DECISION-MAKING TOOLS AND STRATEGIC PLANNING
IN PROJECT ENVIRONMENTS
THE OVERLAP OF THE TWO CONCEPTS

DR. BRIAN J. GALLI

ASSISTANT PROFESSOR OF PROJECT MANAGEMENT AND MANAGEMENT ENGINEERING
LONG ISLAND UNIVERSITY

Abstract: Decision-making is at the core of business strategy. This paper studies that role of economic decision-making in strategic planning. It discusses methods such as foresight and roadmapping, and the contributions they make to the strategic vision. The literature gathered provides information on the methods used to implement foresight in policy making, as well as the business organization environment. We begin by providing a background of decision-making and strategic planning. The importance of making quality decisions is explained in the literature review with the intent of creating a setting for the need of decision-making tools. The literature selected for this study discusses tools such as trend analysis, change driver identification, and the overall of assessment capacity levels. The finding of this paper validates the assumption that decision-making tools are used to identify areas of improvement, as well as business opportunities. Information on the use of specific analytical tools is provided, as well as a comparison of tools used public administrator and company managers. The results of the study demonstrate the intention of managers and decision-makers to make decisions that are in alignment with the company's strategic vision. Some of the barrier and implications of the study are discussed, as well as areas for future study.

INTRODUCTION

The role of decision-making in organizations is of the utmost importance for the sustainability and competitiveness a firm. However, managers in all industries, and in government, are faced with the barrier to quality decision-making, these barriers include futures that are constantly changing, changing rules and regulations, changes in technology, uncertainty, lack of information and lack of necessary resources. The very nature of change makes the rational assessment of outcomes difficult (M.M Elmassri et al., 2016). When an organization makes a decision, a commitment is made. Resources and budgets are then created to support the selected choice. Decision quality becomes vital when the success of future products, services, and investments depend on it. The quality of a decision is greatly influenced by the experience of the decision-maker, as well as the quality of information available at the time the decision is made. Decisions made by organizations have an impact on the organization's objectives and long-term strategic planning. The speed and the quality of a decision made today will have an impact on future business opportunities that will either be seized or missed. Today's business environment is competitive, and fast changing, this requires manages to act fast. Nonetheless, economic decisions must consider the organization's objective and strategic plan before they are rendered. Consequently, economic decision-making must be in harmony with the organizational strategic plan. Economic decisions that are made in the realm of strategic planning will be aligned with the organization's objectives and spliced with long-term plans of the company. Concepts such as Foresight, which uses trend analysis, change driver identification, and roadmapping as tools for decision-making are gaining traction in organizations and governments as decision support tools. These decision support tools assist in the creation of possible scenarios that can be managed and influenced to enhance their possibility of occurring.

The concept of foresight is founded on the principles of future study. The future study attempts to create scenarios or futures that are preferred for business opportunities. The scenarios are prioritized using analytical methods, and then roadmaps are developed to plan the best route to value-adding activities. Roadmapping is intimately related to the company's strategic plan because it considers historical performance data, present weaknesses, and strengths, and the capability of existing processes. The researcher argues that Foresight methods provide a handle on uncertainties by creating a future using the aggregate value of small decisions made throughout the decision-making process. Decision-Making support systems rely on robust information banks, data analysis, and expert judgment. Iterations of a structured decision-making process will ultimately have rendered a roadmap that will lead to the most realistic business opportunities. Research argues that holistic economic decision-making methods that account for context, and external factors, are more accurate than net-present-value. For a manager in environments of high uncertainty, NPV is utilized more as a communication tool regarding investment decisions. Strategic investment decisions are analyzed with and strategic planning perspective.

Background

Strategic planning involves all aspects of the organization. Developing new Products, services, R&D, investment opportunities are all plans that an organization sets for itself. Strategic thinking is typically long-term and attempts to identify competitive features of the organization, as well as areas that need improvement. The main goal of a strategic plan is maximizing profits and benefits for shareholders. A Strategic Plan is the results of numerous decisions that are prioritized and matched against one another to select the best investment options. Therefore, the quality of economic decisions and how they support the strategic vision becomes of vital importance for the organization's sustainability.

Research Statement

Decision makers and planners are facing increasingly complex challenges due to change in the business environment. A network of economies makes markets more dynamic, as well as more susceptible to changes in external change drivers. For example, foreign currency rates can affect companies that are dependent on imported materials. Changes in tax laws can influence a firm to postpone an investment decision or cancel a project. The decision-making process is evolving to account for the strategic objectives of the firm. Decision makers are joining net-present-value, and benefit-cost analysis projections with strategic information to predict future business opportunities. Decision support tools are playing a significant role in obtaining qualitative information for making an economic decision.

Research Question

What role do Decision-making support tools play in strategic planning? What is the effectiveness of foresight as a decision-making tool in support of the strategic vision?

