corrective actions. Data enables the determination of best practices in the schools which leads to superior performance levels. This encourages benchmarking to take place between the stakeholders. As outlined in fig 3 it's essential to acknowledge the impact of the tools, the outcome of the decision making process, the strengths of feedback loops and the differences among the level of end users in the region (Mandinach, Honey & Light 2006).

Procedural analysis of data will be able to identify strengths and weaknesses of students in the subjects taken. This makes it possible for teaching staff to identify specific areas of the curriculum/syllabus which will be required to be reviewed. The same approach will help the parents to particpaite well in students home works, assignments, parents teachers association and educational planning. Data from high quality observations have a greater potential to transform principal use of data related to human capital decision with focus on professional development, hiring and retention (Goldring et al, 2014). The consistency, transparency and specificity of observation data has more advantages over test score based measures when considering usage of teacher capabilities to shape decisions in the schools.

Solutions of Data-Driven Decision Making Systems

Organizations should be able to prepare there in house data driven decision making solutions and additionally procure turnkey data management and analysis systems. Working with vendors enables regions to streamline their data management and analysis investments, mitigating the costs associated with the unpredictability of the development and there maintenance aspects. The source of information is from schools information systems, financial authorities, human resources, examinations system, teachers development programs and other applicable stakeholders systems. Data is passed through the extraction, transformation and loading tool where missing or any errors are looked for and corrective actions taken. The data is stored in s data warehouse

The heart of the data driven decision making system is the data analysis. Its a analytical tool that does mining, forecasting and analysis of information from data sources and data warehouses, Users are able to process real time, produces customized reports and reduces the time and effort if manual approaches were to be used. Decision support tool recommends and outlines corrective measures to address problems resulting from the data analysis process. Analyse existing applications, data, documents and other artifacts so as to effectively monitor the progress and come up with well informed game changing decisions. Issues can be identified and corrective actions taken when data driven decision making is monitored in real time and feed back. Its important to have support services such as training, upgrades, assessments and maintenance from the suppliers of data driven decision making systems to be able to sustain the usages. This system users must enthusiastic learn and be high skilled to use strategies and procedures to enable achievement of higher operational efficiencies.

Preparations

Key to creating momentum behind any data-driven decision making effort is a proactive leader

who understands the vision, champions the cause, helps others in the region realize the impact of data analysis and understands that the entire process takes time (Messelt, 2004). The requirements will be building collecting intuition to be able to see opportunities and threats faster and precisely. The quality of decision making is enhanced by forming diverse teams to stimulate quick conflict. Sustaining of the momentum of strategic choice is based on ensuring proper timing of strategic decision making. Decision makers should not engage in destructive interpersonal conflict and time wasting politics (Eisenhardt, 1999). The Education Officers generally translates the board's vision for the school region into measurable goals based on data and works with region authorities, staff, parents and other community stakeholders to craft plans for meeting goals by certain dates They will also collects data to show clear, steady progress and celebrates successes, evaluates shortcomings and revises plans for improvement based on data, along with the school board

The School Board generally: establishes a vision for the school based on data showing what has been achieved so far and what progress is necessary and spells out for the Education Officers and other employees and stakeholders, how region performance will be evaluated. They will review relevant data to evaluate regions progress toward identified goals and revises goals and plans for improvement based on data

Broad participation in improvement efforts serves to promote a high level of support for those efforts and generate sound solutions by expanding the discussion. There is motivation of participants and their associates which increase the likelihood that the effort will lead to constructive action. Participants should prepare well for their role in implementing improvements and increase ownership of and commitment to specific strategies.

The best way for the leader to get started is to lay the groundwork for a region wide shift to a culture of information, education and communication. One way to do that is to find "data champions" throughout the organization. These "believers" should come from all levels. Successful integration of data-driven decision making also requires a team approach, particularly between the board of education and the education officials. The regions expectations must be clearly articulated, measurable and attainable, and individual roles must be clearly defined.

