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The practice of foresight in long-term planning

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ABSTRACT

Researchers and practitioners agree that foresight, that is, an ability to foresee how the future might unfold, is an important strategic capability and critical for effective long-term (LT) planning, however, few have systematically interrogated its practice. This research advances knowledge on the practice of foresight in long-term planning through a comparative analysis of planning approaches in two organisations linked through common ownership. Data generated from planning documentation and the foresight practice of strategy personnel in the two cases (transport and banking) provided support for a dynamic model of foresight integrated LT planning. The ongoing collection and synthesis of strong and weak signals, and their continual assimilation into scenarios depicting alternative futures was structurally supported by a community-of-practice. The community-of-practice widely engaged strategists located across organisational levels in conversations about emerging futures and about strategies through which to engage those futures. The findings encourage managers and researchers to view long-term planning as an ongoing interrogation of implemented and envisioned strategies within emerging, alternative futures. Such an approach stimulates strategic entrepreneurship and prepares the organisation for engaging in future environments.

1. Introduction

Research has established that long-term (LT) planning designed around structured, historically-driven, analytical processes will encourage strategic conversations around recognised trends that are not necessarily good predictors of future environments [1–3]. The employment of traditional environmental analysis approaches in the strategising phase of LT planning has been described as restricting strategic conversations within recognised boundaries, and thus failing to capture the uncertainties of fast changing environments or to distill unrealised future impacts [2–6]. Underestimating the uncertainty of the future can lead to developing strategies that neither defend against future threats nor take advantage of the opportunities that higher levels of uncertainty may provide [5,8].

There are substantial rewards for integrating foresight methodologies in the planning process to envisage alternative futures, provided that the risks of pioneering aligned with those futures are recognised and managed [9]. While foresight techniques such as scenario planning can "help… organisations develop the capability to anticipate uncertain futures" [10], effective scanning of the environment is a precondition for building alternative futures through which the impact of environmental change or strategic options of the organisation can be explored [9,12]. Although it has been established that foresight methodologies that capture only strong signals (i.e. those signals already recognised as shaping emerging futures) limit the development of scenarios to those linked to current environments [4,12], research confirms that relatively few companies adopt foresight methodologies in their planning that utilise scenarios generated through the integration of weak and strong signals [2,5,6].

Although researchers and practitioners agree on the importance of integrating foresight methodologies in LT planning that stimulate envisioning and future-focussed

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strategising, [13–16,19], there is limited understanding of which foresight methodologies best capture future uncertainties, and when and how those methodologies should be integrated within the planning process. Even though there has been extensive discussion on the importance of building foresight in the strategising phase of LT planning, capturing and integrating strong and weak signals and generating scenarios depicting discontinuous as well as continuous futures has not generally been adopted in planning practice [2,6,9,59]. As Haegeman et al. [7] note, "there is still little dialogue and exchange between those applying quantitative and those applying qualitative methods". Most planning approaches today fail to generate and/or manage weak signals, as most restrict foresight activities to the capture and synthesis of strong signals or trends [2,17,46].

We seek to advance knowledge on the practice of foresight in LT planning as managers prepare their organisation for anticipated, but uncertain futures. Our research question: "When and how should foresight methodologies be incorporated into LT planning to capture the uncertainties of anticipated futures?" addresses the call for greater emphasis on foresight in planning as organisations face fast changing environments [2,17,18].

2. Literature review

An organisation's LT planning approach and the planning systems, leadership, structures and culture in which the planning approach is embedded comprise the activity system within which foresight is practiced. Interaction within this system occurs between the planning practitioners, their organisation's collective structures and the activity of generating foresight within the planning system. Thus, the activity system shapes, and is shaped by, planning practitioners and the foresight generating methodologies employed within the activity system [20,21]. Although our emphasis in this research is on the LT planning process and the integration of foresight methodologies, the activity system in which this is located is of particular importance in understanding when and how these methodologies are implemented. We now examine LT planning approaches and foresight methodologies to develop a set of propositions to frame the research.

2.1. Long-term planning and foresight

The two models dominating the planning literature are described as prescriptive and descriptive planning approaches [56]. The prescriptive, imposed planning approach (i.e. strategising, strategy development, planning and implementation) has been referred to as the linear model [22]. Prescriptive approaches present strategy development as based on deterministic processes, where the analysis of the organisation, performance, and environment forms a rational, long-term plan. The imposed planning approach embodies a formal process involving the application of traditional analytical tools that assist in defining the organisation and the space in which it competes [24,25], and tends to locate strategy formulation at top management level. Examples of techniques that support this deterministic process are Porter's five forces model, and value chain analysis [64], which provide insights on signals influencing current environments.