Originality

Matching the application of decision-making tools in policy making against private organizations, and the alignment of these decisions with the strategic vision provides a perspective for identifying areas of improvement. Public institutions and the private sector can improve knowledge transfer dynamics and models, supporting sharing lessons learned, in economic decision-making and strategic planning. The approach used by both share the same goal. To respond to issues, most quickly, and cost-effectively, with the goal of creating value and customer satisfaction.

Contribution to Project Management

This paper contributes to the project management profession by identifying barriers to quality decision-making. In industries, day-to-day decisions are made project managers. This research highlighted that most decisions are made without the necessary information. The project management community can further investigate the barrier to quality decision making. Perhaps, mechanisms can be introduced in the planning stages of projects that account for the creating of networks of information.

LITERATURE REVIEW

Decision-Making and Organizations Objectives

Managers of organizations spend most of their time making decisions. Some decisions are short-term while others are strategic or long-term. Decisions made by managers have an impact on all aspects of the company; decisions have an impact on employees as well as on stakeholders (Negulescu, 2014). As a result, the quality of the decisions, and the decision's connection to the organization's objectives is vital for the sustainability of the firm.

Research suggests that some organizations use the quality management framework as a decision-making tool. Other organizations utilize qualitative and quantitative techniques to assist decision-makers in analyzing complex problems and to predict the outcome of possible scenarios (Negulescu, 2014).

The literature also suggests that involving teams in the decision-making process enhances the quality and the speed of the decision. Collaborative work can be creative thus provides multiples perspectives to approach the decision. Groups can provide first-level options that are furthered analyzed and prioritized performing risk analysis, and discriminate between choices (Drucker, 2009).

Accurate and timely decisions are fundamental to an organizations success. Arriving at high-quality decision improves the organization's ability to foresee business opportunities, and to prepare for future changing conditions. A Likert questionnaire provided to managers in a typical business setting demonstrated that over 80% of managers consider the strategic plan when making decisions. The same survey also showed that decisions are typically made without the necessary information, and without necessary resources (Negulescu, 2014).

Research shows that managers make most decisions based on past experiences, and historical events, and not by utilizing decision-making tools, or scientific approaches. Most managers make decisions, under the pressure of shareholders, when actual results do not meet expected outcomes. An organization's strategy is a driver for programs, and for the prediction of business opportunities. Therefore the decision quality concerning strategic investments affects the effectiveness of the organization, and its ability to handle changes in the business environment. The literature states that decision quality can be achieved by considering environmental factors, and the company's strategic plan (Negulescu, 2014). Data collected shows that while manages strive to move the company's vision forward by making decisions with the company's objectives in mind, most decisions are made without sufficient information and with limited resources. The lack of resources and information decreases the quality of choices, which impacts the company's competitiveness and sustainability.

Foresight

Organizations are using qualitative methods to better inform the decision-making process. The belief that accounting approaches such as net-resent-worth analysis are one-dimensional has led to the use of decision-making tools that rely on large participation and information gathering to make present-day decisions. Strategic investment decisions. Organizations are implementing decision-making tools to address problems related to uncertainty and complexity risk (Fabbri, 2016). Strategic planning provides a platform for implementing decision-making tools such as foresight as a means for exploration and construction of knowledge, and to anticipate the unfolding of scenarios. The success of business decisions depends heavily on our ability to predict possible scenarios.

Foresight planning has been developed in response to changes in the business environment, increasing constraints on budgets, competitor's behavior, and change in technologies (Fabbri, 2016). Decision maker, in climates of uncertainty, are required to make decisions based on an overall assessment of past, present, and future conditions. Assessments can be made on the organization's strengths, the opportunities available, external threats, and organization's weaknesses.

In operations and strategic decision-making, foresight is used to map possible trajectories that will lead to business opportunities (Calof, 2012). The exercise of foresight typically entails Delphi methods. Dr. Jim Dator, director of the Hawaii Research center for Future Studies, states that by using foresight, organizations can create alternative or preferred futures. The strategic planning of activities and daily decision-making can guide the company's vision and its strategic investments.

The literature shows that some practitioners of foresight utilize the decision-making models of Mintzberg and Carnegie. These models seem to work well in conjunction as they promote broad participation, and reduce uncertainty, which leads to quality decision-making (Fabbri, 2016). Mintzberg model of incremental processes and Carnegie model of decision-making. The common illustration of the decision-making process is made of three broad categories; intelligence, design, and choice. These categories can also be viewed as analysis, discussion, and validation. Mintzberg model facilitates the theoretical background for solving uncertainties while searching for the best alternative. This model identifies important choices by combining small choices made along the process (Fabbri, 2016).

Mintzberg decision-making tool assists in making decisions among alternatives. The ability to identify alternatives provides the foundation for mapping trajectories. The process is applied to successive results, recursively. It is worth mentioning that final decisions are likely to deviate from initial expectations, and that this method does not guarantee a solution. In this approach, the decision-maker needs to make decisions among alternatives, and map the best way to achieve set goals,

Carnegie model focuses on the social and political agreement. This model facilitates conflict resolution, using networks and coalitions, as they play a key role in the decision-making process. A coalition can be a group of managers who agree on problem priority. Also, decisions are typically the result of negotiations, compromise, and accommodations between coalitions.

