Linking Organizational Change Management and Organizational Foresight[1]

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Despite the limits of predicting change taking place inside and outside organizations, anticipating crucial developments is possible.

Both national and regional governments need to use foresight as a way to shape and move toward desired futures for sustainable development in continuously changing and dynamic environments.

If organizations intend to proliferate in their change drive and take strategic actions by engaging with foresight projects, it would be wiser to create a foresight attitude among managers and decision makers in organizations.

Managers and policy makers should consider using organizational foresight and *twelve success factors* in their attempts to improve the impact of foresight project results and steer organizational change.

Introduction

As the world is changing in global and local ways, the ability to foresee possible/probable/desired futures is getting more important for national and regional governments, industries, corporations, and the third sector, to shape and move toward desired futures for sustainable development (Moles, 1970; Saritas and Öner, 2004; Öner *et al.*, 2013a). Development is found within change, extension, growth, progress, and therefore duration spanning a long period of time (Destatte, 2010).

If organizations are to remain viable (Singh *et al.*, 1986; Ayres and Axtell, 1996), that is to create value for their customers, they must adapt to their environment (Duncan, 1972). In order to create wealth and increase quality of life, there is an increasing need to be innovative constantly and continuously and to manage change and uncertainty. Looking into the future is a complex and conflicting process of analyzing, experiencing, interpreting, and absorbing uncertainties (Brown and Eisenhardt, 1997). Foresight could be a major tool in tackling sustainability as well as preparing sustainable strategies and policies (Destatte, 2010).

To link organizational foresight and organizational change management (Swartz, 2005), we could examine different directional links (e.g., organizational change and its impact on organizational foresight or organizational foresight leading to change). Foresight aims to fill the order that organizations need to be adapted to and foresee the changes needed to lead a desirable evolution, influence

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reality, and be strategic in the process. Change refers to both internal and external changes. As for internal change, it 'combines an inner shift in people's values, aspirations, and behaviors with "outer" shifts in process, strategy, practices, and systems' (Karp, 2004), and in return it compels learning and new ways of thinking.

Change sometimes refers to changes in the external organizational environment that has to do with technology, politics and legal issues, society, competitors, customers, and the market in general. As organizational foresight is also related to changes in the environment, we must note the question of the difference between an environmental change that is foreseen for a reasonable time in advance (Ansoff, 1975; Glassey, 2009; Rossel, 2009) and one that is unforeseen. In reality, some changes are foreseen and some are not (Knowles and Saxberg, 1988), the laws of some are tolerably accurately known and others hardly at all, and the variation in foreknowledge makes it clearly indispensable to separate its effects from those of change as such if any real understanding of the elements of the situation is to be attained (Knight, 1921).

It is interesting to note that five generic changes listed by Knight (1921) are still going on, every one of which reacts on the structure of society and firms:

1. The population is increasing.
2. Capital is increasing.
3. Methods of production are improving.
4. Forms of industrial establishment are changing — less efficient firms are passing from the field and more efficient ones are surviving.
5. The needs and wants of consumers are multiplying.

When futurists and foresight practitioners are asked to identify major challenges and trends ahead, the list tends to be long and complex including the dimensions of events, sectors, geographical regions, ecosystem breakdowns, as well as power shifts (Öner *et al.*, 2007). However, the results of trend analysis among different nations reveal different levels of emphasis on different themes. Better global governance is very likely if considered within a long enough time frame — a medium probability that it may be achieved before 2050 (Valaskakis, 2010) was stated to be the latest trend realized in Turkey (Öner *et al.*, 2007). 57% of Turkish respondents argued that 'a world government as an effective institution for preventing and resolving violent conflicts' would never be realized and according to the calculated mean years of realization, 2040 was the assessed benchmark, reflecting the impact of pessimism/optimism issues on foresight results in different countries.

In the following sections, we will discuss different dimensions of organizational change (Gersick, 1991) and organizational foresight with the goal of linking them to improve firm performance, although performance impact is not part of the present study.

Dimensions of organizational change

Many existing theories concerning institutional change and its influence on organizational foresight have been outlined by Caballero and Kingston (2009). A commonality among the theories is the impact of exogenous and endogenous parameter shifts on institutional change. We outline these exogenous and endogenous parameter shifts and their relation to organizational foresight. Note that all decisions related to change in whatever form are strategic in nature (Bateman and Zeithaml, 1989; Bohman and Lindfors, 1998).

Exogenous parameter shifts

Exogenous parameter shifts are external changes that can be a source of new systems or alterations in existing systems (Caballero and Kingston, 2009). Major exogenous parameter shifts which organizations are facing are globalization, technological advancement, and new knowledge.

Globalization

One of the major changes organizations are facing is globalization (Öner and Saritas, 2004). Globalization is

complicating foresight and decision-making systems by forcing businesses to plan outside their country's borders and business culture. Organizations will need to coordinate their futures across multiple firms and be prepared for more exogenous changes in order to have success globally and look for the answers to the following questions:

1. How can leading nations influence lagging nations to help develop the overall global economy? (Alsan and Öner, 2004)
2. Will globalization increase the amount of exogenous parameter shifts a firm faces? If so, how will that affect organizational change? (Caballero and Kingston, 2009)
3. How can an organization anticipate the exogenous changes arising from globalization?