The alternative dominant strategy model embodies planning in an emergent and adaptive form [22], and is linked to Mintzberg's learning school [23]. This alternative approach views organisations as refining their strategies incrementally as new information indicates changing environments. For those following an emergent planning process, strategising involves sense-making around new information, and de-emphasizing historical constraints [26,27]. However, descriptive approaches have been linked to losing control over action and direction. To address this shortcoming, and draw on the benefits of both prescriptive and emergent approaches to planning, Quinn [28] described the phenomenon of logical incrementalism, with top management stimulating ideas and structuring the emerging strategic impetuses of the organisational subsystems. Quinn's logical incrementalism captures some aspects of Chaffee's [22] interpretive model in which "reality is defined through a process of social interchange in which perceptions are affirmed, modified, or replaced".

Planning that considered long-term issues in business was not evidenced until the sixties. Ansoff's [66] process of product market strategy formulation included a number of elements, for example, terms such as current forecast, industry potential, diversification gap and expansion gap, scope and growth vector, and competitive advantage, that capture some elements of what is now termed 'foresight'. The long-term aspect of market knowledge, i.e. connected with scenario building, was later defined as a key element of planning [18].

In the seventies, first approaches underpinning the development of corporate foresight were presented by combining together the two techniques of environmental surveillance and forecasting in order to reduce uncertainty [66]. At this time, environmental surveillance involved scanning the organisation's internal and external environments to identify emerging issues and trends which might eventually influence the direction and effectiveness of existing strategies. The process's objective was to anticipate the need to change strategy, so that action could be taken before the window of opportunity for effective response closed. The quality of this process lay in the organisation's ability to capture signals that identify impulses that would break trend lines in foreseeing the probable future [60]. In Ansoff's decision schema of strategy formulation [66], the appraisal of outside opportunities was an integral and important element in the strategy development process, as it was seen as the foundation for long-term growth and ROI.

As the past is connected to the future via cognitive linkages, managers' thinking is likely to be dominated by prior experiences when analysing historical trend data (their causes and consequences) and linking them to foresight [67]. However, weak signals also have an important role to play in identifying and synthesizing current trends and extrapolating future developments, as risk and uncertainty are influencing elements on LT planning decisions [2,46,49]. Rohrbeck speaks of the importance of building foresight within LT planning in a context where "corporate change is characterized by long periods of slow, incremental change and short periods of rapid discontinuous or radical change". He follows with the tentative conclusion that "the mortality of large companies may be explained in part by their ability to identify, prepare for, and respond to discontinuous change" [57].

There is general agreement on the need for a contemporary approach to planning, one which can cope with a fast

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changing dynamic environment, and yet ensures that long-term considerations are part of strategy conversations [6,8,13,36,59,60,70]. However, dynamic, adaptive models in which strategies are left as broad visions, not precisely articulated, and which allow a company to adapt flexibly to a changing environment, are infrequently employed [29,30]. In response to dynamically changing environments, many companies have employed shorter planning cycles. Shorter planning cycles support adaptability, but where traditional analytical tools and techniques drive the strategising process, organisations fail to anticipate innovation relevant to the changing environment or foresee discontinuous change. As a consequence, some companies have discarded formal planning, preferring to operate under an emergent, 'strategic principles' approach [31], while others have focussed their strategies around achieving immediate rather than long-term financial benefits [4,30,32].

Even though the limitations of traditional planning approaches in dynamically changing environments are well recognised [13,33–36], the practice of generating foresight that captures future uncertainties remains under-utilised. In most companies, strategic conversations are constrained by current and emerging models of markets and industry and commonly held assumptions about, for example, anticipated changes in demographics or technology platforms. These constraints focus strategic initiatives on changes in standards and practice in manufacturing, delivery and/or e-business, which are based on clearly articulated forces and the impacts well understood [37]. However, the future is not stable and trends (or strong signals) evident in current or past environments are not necessarily good descriptors or predictors of future environments [1–3,48].