The Carnegie model can help decrease uncertainties and find consensus among stakeholders (Galli et al., 2017; Fabbri, 2016). For Carnegie, the use of historical data, and anticipatory governance are principal elements. Anticipatory governance works by collecting data and information to assess behaviors predictably.

The results of foresight exercises are roadmaps. Roadmapping creates and delivers strategy and innovation to organizations. Roadmaps have a graphical and cooperative nature, which supports strategic alignment and communications across functions in the organization. In the context of this work, decision-making tools are needed because resources are limited. The scarcity of resources makes it impossible to pursue every business opportunity. Therefore, priorities must be narrowed, and tools implemented to find the best strategic choice.

In merging the two models, Mintzberg offers the advantage of considering several decision points and gradually arrive at a weighty decision, by way of collecting small decisions through a recursive process (applying the same process to successive results). The Carnegie model offers the advantage of engaging alliances of decision-makers and makes it easy for the development of coalitions for choice selection. So far, the decision-making process can be broken down into phases, and the result of each phase will be the input of the next phase. The final result is the product of continuous adjustments to decision-making perspectives, and selection techniques. Foresight, as well as roadmapping activities, is instrumental in the discussion of proposed alternatives, and the development of networks of decision makers who evaluate strategic investments and identify new challenges (Georgio,

2008). Thought, experience, and senses are involved in the decision-making process. When presented with multiple alternatives, we make choices based on beliefs and constructed meanings.

The current business environment is characterized by changes in production processes and product delivery. Research argues that knowledge as a driver of productivity and growth, has caused shifts in the economy that favor intellectual capital, information, and knowledge as sources of value, forming knowledge-based economies. (Fabbri, 2016).

Implementation of foresight in strategic planning for regional development:

The literature reviewed offers scenarios of the implementation of foresight exercises in a strategic investment. For example, the European Union rolled out a framework for strategic planning using foresight and roadmapping to make decisions concerning strategic investment. Public administrator in Tuscany, Italy adopted the framework. The idea was to develop strategic plans on a region-specific basis, recognizing the increasing complexity of the interactions between research, technology, regulations, politics, local and foreign cultures. The methodology workflow disseminated by the European Union consisted of three phases:

The first phase collects information on economic, regulatory, and technical options available in the specific region. Once the rulebook concerning methods for grouping results, and the funding of decisions are agreed upon, discussion exercises with stakeholder participation can be conducted. In the case of scanning for local opportunities, the efforts are focused on local deployment opportunities and location-based strategic investments (Cooke, 2012).

The second phase involves dissemination of Alternatives previously assessed. These alternatives are debated openly to confirm and consolidate the results obtained in the first phase. The main output of the discussions and debates is the identification of first-level options.

The third phase is validation, in this phase, a preliminary version of the strategy is drafted. The preliminary version

contains an analysis of the context, a list of technological priorities, unified roadmaps, and an action plan with administrative and financial tools. The idea is to translate the selected roadmaps into policies. The preliminary version of the strategy is laid open for discussion, feedback is received, and finally, the coalitions communicate, and the definitive version of the strategic plan is created.
Decision-making support tools are being used by public administrations for the development of strategic plans, foresight, and roadmapping, to assist with the continuous chain of narrowing the selection of alternatives. The decision maker can combine wide participation with strategic planning. The literature states that foresight methods fast track the process of innovation, and this is attributed to the involvement of the stakeholders in strategic planning (Fabbri, 2016). The E.U further defines foresight and roadmapping by instituting the following processes:

1. Opportunity scanning
2. External expert assessment
3. Open thematic workshop
4. Preliminary version
5. Final version and validation

(1) Opportunity scanning is the process in which main development opportunities and roadmaps are identified. An important enabling factor of this process is the engagement of stakeholders. Discussions are held concerning future opportunities and strategic investments. Topics discussed include industrial clustering dynamics, human resources, technical and industrial disadvantages, and innovation and industrial networks. From the opportunity and scanning exercise, the output should contain roadmap description, policy initiatives, targets, and expected outcomes.
 (2) The expert assessment process involves the opinion of subject matter experts for feedback on scientific consistency, feasibility, logic framework, and roadmap implementation. A predetermined number of experts is present with roadmaps and asked to

discuss the roadmaps provide an evaluation. The evaluations are based on the technical and technological consistency of selected roadmaps, the targets, and the relevance, physical accessibility, and the adequacy of the policy initiatives.
 (3) Open thematic workshop process. In this process, the contents and results from the subject matter experts, all documents of analysis are shared, and the process and strategic framework s exposed.
(4) Preliminary vision. In this process, the main results of the previous phases are analyzed, opportunities and roadmaps are then translated into a working document. The document contains context analysis, key integrated roadmaps, and plan of action.
(5) Implementation and validation of final version.