Technological advancement
Technology has a huge impact on organizational change and foresight (Caballero and Kingston, 2009). Firstly, it increases the need for innovation (Lavie, 2006). Technology drives institutional change because organizational change is needed to keep up with the constant changes in society due to technology advancement (Caballero and Kingston, 2009).

Ayres (1944: 187) has previously agreed with this view, stating 'technological development forces change upon the institutional structure by changing the material setting in which it operates.' Finally, technology has also increased the amount of information available to organizations. Knowing the crucial role that knowledge plays in foresight activities, Öner and Başoğlu (2000) extended the people–system–organization (PSO) framework to include knowledge and thereby create a new KPSO framework.

In addition to these thoughts on technology advancement and institutional change, in order for a firm to remain profitable and extend its product lifecycle, it needs to be continually thinking of new products and improvements to meet the demands of consumers. Technology has also increased the speed at which businesses operate. The pace of the world, especially the business world, is accelerating and firms need to be able to plan for the near and distant future and be flexible because change happens quickly. We need to think about the answers to the following questions:

1. How can firms be more flexible in their foresight systems in order to be ready for the unexpected changes in this technological global economy?
2. To what extent does knowledge affect organizational foresight?
3. How can firms make sure they have reliable data to base their decisions on?
4. What methods can firms use to innovate their products and services?
5. How does technology shape foresight systems?

Knowledge
Knowledge goes hand-in-hand with technology. As technology continues to progress, the amount of knowledge available for us is expanding rapidly. With so much knowledge available for businesses to use, they need to determine proper ways of acquiring accurate knowledge to base their foresight on in order to be more successful (Major *et al.*, 2001; Amanatidou and Guy, 2008). Along with the acquisition of relevant knowledge, Ansoff (1975) also discussed the *states of knowledge* which show how the information for organizational foresight progresses over time.

Knowledge acquisition
Four streams of knowledge for organizational foresight have been identified (Major *et al.*, 2001):

1. *Awareness and perception of foresight programs.* Major *et al.* (2001) examined how organizations respond to their foresight information and how it impacts them. They found that companies with a working knowledge of foresight valued the knowledge of their staff and had aims to build.

2. *Reliance on the supply chain.* Another stream of knowledge is reliant on the supply chain. It was found that 'supply chains are more important knowledge sources than companies' use of foresight.' However, it was also noted that companies with the lowest foresight knowledge also reported high use of supply chain source knowledge. Therefore, it can be concluded that companies with a better foresight orientation use less of the supply chain to gain knowledge.

3. *Use of business support community.* Other organizations such as business agencies, research associations, universities, and consultants are also a source of information and knowledge. These organizations play an intermediary role by increasing accessibility to new knowledge. It was also found that companies with a variety of intermediary contacts varying with deep or cursory contacts had high foresight knowledge.

4. *Interpersonal networking.* Interpersonal networking was noted as a stream of knowledge. The research showed that 'networking is of approximately the same order of importance to the sampled companies as is their reliance on the supply chain.' It was also found that companies that rely on networking for knowledge then rely less on the supply chain for information. The research also noted that informal networks usually derive knowledge acquisitions more easily than formal networks.

The topic of 'knowledge acquisition' was looked at by Barr *et al.* (1992) as a learning process. They hypothesized and showed that for strategic renewal to occur, managers need to change their mental models and pay close attention to the changing environment. By doing so, managers can help transform long-established concepts because they will be more open to new ideas and structures. Concepts are the foundations of actions and by changing these concepts, firms will be able to impact their strategic action and bring about a renewal in the company.

They also noted that 'high level learning occurs as the culmination of a series of incremental changes.' Organizational change does not have to be drastic or fast. Instead, these researchers have found that making changes slowly and over time allows for experimentation and learning. This will make managers more coherent when making decisions and can help a firm slowly but effectively adapt to its changing environment.

States of knowledge
Ansoff (1975) discussed the five states of knowledge and noted that 'when a threat/opportunity first appears on the horizon, we must be prepared for very vague information, which will progressively develop and improve with time.'

Level five is the highest state of knowledge and at this state, organizations have exactly the amount of information they need for strategic planning. Conversely, level one is the lowest level of knowledge that can be used for management — to know that change is coming but not be able to identify the source.

As a firm progresses through the states of knowledge, the source of the threat, cost analysis, and ramifications of the change become clearer and the organization is better able to use its increased knowledge in foresight activities.

Informal, emergent change
External changes affecting the organization are outlined by Mintzberg and Westley (1992) through the discussion of informal and emergent change. With this type of change, 'different actions combine to produce a nondeliberate change' (p. 42) and may be stimulated by an external source. This is an informal type of change because it does not occur under a structured program and is more naturally based on outside factors.

Endogenous parameter shifts
Endogenous parameter shifts are changes that occur internally within an organization (Caballero and Kingston, 2009). Two major endogenous parameters that affect institutional change are the organizational rule (formal

and informal) along with organizational structure and culture.