There are technical challenges to overcome, many of them involving availability and reliability of data. There is shortage of staff and resources, difficulties cleaning up data from multiple sources so that they are compatible, various entry and accuracy errors that, once analyzed, can lead to incorrect conclusions and the need to digitize large quantities of information and hitches arising from the quality of data. Lack of proper training and pressure of accountability were barriers to teachers in use of data driven decision making within response to intervention policy for improvement of academic achievement of risk students for high school teachers (Kressler, 2014). Data analysis is only as strong as the quality of data from which it is derived. If the data is suspect, concerns can be raised about the quality of decisions that administrators are making based on that data. To overcome these barriers, many regions have opted to pilot their data-driven decision making systems on a smaller scale with a specific school, program or group of students. By showing success on this level, they are able to build trust, create "data believers" and increase the likelihood of buy-in on a region level. (Messelt, 2004).

Implementation of data-driven decision making system

The beginning of the process commences by finding out what is to be learnt and the vision of data collection. An information audit is done to so at come up with the data being collected and review the compatibility of the data sources. It's essential to determine the type of additional data required where qualitative and quantitative data is of high value. Qualitative data can be gathered through surveys, administering questionnaires, interview schedules, observations and secondary sources. Data-driven decision making is all about correlating data elements and exploring those factors that contribute both positively and negatively to student and teacher

performance (Messelt, 2004). To achieve the required standards paper systems need to be done away with, the compatible systems and networks should be able to receive data, have appropriate data with the universal keys and allocate responsibility for determined data elements. The approach can be overall usage of existing information technology systems or if not possible then acquire fit for purpose data management systems.

Knowledge of spreadsheets and data base techniques involving filtering, sorting, coding, histograms, charts and tables is required for data analysis. Additional statistical techniques such as correlation, regression and causation are required. Longitudinal measurements will make a difference to the outcome as they cover substantial periods to monitor progress, change and developments which could be even annually. Data should be broken down, categorized and coded to produce a snap shot of the information. The results of data interpretation should be made available at the in- process phase to enable commencement of the decision making task., Forums for teachers, education authorities and stakeholders should be available to enable participants to gain skills and have a shared understanding of the data to facilitate the decision making process. These dialogues help participants gain skills in data analysis. They learn to separate data from inference, to bring out multiple perspectives, to test out interpretations of data with additional data and relevant research, and to explore not just obvious explanations, but the root causes of problems (Nancy, 2001)

Defining new strategies is now possible after the outcome of understanding the relationships and even gaps in the data. Implementation of the strategies, changes and corrective actions takes place. Additionally benchmarking is incorporated to make gains from the performance of top notch schools and regions. The results should be shared out with the stakeholders through appropriate communication channels. This is in the form of simple tables, charts, histogram and the school reports covering the various itemized functions of the schools. All this indicates the importance of having appropriate systems approach to provide the opportunity to examine how data driven decision making is felt in the educational settings by identifying and understanding the interconnections among components that impact schools as complex and evolving systems. (Mandinach, 2005). Data driven enterprises will also require systems for advanced computation like clickstream log analysis, getting real time insights into streaming data, business forecasting and near – interactive experience for large volumes of data (Kunjir, 2014)

Conclusion

Data-driven strategic decision-making processes are crucial for improving student accomplishment, enhancing overall school performance, and enabling informed decision-making. In all facets of strategic decision making, the leadership must give top priority to data collection, analysis, interpretation, and quality data use. Improving curriculum development, fostering better communication, enhancing financial management, and encouraging parent and other stakeholder engagement are other advantageous areas. A key component of maintaining the facility is the engagement of information specialists in the provision, training, support, and maintenance of data analysis modules and data management systems. Data warehouses have the power to impact organizational infrastructure throughout the whole firm. A data warehouse management systems success model must be created and validated, with an emphasis on the crucial elements that support and direct the data warehouse's successful deployment. During the process of making strategic decisions, data with adequate security can maintain its efficacy and efficiency. Strong models for fine-tuning data layouts across many systems are constructed using workload traces. The availability of high-quality data makes it possible to assess progress and establish business guidelines for data governance standards. Making strategic decisions is a crucial part of putting a business on a path to long-term positioning and maximum earnings.

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