2.2. Foresight methodologies and capturing future uncertainties

Foresight has been defined as "a social cognition process involving a complex set of methods and interactive processes" that assists an organisation become "more adaptive and forward oriented in unpredictable environments" [38], a capability enabling the generation of knowledge about the future [11], and a clearly articulated vision emerging from planned activities where information about changing environments is debated. In articulating foresight in a corporate context Rohrbeck [57] specified: "Corporate foresight is an ability that includes any structural or cultural element that enables the company to detect discontinuous change early, interpret the consequences for the company, and formulate effective responses to ensure the long-term survival and success of the company". The creation of an overall picture of the future generated through foresight and how an organisational entity might engage in that future is referred to as envisioning, which is identified as an important leadership skill [39–41]. In activating social cognition involving complex methods and interactive processes [38], the objective of generating foresight is to build a bridge from the present to the future while simultaneously re-educating and re-engineering organisations that are culturally programmed to focus on the present and the immediate future, as opposed to uncertain or discontinuous environments [5,8,45].

2.2.1. Signals indicating changing future environments

Weak signals, trends (strong signals) and critical events that shape strategy practitioners' understanding of emerging environments are all categorised as drivers of uncertainty [43–45]. In the literature, these signals of change have been described as follows:

1. *Weak Signals*: Information about the future that is vague and the impact on the future is unclear (e.g. anticipated technologies that could dramatically change the approach to service design) [9,18,46];
2. *Trends or Strong Signals*: Clearly observable changes happening today and expected to continue into the future (e.g. mobility of individuals will become more important) [2,45,47,48]; and
3. *Wildcards, Critical Events or Strategic Surprises*: Something that could happen that is completely outside existing mental models and ways of coping (e.g. an unexpected business model adopted from another industry creating an industry restructure) [9,49].

Collectively, these signals of change are inputs to strategic conversations and contribute to building scenarios depicting both continuous and discontinuous futures.

Weak signals are described by Medonça et al. [38] as foresight "raw material", and explain how their "value … does not materialise automatically. Realizing this potential requires a degree of tolerance and fluidity of the collective cognitive frameworks by which weak signals can be apprehended, assessed and acted upon." Weak signals and critical events which may indicate a future which is inconsistent with currently held assumptions are particularly challenging to identify. As Medonça et al. [38] explain, "building a "weak signal" interpretative capability is a matter of continuous organisational development and learning, particularly in terms of assumption re-appraisal, sharing of perspectives, collective creativity, and prompt deliberation". As weak signals can play a crucial role in capturing uncertain futures [49,53], the capability of strategists to identify and correctly interpret weak signals can be vital to the success or survival of an organisation. It has been argued that the creation of knowledge about the future using a variety of qualitative and quantitative methods will reduce uncertainty and stimulate discontinuous innovation options [50,58,63].

Emphasis in strategising on strong signals that define environments in terms of currently recognised opportunities and threats has been posited to inhibit an organisation's innovation capability. Prior research has suggested that by employing predominately quantitative foresight methods, managers will fail to capture the complexity of weak signals contained in turbulent and complex environments [46,54,62]. Even when combined with scenario planning activities, traditional PEST and SWOT analytical approaches which utilise current and historical data, restrict future-oriented thinking within currently visible or well-articulated signals. Such approaches re-enforce managers' well-defined, mental models and contain strategic conversations and practice around what is 'comfortable' [4,12,24,36,42].

Generally, where managers have described their approach to combine/integrate qualitative (descriptive and non-quantifiable) weak and quantifiable (strong) signals, many of the methods employed are in fact quantitative in character (for example, different forms of cross-impact analysis). However, the foresight methodology literature identifies a broad range of approaches, from those which predominantly provide descriptions of the current and immediate term as in industry analysis

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[64] to broad projections of alternative futures (e.g. through future workshops, gaming and conferences) exemplified in scenarios crafted by the "World Future Society" and many other consulting corporations [1,7,17,34,24,78[1],82,94].