Formal and informal rules

Discussing the role of formal and informal rules of an organization, Caballero and Kingston (2009) examined how rules shape an institution and how rules influence how it evolves and changes over time. Formal rules are easier to interpret because they are written out and discussed extensively before being put in place. However, more research is still needed on informal constraints and how they change, how they interact with formal rules, and how they affect organizational change:

1. How do informal constraints change over time?
2. How do informal rules and formal rules interact and affect each other?
3. How do informal constraints affect organizational change?
4. Are rules necessary for organizational change?
5. Are formal or informal rules more effective for organizational change?

Organizational structure and culture

Another organizational change is with organizational structure and culture. In the past, organizations focused on a vertical hierarchy structure with layers of managers (Ashkenas *et al.*, 1998). Organizations are realizing the interdependency between departments and are flattening the structure to a more horizontal arrangement of relationships. Along with that, organizational culture is also changing and firms need to decide where they stand on a variety of issues such as cultural openness, loyalty, and attitudes toward change.

Another aspect that is important for organizational structure is readiness and flexibility as examined by Ansoff (1975), noting the importance of increased flexibility of an organization when dealing with change. He also recognized the need for internal and external flexibility. External flexibility is concerned with the position of the firm in the environment so that the firm can have an average potential for profitability and adequate diversification. Internal flexibility deals with the flexibility of logistics and preparations of managers. It was noted that 'as strategic change accelerates, logistic flexibility will become increasingly important.' Along with flexibility, readiness and preparations are important for strategic change. Ansoff (1975) showed that more prepared firms will need less time to complete a response to a change. In addition, he also stated that having a preplanned crisis will increase the firm's capability for handling strategic surprises.

Discussing the incorporation of learning in organizational culture, Barr *et al.* (1992) analyzed two similar railroad companies in which one is still in business today and the other went into bankruptcy. They were able to compare the organizational structure of each company to see why one company was able to prevail while the other failed. Firstly, the importance of learning in an organization was emphasized. In the successful company, the firm made slight changes in its understanding, which were followed by related changes in mental models. This shows that mental models and action have a reinforcing relationship with each other and that an organization that supports this process of making slight changes and learning will be able to take productive action for their strategic change.

The research also suggested that 'the attitudes and beliefs that these individuals brought to their new posts were a far greater influence on their strategic decision making than their demographic characteristics' (Barr *et al.*, 1992). It was originally believed that managers with higher levels of education are more likely to be associated with higher levels of strategic change. However, this study suggested that 'mental models of managers are a better predictor than managerial characteristics.' In terms of organizational culture, this means the attitudes and ideals of an individual may have more influence on their strategic decision making than their demographic characteristics. Firms should be aware of the beliefs of managers prior to hiring so that they can choose the manager that will

influence the company in the desirable way through their strategic decision making based on their personal opinions:

1. How can we structure organizations so that all departments pursue foresight activities that lead to a common organizational goal?
2. How does a horizontal hierarchy structure influence strategic foresight?
3. What aspects of organizational culture support and enhance organizational foresight?

By using organizational foresight to give insight into the circumstances an organization might face in the future, firms can bring about positive change.

Processes of institutional change

Caballero and Kingston (2009) identified evolutionary and centralized change as two categories of processes of institutional change, and proposed a third category as a blending of these two. A fourth category can be seen within the catastrophe theory as outlined by Oliver *et al.* (1984).

Evolutionary institutional change

Evolutionary institutional change is where 'new institutional forms periodically emerge (either at random or through deliberate design) and undergo some type of decentralized selection process as they compete against alternative institutions' (Caballero and Kingston, 2009). Evolutionary change operates under the assumption that the most successful institutions will survive and be imitated by other firms and the unsuccessful institutions will die out:

1. How can firms allow evolutionary (Barnett and Burgelman, 1996) institutional change to occur without hindering the lengthy process?
2. How does globalization affect evolutionary institutional change?

3. Why do some societies fail to adopt successful institutional structures?
4. How does the past affect institutional change?
5. What problems might arise for a company trying to imitate another company's institutional structure?

Centralized institutional change

Centralized institutional change occurs when 'institutions are purposely designed and implemented in a centralized way either by a single individual, or by many individuals or groups interacting through some kind of collective choice or political process' (Caballero and Kingston, 2009). There are many theories concerning this centralized institutional change but they focus mainly on the assumption that the group works toward a desired outcome and may promote or block certain changes to reach it.

Substitution theory, discussed by Oliver *et al.* (1984), relates to centralized institutional change because it involves the corporation substituting an older product or technology with a new product or technology. This substitution is an example of a purposely designed change that involves a decision and/or political process. Even though this is a simple change seen in organizations, it illustrates the occurrence of centralized change as business evolves:

1. How do firms make sure that they make changes that benefit all their stakeholders and don't just focus on certain groups?
2. What are some issues with centralized institutional change?
3. Is it better to let change happen naturally (evolutionary change) or to plan for it (centralized change)?