Another example of the application of foresight as a decision-making tool is Russia, and its mission to develop strategic plans for regions affected by a reduction in oil prices, a devaluating currency, and international sanctions. Russia aims to utilize foresight and roadmapping to identify promising alternatives, and capacity levels to improve competitiveness. In the case of Russia, foresight exercises are based on economic, and information analysis as well as data on innovative and I.T capacity, and socio-economic dynamics (Elena Nikolaevna Zakharova, 2015).
Foresight, as a decision-making technology, allows to anticipate possible strategic investments and to identify future business opportunities (Krasnopolskaya, 2014). Foresight exercises are used to develop strategic concepts, according to the European Commission, foresight promotes long-term thinking (Galli et al., 2017; Efimov .. V., 2010). As defined by the European Commission, Foresight is a systematic evaluation of long-term business opportunities of a region, with the participation of coalitions such as academia, public institutions, and authorities (Galli, 2017; European Commission, 2009).
Policy makers in Russia are implementing foresight to predict, influence and in some instances, form preferred futures. The foresight exercise considers factors such as technology, economics, and public policy. Policymaker implementing foresight for economic decision-making can

identify underlying trends in the socio-economic development of a region by mapping deferent long-term scenarios, scenarios based on past, present and anticipated data. This possible futures or scenarios can be managed when coalitions select the most capable choice and organize strategic objectives with the participation of key stakeholders. The future can be a further influence on the development of a roadmap. The roadmap helps decision maker route the future. The roadmap usually contains goals of selected alternatives, it indicates points at which results, and predictions need to be reevaluated or revised, information on research and development strategies can be part of the roadmap.

Foresight exercises can be achieved around three macro-categories:
The first being qualitative methods, these are based on participation, observation, and structured investigation, these methods can be used to denote the meaning of measures and observations. However, results obtained through qualitative methods are difficult to track, because there is room for creative and subjective rationalism. Results can reflect the characteristics of the decision-makers habitus.
    (1) The first category includes analyzing performance data, and preceding outcomes through methods such as retrospective analysis, expert reviews, and SWOT analysis (Mikova, 2014).
    (2) The next category consists of methods based on the use of mathematics to arrive at decisions. In the second phase, the roadmap begins to take form, and an attempt to quantify the assessment of expert opinion is made. Utilizing semi- mathematical methods such as structural analysis, Delphi-survey, multi-criteria analysis, and mapping technologies the roadmaps are developed.
    (3) The third category utilizes bibliometric, modeling and simulations methods to explore trends (Galli, 2018; Elena Nikolaevna Zakharova,

2015). Quantitative methods are used for monitoring variables that can be measured, parameters that are fixed can be analyzed using statistical methods. The combination of techniques, coupled with the participation of expert knowledge, facilitate the identification of gaps and the development of strategies to close them.
It is worth mentioning that methods for exercising foresight are dependent on the resource availability, the availability of qualified experts, and the quality of information available. The successful implementation of foresight methods will have an impact on the organization's resources. Consideration must be given to resources available, their characteristics and how they influence the decision-making process (Iain M. Boyle, 2012).
The foresight process in the context of decision-making relies on four influential factors:

1. cooperation,
2. creativity,
3. expertise, and
4. conclusiveness.

These forces are not mutually exclusive; on the contrary, they work in conjunction with various stages of the foresight process. Therefore, these attributes are considered common to the foresight process. The government of Russia unrolled an innovative approach to strategic planning, and broke down the process into three stages:

1. foresight,
2. foresight, and
3. post-foresight.

These processes are to be implemented for the analysis of information, and the prediction of socio-economy behaviors the regions of Adygea, Russia. The three process stages can be described as follows:
    (1) At the pre-foresight stage, the conditions of the exercise are defined, the current conditions of the external and internal environment of Adygea are studied. Capacity levels related to the economy, infrastructure, natural resources, and technology are evaluated. During this stage, strategies to manage external drivers defined, uncertainty factors are also identified. The aim, goals, limits, and indicators of the study are documented.

(2) In the second stage expert knowledge regarding problems and predictions is gathered, then the probability and importance of possible opportunities are projected. At this point, the roadmap can be developed. The roadmap reflects strategic investment decisions that are in line with the strategic development of the region. Aside from a list of specific tasks, activities and management decision, the roadmap must include targets and desired futures, as well as priorities and tasks that need to be addressed.

(3) In the third stage, the administration is concerned with the monitoring of change drivers in the future of the region. Measurement of performance related to the implementation of the selected scenarios is recorded. Information regarding the socio-economic behavior of the region, when transitioning from scenario to another, are monitored and recorded. In this final stage, anticipated events are verified.