Blended (evolutionary and centralized) institutional change

Caballero and Kingston (2009) discussed the blending of the two previous processes of change (evolutionary and centralized institutional change). They noticed that in most cases there is an interaction between these two processes when it comes to change. For example, a firm may

deliberately try to implement a change in their organization, but during the process they may accidentally stumble upon another alternative that evolves into a change in the institution:

1. Is it possible to use evolutionary or centralized institutional change exclusively or will elements of both appear when dealing with organizational change?
2. How can a firm incorporate both evolutionary and centralized institutional change into their foresight activities?

Catastrophe theory

Catastrophe theory deals with discontinuity and how it causes change in an organization. When an organization is faced with an unexpected event, it is required to respond quickly to that event with changes and thus bring about institutional change.

Corporate lifecycle

Miller and Friesen (1984) discussed the various phases of the lifecycle of an organization along with the internal situational, structural, decision, and strategy characteristics of each of the five phases:

1. **Birth phase.** The birth phase of an organization occurs at the beginning of the organization's life when it is owner-run and trying to find a niche through product innovation. The strategy of the company is attempting to be established through trial and error and is searching for a niche in the market. The situation of the organization is small and the ownership is with a single owner. The markets are not competitive and with low diversity. The structure is simple and centralized. Finally, decision making is focused on innovation and being proactive to devise new products.
2. **Growth phase.** The growth phase has the characteristics of a larger, growing organization that is expanding their niche and adapting to a more formal organizational structure. Less emphasis is put on innovation and managers start to identify specific groups of customers. The ownership is more dispersed and decisions are now more influenced by customers. Markets are more heterogeneous and product lines are expanded. Hand-in-hand with these changes, the structure of the organization becomes more complex and less centralized. With a decentralized structure, managers become more involved in decision making and there is less risk taking.
3. **Maturity phase.** In the maturity phase a firm is more conservative and concerned with having stability and efficiency. The level of innovation drops and the organization adopts a more bureaucratic structure. Markets are slightly broader and more hostile than in the growth phase. Ownership is further spread out and the board of directors becomes more diverse. However, the power is still centralized and operations remain relatively simple.
4. **Revival phase.** In the revival phase the firm is focused on product market diversification and innovation. There is also an adoption of divisionalized market-based structure. During this phase the firm is at its largest size and the ownership has become quite spread out. The structure of the organization has evolved to divisional structures to cope with the increased diversification and has incorporated more formal controls. Decision making is innovative and proactive but is informed by an analytical and participative task force.
5. **Decline phase.** The final phase is the decline phase when a firm begins to stagnate when the markets go away and product lines become outdated. The strategy of the firm is muddled and conservative as the firm simply tries to make it through. The ownership of a declining firm is tightly held and the overall structure is fairly simple. The information-processing mechanisms are in decline and communications between hierarchical levels are poor. The decision making is extremely conservative along with little innovation and risk taking.

As seen with the breakdown of the five phases of the corporate lifecycle, each phase has its own characteristics with strategy, structure, decision making, and situation (Withane, 1988). Each of these phases and characteristics affect foresight activities by determining the effort and focus a firm will invest. In some phases, like maturity and revival, foresight activities play a more crucial role while in phases like decline, foresight activities become much less of a focus. Therefore, it is important to note the phase of an organization when using and implementing foresight activities.

Shaping versus adapting strategies

According to Courtney (2001), there are two change strategies that organizations can use when dealing with uncertain environments, namely shaping or adapting strategies (Finne, 1991; Eriksson and Weber, 2008). Even though these strategies come in different forms, both can possibly help organizations change effectively in high-risk and unclear situations.

Shaping strategies

A shaping strategy 'generally attempt(s) to get ahead of uncertainty by driving industry change their way' (Courtney, 2001). This strategy is useful in creating order in chaos and may receive higher gains, especially in highly uncertain environments. When deciding on using a shaping strategy, it is important to consider the external market environment and the company's capabilities to determine if it is possible (and beneficial) for a firm to obtain the first-mover advantage and strategically shape their firm and market.

Different changes related to shaping strategies were discussed by Mintzberg and Westley (1992). Firstly, organizations can shape their business through either deductive change or inductive change. Deductive change goes from thought to action, where thoughts are worked through to get to their tangible manifestations. Inductive change goes from the concrete to the conceptual, where tangible changes can be generalized to perceptions.

Companies can also shape their companies through changes on different scales. At one end of the spectrum, revolutionary change changes everything while isolated change is specific and at lower levels. In between these two are piecemeal change which shifts various elements independently and focused change which only changes a specific part of the organization.

The paper also discussed how a change in an organization can be directed by a focal actor and done through procedural planning. Procedural planning is deliberate and deductive and is typically thought of at a higher level of hierarchy and implemented lower down in the hierarchy. This type of change, which is structured and deliberate, is described as change that is managed formally.

Adapting strategies

Adapting strategies 'take the existing and future industry structure and conduct as given . . . (and) try to define defensible positions within the industry's existing structure' (Courtney, 2001). Even though adapting strategies can be criticized for being a passive method to foresight, the method actually requires much action and planning to be successful. When a firm is placed in a high-uncertainty environment, an adapting strategy firm needs to win through speed and agility to gain new opportunities and avoid threats. They also need to incorporate flexibility into their business structure so they can be prepared for change at any moment. Adapting strategies are more favorable when the key sources of value creation are stable or outside the firm's control.

Barr *et al.* (1992) also looked at adapting strategies. Their view was that businesses are in an ever-changing environment so firms need to learn to respond and adapt to these changes. There was no discussion concerning preemptive action seen with shaping strategies. Along with discussing the importance of the adaption of firms to changing environments, it was suggested that an incremental approach to adaption is preferable over drastic and last-minute change. The incremental approach allows for trial and error, which can help develop the optimal course

of action for strategic renewal best fitted to the company and its future.

Episodes of change

Mintzberg and Westley (1992) discussed episodes of change and how they can either be more of a shaping strategy as seen with the turnaround episode or more adapting as seen with revitalization:

1. *Turnaround.* A relatively rapid episode of change. This episode of change is typically directed from a central source and is highly deliberate.
2. *Revitalization.* A slower, more adaptive and persuasive episode of change. This episode of change is developed in small steps through the organization and infuses the organization rather than being infiltrated from the top.

Stages of change

In the 'cycles of organizational change' (Mintzberg and Westley, 1992), the stages of change were outlined and include:

1. *Stage of development.* In this stage, the organization is building itself up through continual change of hiring people, building facilities, and establishing programs and structures. There is usually a large amount of inductive learning in this stage.
2. *Stage of stability.* During this stage, the major aspects of the organization are set in place. The organization is concerned with concentrating its resources on their set strategies in a set structure, and fine tuning everything else.
3. *Stage of adaption.* This stage is similar to the stage of stability except that the organization is dealing with more conceptual levels of change with organizational structure and strategic positions. Procedural planning and inductive learning are important in this stage.
4. *Stage of struggle.* In this stage, the business has lost its sense of direction and has to develop a new one. In this stage, experimentation plays an important role in

helping direct a new vision and culture to help facilitate more changes.
5. *Stage of revolution.* Finally, the organization goes through a stage where many elements are shifted at once. This can cause many pervasive changes in behavior and mindset in the organization.

Resistance and failure to change

Failure to change was looked at by Barr *et al.* (1992) through the case study of Rock Island railroad and its bankruptcy in the mid-1970s. Even though Rock Island and C&NW railroad both faced poor economic conditions due to the decline in the railroad industry, Rock Island was unable to adapt to these changes.

One of the main reasons for this failure was that Rock Island did not readily recognize these economic changes and act promptly to create new understanding and responses. Even though Rock Island recognized the poor performance in the company, external factors were blamed and internal action was not taken. Change in Rock Island did not occur until the firm realized it needed to make changes within the company and that the external factors were not the only problem. Another issue that contributed to this bankruptcy was that when Rock Island did realize all the issues it was facing and the poor fate of the company, the action was delayed until a time when both time and resources were constrained and did not allow for incremental changes.

If the beneficiaries of institutional change cannot commit to compensate the losers, powerful groups may be able to block beneficial change or impose inefficient change:

1. Incremental changes more easily achieve consensus on small adjustments than affect major changes to existing rules.
2. Existing institutions create groups with a vested interest in preserving the status quo, which can impede institutional change and enable inefficient institutions to persist.

Dimensions of organizational foresight

Distinguishing itself from utopia — where forecasts are condemned as either too wild or too obvious (Valaskakis, 2010) — foresight is taken to be a deliberate, critical, reflexive, and creative forward-looking engagement with future, action-dependent states of affairs (Mendonça and Sapio, 2009). By considering the multiple *possible, probable, plausible, and preferable* futures (Öner, 2010), futures research needs to be at the core of organizational change where it is situated in dynamic and unpredictable environments. Consequently, it is suggested that in order to improve organizational performance and strengthen competitive advantage, organizational foresight needs to become embedded and managed in organizations constituting change.

Organizational foresight creates a vision to look beyond the close environment of organizations and is an innovative tool to help achieve sustainable competencies in organizations. One of the main challenges for organizations is to formulate clear perspectives and attach them to their daily decisions and actions. Radical political and economic changes, increased global competition, triumphant improvements in transformation and communication, as well as scientific breakthroughs on everything within the field of social sciences form the basis for needing a differentiated organizational formation. The necessity for foresighted managerial choices (Stark, 1961; Milburn, 1978; Weinstein, 1980; Slaughter, 1990; Amsteus, 2008) helps the transfer of futures research tools and methodologies into corporate applications.

Organizational foresight is built upon the rationale that it is the end result of companies' operations which demand long-term orientation, or it is taken as an anticipatory action to better cope with the complexities and uncertainties of the business environment in general.

National foresight

National foresight studies have been a successful tool in bringing together participants from science, industry, government, business, and academia in order to identify, evaluate, and act on the grounds of change taking place within the political, economic, socio-cultural, and technological realms. Foresight studies may be broad or narrow in scope, with regard to their territory and domain. Although not mutually exclusive, foresight studies are observed as territorial: global, international, supranational (bilateral, multilateral, international organization), subnational (region, city-region/municipality), and national (most observed). The domain may be of economic, social, environmental, technology, and scientific discipline.