Decision Support Tools and Technology Roadmaps for Business Opportunities

Matching operational and strategic decisions with technology solutions. Organizations competing for market share combine net-present-value methods with foresight exercises to identify business opportunities. With the use of tools such as trend analysis and roadmaps, organizations build portfolios of business opportunities. Business opportunities, in the context, if organizations can be viewed as adding value and reducing cost (David Guemes Castorena, 2013). Organizations employ similar approaches to foresight practices as the cases of Tuscany, Italy and Adygea, Russia. The first steps are cyclical and produce the main ideas of the future of the business. Planners used technological planning models to search for innovation. Innovation aims to introduce a new or significantly improved product, process or service to a market. The innovative product was developed because it solves a problem and its commercialization can generate profits. However,

changing environments and the unexpected behavior of influencing factors create uncertainty and difficulty in decision-making processes. Research shows that business organizations employ trend analysis and change driver identification to support strategic investment decisions. In the context of organizations, the literature reviewed can be combined into a series of exercises that lead to the creation of a roadmap. The goal of developing a roadmap is to understand the resources necessary and the activities that need to occur to achieve the business opportunity (David Guemes Castorena, 2013). The literature review structures the application of foresight in eight steps. These steps described the process of strategic decision-making in organizations. The first two steps are trend analysis and change driver identification as previously discussed these steps are recursive and provide the main ideas of the future.

(1) In the first step, we define the methodology for identification and study of trends as defined by (Jeong, 2010). Exploration, evaluation, monitoring, and forecasting describe the identification and study of trends. Common trends that are analyzed are technological, product and market, competition and business model, and regulatory bodies such as environmental protection. Concerning technology trends, decision-makers in organizations can analyze the past, present and anticipated life cycle of technologies, as well as take advantage of the tools such as the S curve to monitor growth, progress, and performance of available technologies. Research suggests that during the trend study phase, organizations analyze potential products and services related to an area of interest or opportunity (David Guemes Castorena, 2013). Decision-makers and planners perform analysis of market gaps, changes in the environment, and changing trends in consumption. Concerning competitive advantage, according to researchers, companies allocate resources to surveying the competitive environment to identify competitors, their quality, and prices. Studying the dynamics of suppliers and customers in the supply chain, an organization can identify value-adding activities, and anticipate the movements of competitors. Future business models and strategies can be constructed from analyzing the competitive environment. As part of this phase, it is important to identify emerging

laws and regulations that may affect the operations of the company. Also, actions to maintain community support are assessed, together with environmental sustainability goals

(2) The second step in this foresight exercise consists of the identification of drivers of change. Once trends have been identified and studied, organizations begin to identify drivers that may have an impact on the progressive improvement of strategy (Galli, 2018; Guenmens, 2009). The purpose of this phase to anticipate change by identifying specific drivers. Specific drivers of change will help to monitor the development of early warnings, emerging areas of interest, and breakpoints. An early warning can be a change in production technology. Indications of change in tools and skills applied in the manufacturing of products and service delivery will influence future training programs and equipment life-cycles decisions. Development of new materials and new sources of energy also indicate early warnings of change (David Guemes Castorena, 2013).
Immerging areas of interest are areas such as product technology. Research and development efforts are focused on developing optimal products and services with high functionality and performance levels, such immerging topics influence market creation.
In the case of breakpoints, they can be interpreted as events or incidents that cause a sudden variation in trends previously studied (Guenmens, 2009). An example of a breakpoint can be the effect of disruptive innovations on the behavior of consumers, and marketplace patterns. The behavior of competitors can also change with the introduction of disruptive innovations. To make decisions concerning innovation, researchers agree on the S curve as a tool to evaluate the potential of an immerging technology against an existing one (Burgelman, 2009).

(3) In step three, the results obtained are subjected to the Delphi method. Experts are brought on board to find concentration of alternatives, and future trends. Using surveys and questionnaires, views are converged, and the dispersion of responses diminished. The information available is used to construct predictions, and hypotheses. In the Delphi method, a weight is applied to each expert based on expertise, position in company and industry (Martino, 2003).

(4) Step four is diagnostic of the study area. For the application of the foresight approach, organizations need to define key performance indicators such as ROI, productivity and market share. Before a viable vision can be considered for implementation, an organization must diagnose the performance of existing processes. Decisions on production increase, increased market share, domestic versus imported material are made base on analysis of key performance indicators. Dynamic diagnostic tools used to define the current situation include: Marc Giget Tree, SWOT, and the method of actor's analysis. The application of these methods aims to designing futures. The Marc Giget Tree allows an organization to view itself in context within the business environment. By performing a structured analysis using diagnostic methods such as charts, histograms, and curves, strategic variables are identified as well as the influence and interaction among them. Understanding the strategic variables allows the company to generate assumptions and definitions concerning its position in the marketplace. Possible futures are design from the perspective of what is feasible and what is not. The methods selected work well because they facilitate analyzing issues from a methodical standpoint, and understating the interaction between variables and actors. The described methods can also be useful to process quantitative, and qualitative information to aid in the decision-making process.