It is essential to understand the long-term study of the impacts of national foresight studies. Although a direct quantitative measurement of the impact and the value of foresight studies cannot yet be done in a statistically reliable fashion, in the short run it can be concluded that national foresight studies contribute significantly to the design, and in some countries the reshaping, of the innovation system structure and framework conditions (Meissner, 2012).

Comparing national foresight studies by means of the Integrated Foresight Model (Alsan and Öner, 2004) — enabling a quantitative comparison of national foresight studies based on the qualitative assessment of observations — there is suggested to be a relationship between economic development and national foresight (Alsan and Öner, 2003). Saritas and Öner (2004) also emphasized a joint and systemic use of different foresight techniques rather than focusing on just one, such as joint use of scenarios and Delphi in order to overcome challenges introduced by the multidimensional characteristics and complex nature of foresight studies. Öner *et al.* (2007) carried out a survey in Turkey based on the mega-trend surveys carried out in Germany and Austria in order to compare the results of the mega-trend studies and to guide the national foresight study; this revealed different levels of emphasis on different themes, suggesting attitudinal diagnostic tools to be useful.

However, Saritas and Öner (2004) stated that there is a lack of translating future requirements into R&D projects and initiatives, where most foresight exercises topic

statements which are formulated and assessed using different instruments, placing more emphasis on action rather than theoretical understanding of the underlying science of matters.

By using organizational foresight to help firms around the world develop, the global economy can also grow and benefit from that advancement:

1. How can we develop an action plan to develop the infrastructure of fourth-generation foresight?
2. What are the characteristics of the fourth generation?
3. How can we use foresight to help lagging countries?

Technology foresight

Fundamental changes in human affairs come both as unpredictable discontinuities and as gradually unfolding trends where, for example, technical developments offer some of the best examples of these underappreciated shifts (Smil, 2005). As a major role player in organizational change, technology foresight (Elbeyli and Öner, 2003; Güler and Öner, 2003; Jørgensen and Jørgensen, 2009; Könnölä et al., 2009; Öner et al., 2013a) can be used for foresight in companies. Reger (2001) looked at technology foresight as an integrated, important aspect of foresight management based on interviews with the companies investigated. It was found that most of the companies have a long-standing knowledge of technology monitoring and it is part of their daily work. They also had a good knowledge of technology and a large collection of information. Despite these strengths of technology foresight in these companies, it was also seen that the process was not overly structured and the phases of the process were not readily defined.

There are six major phases involved with technology foresight:

1. *Formulating information needs.* It is important to select information sources, methods, objectives, and instruments before starting the search phases. Businesses can either take the 'inside-out' perspective, where the observation area is determined based within the domain of the company, or the 'outside-in' perspective, where a non-limited search for information is used.
2. *Collecting data.* When collecting data, it is important to use a mix of quantitative and qualitative methods, combine different approaches, visualize results, and use formal and informal information sources. Overall, it is best to systematically collect data to save time, reduce duplicity of data collection, create a network of contacts, and centrally store all the information.
3. *Filtering, analyzing, and interpreting the information.* Discussions on the data should take place in project teams, research groups, R&D planning, and business units. The databases should be flexible and filtered with data cemeteries avoided.
4. *Preparing decisions.* As stated in the article, 'the underlying aim (of preparing decisions) is to influence and support decisions on resource allocation regarding R&D and technology' (p. 527). These decisions can then be used as input into new ideas and proposals.
5. *Evaluating proposals and decision making.* The main objective of this phase is to make the final decision to either proceed or not with resource allocation. This phase is the most formally structured because it reaches furthest into the domain of strategic foresight and planning.

Technology foresight is also performed on different organizational levels. Firstly, it can be conducted at the corporate level, mainly by corporate research feeding information directly into new project ideas. It is also performed, but less extensively, by the division and business units. This level has a short-term orientation concerned with identifying new markets, customers, as well as 'benchmarking' competitors. Finally, virtual structures overlay the levels of the corporation and business units by 'bringing together people from various hierarchical levels and departments, and function as temporarily limited tasks' (p. 538). This allows for greater flexibility, more

cooperation, a higher degree of autonomy, and increased communication.

Product development

As discussed above, foresight and product development go hand-in-hand. Technology has both increased our ability to create new, innovative products and speeded up the innovation process. An important factor to consider with product development is the core competence of an organization, as outlined by Major *et al.* (2001). They noted the importance of managers recognizing the core competence of a company and how they can use that core competence to create a clear path for that product or service. They also discussed the integration of foresight into core competence and that this can strengthen not only the organizational foresight culture but also the competency on which the organization's product is based:

1. How can foresight predict consumer preferences?
2. How can we extend product lifecycles when there is such a high rate of change due to technological advancement? (van der Duin and den Hartigh, 2009)
3. How can foresight pick optimal areas for product development and emerging business fields?