(5) Step five is generation of scenarios. According to (Guenmens, 2009), in this step the organization seeks to answer questions concerning the future; what is possible, desirable, or conceivable? Researchers recommend the technique of Glenn and Gordon as a methodology to generate most likely occurrences or scenarios. This method allows the creation of a matrix by combining possible

interactions of a prearranged set of events or suppositions. The Glen and Gordon method also evaluates effects in the probability of occurrence of an event due(6) In step six, the alternatives previously identified are strategically analyzed to prioritize the business opportunities. A cross-functional team communicates to define a list of alternatives that represent business opportunities. The choices made need to be prioritized based on alignment with the company's strategic plan, feasibility and process capacity.

(7) In step seven, the organization makes decisions. Decisions are made based on the priority list identified in the previous step. Projects and opportunities are turned into projects that allow the company to pursue new business opportunities, through the introduction a new product or service, or improvement of existing process. Researchers agree on the use of a multi-criteria decision-making method such as analytical network analysis. This method is used as it accounts for the cause and effect relationship between the elements of comparison (David Guemes Castorena, 2013). The Analytical network method is comprised of two parts, the first part is the hierarchical network of criteria that controls the relationships of the elements in the system being studied. The second part is made up of sub-networks of influences among elements and groups of problems. There is one sub-network for each control criteria (Chen, 2010). The groups or clusters used to prioritize projects in the analytical network method may include: Project timeline, project alternative, market variables, objectives, impact, competition and competitors etc.
 changes in assumptions. Considering the 80/20 Pareto principle and recommendations made by (Gordon, 2009), it is vital to choose the scenarios that are most likely to occur, and the number should be between 3 and 5. At this point the organization can identify the scenario that with business opportunities by making an in-depth analysis of best, catastrophic, and trend scenario. Once the organization has a concise picture of potential future scenarios, it can identify paths to create value.

(8) In the last step, step eight, the roadmap is developed. The roadmap provides the information to understand the steps necessary to achieve the business opportunity. The roadmap defines the path that is more reliable and represents the highest value.

RESEARCH APPROACH
Methodology

This paper organizes information collected from existing literature related to economic decision-making and strategic planning. The approach adopted is a narrative literature review. This approach was chosen because several of the works consulted, related to decision support tools and foresight, emphasized a qualitative approach to the qualitative approach to decision-making. Researchers argue that decision makers should shift the decision-making focus from financial to strategic information (M.M Elmassri).
The narrative review approach does not assist in the standardization of methods that are applied in numerous studies. However, it does facilitate the combination of the reviewed works into one conclusion. The focus of the review is the quantitative impact the business environment has in economic decision-making. The literature reviewed to produce this paper concerns economic decision-making in Europe.
The study focuses on the role of decision-making support tools in strategic planning; we discuss the use of foresight to integrate the decision-making processes with the organization's objectives and overall strategic plans for the company. Furthermore, we discuss the application of decision support tools for the anticipation of customer requirements and prediction of the future business opportunities. In the literature review, we focus on the practical applications of the foresight planning technique in identifying future opportunities, such as new product or service development, and the development of roadmaps of roadmaps. The literature is examined for evidence of procedural steps used in the implementation of foresight, and roadmapping as a decision-making tool. Methods, tools, and approaches are explained and summarized for analysis.

Narrative review as a qualitative literature overview

This method was chosen because it offers the opportunity to summarize different studies, from which conclusions can be drawn and synthesized into one holistic. The interpretation can include contributions related to the reviewer's experience and theories. A narrative review provides a broad range of studies, which removes the limitations encountered in a statistical review.

Selection of studies
Before engaging in literature analysis, data must be gathered and assessed. To ensure the reliability of the data, and to determine if it can be used as the basis of our study, only scholarly papers were searched systematically. The reached was limited to a combination of keywords (including Economic Decision-Making, Strategic Planning, Strategic Investment, Foresight, Future Studies, Roadmapping). The initial phase was dedicated to reviewing abstracts and conclusions of the paper being considered for the study.
In this preliminary phase, we performed a literature review on existing literature in the fields of economic decision-making and strategic with the goal of finding significant information. The following databases were used to secure literature for review: PROQUEST, Scopus, Science Directory, and Google Scholar. To filter the results obtained, the preliminary literature reviewed was performed to identify the relevant works. The selection of works was limited to peer-reviewed journals, and publications. The information will be used to establish intellectual context to answer the research question, and to establish the validity of the relationship between decision support tools and strategic planning.

FINDINGS
Decision-making methods and tools
Governments such the European Union and Russia have found value in the use of foresight as a strategic planning tool. Organization at the micro-level are also benefitting from the foresight approach to strategic decision making. The **table (1)** below shows in broad terms the methodology for creating a roadmap in public policy for the development of regions. The table also shows the approach used by business organizations for landing business opportunities. The table discusses the variation in methods it will be demonstrated that at the government level, public participation and consensus play a decisive role in the decision-making process. On the other hand, an organization at the micro level relies heavily on the behavior of competitors, the immersion and life cycle of disrupted technologies, an introduction of new production technologies and kills.

Public Policy Tuscany	Public Policy Russia	Organizations Micro-Level
Opportunity scanning	Analysis of existing performance	Trend analysis
Open discussion	Quantification and Analysis	Change Driver Identification
Validation	Measurement	Robust Analysis
Roadmap	Roadmap	Roadmap

Table 1: Approaches to foresight in policymaking and added value activity finding

Decision-Making, at the macro-level, presents several limitations to decision-makers who rely on traditional methods such benefit-cost-analysis. Even though the benefit-cost-analysis approach allows benefits of nonmonetary nature to be quantified and factored into the analysis, this approach makes it difficult to identify all users of the project, as well as to identify all benefits and negative benefits. The quantification of all benefits and negative benefits regarding money can also be challenging.
 Uncertainties in the marketplace and external influences have triggered a shift from economic to strategic information (Carr, 2010). Considering only the one-dimensional approach of financial information leads to a one-dimensional decision that ignores judgment and intuition, new structures, and fast environmental change. The efforts made by the European Union and Russia

demonstrates a shift from using the only financial information to using strategic information in the process of economic decision-making. At the macro-level, policymaking is interested in identifying natural and economic capacity levels. Both Russia and the U.E implement diagnostic approaches to identify opportunities and assess the performance of existing processes and identification of breakthrough opportunities (Fabbri, 2016). In the case of the E.U the following methods are the basis for the approach to decision-making:

Approach	Tools
Carnegie	Coalitions and consensus.
Mintzberg	Solving uncertainties, identifying the best solution.

Table 2: Methods for the approach to decision-making

The combination of the two methods facilitates the narrowing down of alternatives and the discussion of proposed ideas. The Mintzberg model provides several decision points, and to reduce uncertainties. The decision is made among the alternative to find the most realistic route to accomplish goals. The Carnegie method focuses on the socio-political process and seeks to form networks and coalitions to assist in the process of solution finding. In this method, agreements are reached through negotiation and compromise.

Process	Tools
Opportunity scanning	Lesson learned, data collection/analysis
External expert assessment	Subject matter experts, Delphi
Open workshops	Information sharing
Preliminary Version	Policies, roadmaps
Final version	Monitoring, metrics

Table 3: The approach to the development of a roadmap in Tuscany

The approaches and tools described in the table above show a more social approach to the concept of foresight. Roadmaps are developed into public policy for implementation. Agreements are fundamental in this process. This is evidence the usefulness of the Mintzberg and Carnegie for decision-making. As previously stated, these methods assist in the

reductions of uncertainties and in finding common ground for compromise. The process is heavily influenced by experience and the lessons learned.
Next, the methodology used by the Russian government to develop regional roadmaps for strategic investment is discussed.

Process	Tools
Qualitative approach	Retrospective analysis, brainstorming, simulation games, SWOT, expert panels.
Semi-quantitative approach	Structural analysis, Delphi survey, multi-criteria analysis, mapping technologies.
Quantitative approach	Bibliometric, Modeling and simulation, extrapolation of trends.

Table 3: The approach to the development of a roadmap in Tuscany

The table above shows the approach and tools used in Russia for roadmapping. The method begins quantitatively evaluating the environment, the subsequent processes are aimed to quantify the results of graphic nature.

Process	Tools
Trend Analysis	S curve, monitoring, forecast, evaluation
Change driver identification	Early warning, emerging topics, breakpoints
Delphi applications	Delphi method, subject matter experts
Diagnostics	Key performance indicators, Structural analysis (MICMAC), Marc Giget Tree, Method of actor (MACTOR)
Scenario generation	Technics of Glenn and Gordon,
Portfolio of opportunities	Strategic planning tools
Decision Making	Analytic Network Process
Roadmap	Meetings, presentations

Table 5: The finding of the approaches and tools used by organizations

The processes and tools used by organizations searching for competitive advantage, and business opportunities and market share as described above. The process demonstrated the integration of strategic planning in the decision-making process. The process illustrates the steps that lead to the study of opportunities and the systematic approach to road mapping.

Discussion

The results of this study, show that the methods for implementing foresight and roadmapping exercises are somewhat consistent across industries and economies. The analysis demonstrates the role played by decision-making tools in strategic planning. The decision-making process under the lenses of foresight forces the planner, or decision maker to use strategic information as well as financial. The use of strategic information makes of decisions an integral part of the company's vision. The literature review demonstrates that notwithstanding the qualitative nature of approaches to foresight, the tools and methods used by the industry are highly sophisticated. The use of foresight requires a serious commitment of time and resources for its successful implementation.
Regarding the second part of the research question, the literature had no evidence of the efficiency of the use of these decision-making tools. The follow-up to those projects is required to determine the efficiency of the tools used.