Ethics

A popular topic in the business world is ethics. Businesses are shifting their focus from profits to also looking at environmental impacts, human rights issues, and ethical business practices. In order to implement policies that support these issues, businesses need to see how their current business practices impact the environment and people and how changes to their practices could be made. Foresight can also help businesses plan for these changes financially and see how changes now could help them and the world in the future:

1. What are the costs and benefits to implementing ethical business practices?

2. How can organizations be incentivized to look into ethical foresight systems?

Conceptual issues

Organizations need to cultivate foresight in order to cope with change in dynamic and complex environments, anticipating *sense-making* (Gioia and Chittipeddi, 1991; Weick, 1995), *double-loop learning*, *scenario planning* (Richards *et al.*, 2004; van der Heijden, 2004; Tapinos, 2013), and *business war-gaming* (Schwarz, 2009).

In order to promote successful organizational foresight results while managing changes in and outside the organizational settings, we suggest an approach where foresight is used as a project. Each organizational foresight project has its own strengths and weaknesses, eventually aiming to achieve an anticipated future in complex and constantly changing business environments and the emergence of a new culture in the organization. Irvine and Martin (1984), with the label '*foresight*' introduced the most important aspects of foresight as the 'five Cs,' which can also be identified as the ingredients of a successful foresight project:

1. **Communication.** Bringing together disparate groups of people and providing a structure within which they can communicate.
2. **Concentration on the longer-term.** Forcing individuals to concentrate seriously and systematically on the longer term.
3. **Coordination.** Enabling different groups to coordinate their future R&D activities.
4. **Consensus.** Creating a measure of consensus on future directions and research priorities.
5. **Commitment.** Generating a sense of commitment to results among those who will be responsible for translating them into research advances, technological developments, and innovations for the benefit of society.

The defined components of successful corporate foresight have been increased to twelve Cs by incorporating

the aspects of *content, change, continuity, courage, curiosity,* and *connectedness* (Öner and Göl, 2007).

In order to achieve effective implementation of foresight capabilities within changing organizational settings, we suggest grounds on which foresight can be managed within these defined success factors:

6. **Content.** Content represents the information and experiences created by individuals, organizations, and technology to benefit corporate foresight projects by helping set direction, identification, and the establishment of methodological principles. As regards content, foresight activities should aim to produce plausibility, provide convenience and inspiration, as well as an appropriate time perspective (Rollwagen *et al.*, 2008).

7. **Competence.** Competencies represent the skills, abilities, and knowledge needed to perform organizational foresight activities. Competence also needs to be understood as a means and to be continually developed with respect to changes in the environment.

8. **Change.** The inclusion of 'comprehension' as the sixth C to the original five Cs aimed to encourage those who were involved in foresight activities to understand the changes happening in their business or profession at a global level, and to exert some control over these events. Öner and Göl (2007) have proposed repositioning this construct as part of the success factors of corporate foresight within the concept of *change*.

   (a) Since the dynamics of change in the corporate environment have increased strongly, foresight has become a very important tool to help overcome these changes. Therefore, foresight should be approached not only as a tool for selecting and prioritizing R&D activities, but rather as a tool to institute change within the organization.

   (b) Thus, foresight begins with the identification — and monitoring — of trends in change and

emerging issues and may be managed via an array of foresight methods and techniques, identifying and monitoring change, considering and critiquing the impacts of change, imagining alternative possible futures, visioning preferred futures, planning, team building, and implementing desired change (Schultz and Dost, 1997).

9. **Continuity.** Organizational foresight activities should not be taken as a set of things to do at one time but rather a set of activities that continue for the lifespan of the corporation. Therefore, the continuous application of foresight activities is crucial for a corporate culture of strategic vision and change. This continuum of activities will help generate the dissemination of foresight practice in changing organizational settings and their capacity within society by means of communicated culture, knowledge, and behavior. However, the future as more of an inventive, inspirational place to aim for rather than a *continuation* of the past is suggested to overcome the psychological biases within hindsight on futures creation (MacKay and McKiernan, 2004).

10. **Curiosity.** Organizational foresight activities encourage innovation and therefore urge creativity. This capacity is motivated mainly by curiosity when provoked in exploration, investigation, and learning. Curiosity-embedded foresight activities confer competitive advantage to those companies which foster anticipation for their future of change.

11. **Courage.** In order to anticipate and project long-term developments, present-day decisions need to be made and actions taken. This part of foresight activities is connected greatly with the courage of the participants in a project. Courage is in sync with implementation, and thus creates a firm's own future in changing organizational settings.

12. **Connectedness.** Integration is the process of combining or accumulating components into a larger defined whole. 'Connectedness' has been defined as the integrating item in corporate foresight projects.

Connectedness is the capability of foresight to be attached to other systems within and outside a company (Moles, 1970; Öner and Göl, 2007). Therefore, it defines the integration of micro-, meso-, and macro-level aspects in foresight activities in organizations. The term *connectedness* also helps the integration of socio-economic orientation that shapes the organizational foresight activities within changing organizational settings, along with the scientific and technological challenges.