Barriers to decision-making and strategic planning

The main barriers to making a decision that supports the strategic vision of the organization, are lack of information (Negulescu, 2014), changes in priorities, and the impact that resources have on decision-making. The barrier concerning lack of information is tied to the experience of the decision maker and on the knowledge management structure and culture of the organization. The storing of lessons learned may represent a burden on the resources of a company. The relationship between uncertainty and resources has an impact on the quality of decision made (Iain M. Boyle, 2012). The resources available dejectedly impact the extend the to which managers use decision quantitative and qualitative criteria when making a decision (David Guemes Castorena, 2013).

Implications for the field of Project Management

Economic Decision-Making in changing environments has become increasingly difficult for decision makers. The quality of decisions decreases when external factors are constantly changing or unstable. To overcome the challenges presented by changing environments, it is important to understand the impact of external change drivers in the decision-making process. Understanding the role of decision-making tools in strategic planning is worth studying for the benefit of organizations, and policymakers in general. However, the research demonstrates that concepts such as foresight do not receive enough attention from academia. The Perhaps the area of industrial engineering and project management can assist in developing curriculums that support and further develop concepts such as foresight.
This paper has significance to the field engineering management because it provides information concerning the deployment and processes of foresight methods. This paper is also evidence that foresight methods and road mapping are decision-making systems that support the strategic plan of an organization. The field of economic engineering can make use of advances in the study of future scenarios. The coupling of financial analysis tools and qualitative forecasting tools can have a positive impact on decisions concerning strategic investment.

CONCLUSIONS
Recommendation for future research

Future research can be done on the application of knowledge management techniques and store of lessons learned and foresight. Furthermore, the follow-up to cases, which report the use of foresight, can help further the understanding of how these decision-making tools work in support of strategic planning.
Future research should explore a few different areas. For example, future research could investigate these factors and the relationship but in the context of other industries and managerial settings.

In these settings or contexts, it would be interesting to study the strength of these variables and the relationship as well as the factors that impact these factors and their relationship. Another avenue of research could be to explore these factors and their relationship but from different perspectives, such as from an organizational, strategic, or cultural point of view. This would shed further light into the how this relationship is perceived across many different views and further understand the degree of impact that factors such as culture, strategy, human resources, operations have on the key variables and their relationship.

Limitation of study

The literature that was analyzed originated from Europe and America, therefore, the findings may not be applicable from a global perspective. Also, I was not able to find significant information reporting the effectiveness of the decision-making tools discussed in this paper. Many studies found focused on discussing the methodologies and application, but there was no report on the outcome of these projects. However, it is evident that the decision-making tools discussed are the tools of choice for business decision making and planning.

The study and results are somewhat limited due to a few research limitations that should be discussed. The main limitation was the fact that the study had a limited sample size and it only studied key factors from this limited sample size. The limitation of sample size introduces some potential bias and validity behind the findings and conclusions identified in the study, all of which could be alleviated by executing the study with a larger sample. Another limitation was that this study only examined the key factors and their relationship regarding a project environment; therefore, the conclusions and analysis are specific to project environments, and the findings cannot necessarily be extrapolated to other areas such as supply chain management, operations management, or strategic management. This is a limitation of the conclusions and analysis is specific; this limitation makes it difficult to argue that the findings from this study could be deployed and used in other industries or managerial settings.

Conclusion

Decision-making depends heavily on experience and knowledge. The prediction of the future relies on the interpretation of existing data. Foresight similarly relies on the assessment of the existing processes, and several layers of analysis for making predictions, furthermore, the experience level of planners and decision making have an impact on the quality of the inputs. In the area of experience, companies can benefit from instituting training programs that combine the impartment of tacit knowledge with data analytic tools.

It is evident that business organizations and government are implementing decision-making tools such as foresight and road mapping. It is also evident, that the approach to the concept of foresight is different for different projects, as well the tools that used. It can be concluded that qualitative methods that account for context can be used in conjunction with financial prediction tools for a more effective decision-making process. Further, the inclusion of strategic information in this process supports alignment with the strategic plan.

Dr. Brian J. Galli
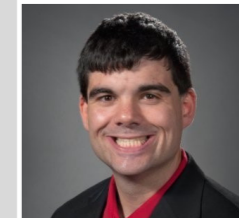
AUTHOR

works as an Assistant Professor of Project Management and Management Engineering at Long Island University – Post. He holds a doctoral degree in Engineering Management from Old Dominion University, earned December 2013. He also holds a Bachelors of Science in Industrial Engineering, earned May 2007, from Binghamton University (SUNY Binghamton), as well as Masters of Science in Engineering Management, earned July 2009, from Missouri University of Science & Technology. He is a licensed professional engineer in New York State and holds a certification as a Lean Six Sigma Blackbelt, Project Management Professional (PMP), Professional in Engineering Management (PEM), and an Improvement Advisor.

" Decision-making depends heavily on experience and knowledge.
The prediction of the future relies on the interpretation of existing data." The Author.

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