Foresight activities have become visible in Turkey in activities ranging from 'Vision 2023'[2] to 'Forum 2023.'[3] Although limited observations from the private sector are monitored, 'large scale companies are also becoming more and more interested in corporate foresight in Turkey' (Alsan, 2008). According to Alsan's (2008) article on action research concerning Siemens-TR, the corporate foresight project was initiated by the Strategy Board of Siemens-TR which consisted of CEO, CFO, group managers, and managers of important staff departments in order to foresee the future of Siemens-TR in 2015.

Referring to the assessment of the *Corporate Foresight Project* at Siemens-TR, initiated in 2005 with preferred scenarios for 2015, Öner and Göl Beşer (2011) suggested that:

(a) Although the results of the individual assessment of the corporate foresight project at Siemens-TR indicated that the foresight activity undertaken at the company be labeled as 'successful,' overall attention needs to be given to the process-oriented elements of the foresight project. Since it is a process that changes the participant managers' business environment as well as their understanding of the company, the corporate foresight project is a different, difficult, and highly responsive experience. As Rollwagen *et al.* (2008) state, when producing and delivering foresight in a structured manner in order to achieve a higher impact from foresight projects, organizations need to provide a seamless inclusion in organizational procedures, a high level of interaction with decision makers, ideational entrepreneurship, innovation regarding communication with business people, persistence, and synchronization with the business organization.

(b) The individual assessment result of the project managers indicated that the corporate foresight results were communicated into the company in order to create diffusion and higher commitment for successful project results. However, after the execution of the corporate foresight project, the project managers were withdrawn from support and responsibility for the project.

(c) The participant managers suggested and supported reapplying the corporate foresight project at predetermined time cycles, say 3 to 4 years, in order to build company knowledge and commitment to foresight activities.

(d) In order to avoid pitfalls at the execution phase, more focus will be given to the complexity of coordinating a variety of resources with balanced targets of time, cost, and quality in the corporate project.

According to the number of pitfalls assessed by the participant managers at the Siemens-TR foresight project, one may assume the odds of the project to fail unless the defined *twelve success factors* are taken into account in order to strive for improving the impact of foresight project results and steering organizational change. Rohrbeck and Schwarz (2013) show that it is possible to capture value from formalized strategic foresight practices through (1) an enhanced capacity to perceive change, (2)

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[2] Technology foresight project of the Scientific and Technological Research Council of Turkey (TUBİTAK), determined in creation of an 'affluent society' (available at http://www.tubitak.gov.tr/home.do?ot=5&rt=3&sid=0&cid=3332).

[3] The 'local Davos' of Turkey organized annually by a private institution devoted to planning the 100th anniversary of the Republic of Turkey (Alsan, 2008).

an enhanced capacity to interpret and respond to change, (3) influencing other actors, and (4) an enhanced capacity for organizational learning.

Conclusion

Organizations in today's dynamic and complex environments and interactions need to find new ways of strategizing, organizing, and managing change in order to shape their future. Despite the limits of predicting change taking place inside and outside organizations, anticipating crucial developments is possible. This may require a new way of thinking that would involve organizational learning (Karp, 2004) and an individual foresight attitude that would enhance an organization's ability to envision the future and then actively shape its future.

Foresight attitude was defined by Durance and Cordobes (1945) as modifying individual representations by building new frames of analysis. Consequently, foresight attitude concentrates on cognitive dimensions of anticipation remaining focused on the individual (futurist, manager, and strategist) (Bootz, 2010). Within this framework, foresight is suggested as a tool for self-education (Goux-Baudiment, 2000) and induced as reform of thought (Bindé, 1997). The individual — *in our case, the organization* — builds a mental model of the future that will condition his ability to build more or less adapted anticipations (Bootz, 2010) and does not just describe *uncertainties* (Öner *et al.*, 2013b).

On the contrary, 'organizational change combines an inner shift in people's values, aspirations, and behaviors with "outer" shifts in process, strategy, practices, and systems' (Karp, 2004).

Overall, this paper suggests that if organizations intend to proliferate in their change drive (Tsoukas and Shepherd, 2004) and take strategic action by engaging with foresight projects (Treyer, 2009), it would be wiser to create a foresight attitude among managers and decision makers in organizations, as foresight activities aiming to provide guidance and reduce uncertainty for all actors within and outside the organizations. Within this framework and motto, change will be easier to steer and will be less likely to becloud the *futures*.

Not many empirical studies have been made part of the review and this may generate one of the research limitations of the study. However, we believe the paper suggests some potentially significant insights for foresight studies and its applications by discussing links between organizational change management and organizational foresight.

However, as part of public policy implications, both national and regional governments need to use foresight as a way to shape and move toward desired futures for sustainable development in continuously changing and dynamic environments.

Lastly, practitioners of future studies have been discussing ways of exploiting the full potential of foresight in strategy and policy design, as well as for the development of organizations in their changing settings. It would be useful to carry out more future work focused on the merging of the mentioned disciplines along with the attitudinal and personal traits of managers (Tichy, 2004; Göl, 2008) participating in the foresight projects since they may add new possibilities and complexities to the field.

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