Major shifts in science, technology, consumer demand and governance encourage the integration of qualitative foresight methodologies that facilitate sense-making and envisioning future environments through scenarios [2,3,6,40]. The adoption of both qualitative and quantitative foresight methodologies in the strategising phase of LT planning has been argued to stimulate strategic conversations about operating in reconfigured environments and ideas for discontinuous innovation [43,46,60,61]. Thus:

P1: *In comparison with traditional planning approaches, planning integrating foresight methodologies incorporating both strong and weak signals will generate more open strategic debate, revealing more divergent scenarios for interrogation.*and,P2: *In organisations where planning integrates foresight methodologies incorporating both strong and weak signals, strategic conversations will generate imperatives that address current challenges as well as preparing the organisation to address environmental reconfigurations.*

2.2.2. Scenario formation, strategic conversations and decision-making

Scenarios are parallel stories or models of anticipated images of the future which include certain assumed events, and are built through the synthesis of data captured through a number of foresight methodologies [51]. Heger and Rohrbeck [50] noted how scenarios depicting anticipated futures stimulated strategic conversations about potential strategies for organisational engagement in those anticipated futures. As Hodgkinson and Wright [52] explain, "scenario planning has been advocated as a means of overcoming 'strategic inertia'". Scenarios are generated from outputs of scanning activities about future developments, and ideally should be value free, e.g. through reducing integration of individual emotions and views and by creating multiple futures [3,41,53–55]. Scenarios incorporate signals depicting trends and forces anticipated to shape future environments as well as their underlying causal relationships and interactions [53,58].

The benefits of incorporating foresight methodologies in LT planning have generally been focussed on enhancing strategising activity at the strategy development phase of LT planning. However, scenarios will change as some weak signals become trends and others fail to emerge as dominant forces, thus signalling the importance of constantly observing the 'ebbs and flows' of underlying signals and incorporating those changes in operational decision-making [46,60].

Prior research has referred to the importance of monitoring those strategies being operationalized to achieve a future position. Effective, flexible, strategic decision-making has been linked to interactions among strategy practitioners located across hierarchies throughout the strategy development and implementation process [5,15,39,68]. Thus:

RP3: *In comparison to traditional planning approaches, planning approaches integrating strong and weak signal foresight methodologies will exhibit flexible decision-making, adjusting current and long-term initiatives through on-going foresight engagement.*

Fig. 1 draws together the propositions that form the research framework.

3. Research method

Case study research facilitates the creation of new knowledge required to understand uncertain, complex and unique situations, and is used both for theory development and to develop practice nuances. It has been employed by those interrogating business processes and complex real-world practices such as strategising, strategy development and operationalizing strategy [69–72]. Case study method has been employed to study "phenomena that have already occurred, i.e., it has focused on existing reality" [99], and is especially useful in organisational contexts and when dealing with a process or complex real-life activity, for example, the study of a "specific, unique, bounded system" [65,69,71,72].

Case study method creates new understandings through an in-depth study of clearly defined units of analysis. The method can be particularly valuable when contrasting cases are included in the study [73–75]. Thus, case study method designed to capture an in-depth understanding of the LT planning approaches of two contrasting cases is therefore an appropriate research approach through which to investigate our research question, "When and how should foresight methodologies be incorporated into LT planning to capture the uncertainties of anticipated futures?".

Two cases representing extreme situations and polar types in LT planning were selected for study. Two large, information rich organisations, in which planning was a formal process and had a long-term horizon, were targeted. A diverse corporation exhibiting these characteristics, and which controlled several companies operating independently with respect to planning, gave permission for two of its companies to participate in the study.

The first case (CO-A) exhibited traditional, structured planning practice, with minimal foresight activity, while the second case (CO-B) engaged in foresight practice, integrating foresight knowledge, tools and skills within its planning approach. CO-A operates in passenger transportation while CO-B is a financial institution. All relevant managers involved in LT planning in both companies agreed to be interviewed (eleven interviews were conducted in total), and planning documents from both companies were content analysed.

Data was captured from the managers via interviews (see Table 1 for position descriptions of interviewees). The interview guide contained three sections, with the first section dedicated to capturing information on the strategy expertise of the interviewee. The second section guided the collection of data on the organisation's LT planning approach through stimulating narratives on the practice of strategising, strategy development and implementation. In section three, a series of questions guided the capture of data on the interviewee's understanding of foresight and perceptions of the role of foresight in defining their

[1] Detailed reports on techniques in foresight are presented by Haegeman et al. [7], Glenn & Gordon (Futures Research Methodology) [82] with over thirty described methodologies, and a report from EPFL for a Swiss Bank (Koncilja-da Mata et al. [78], (Methods to find Weak Signals for Foresight and Scenario Planning) with over forty described methods.

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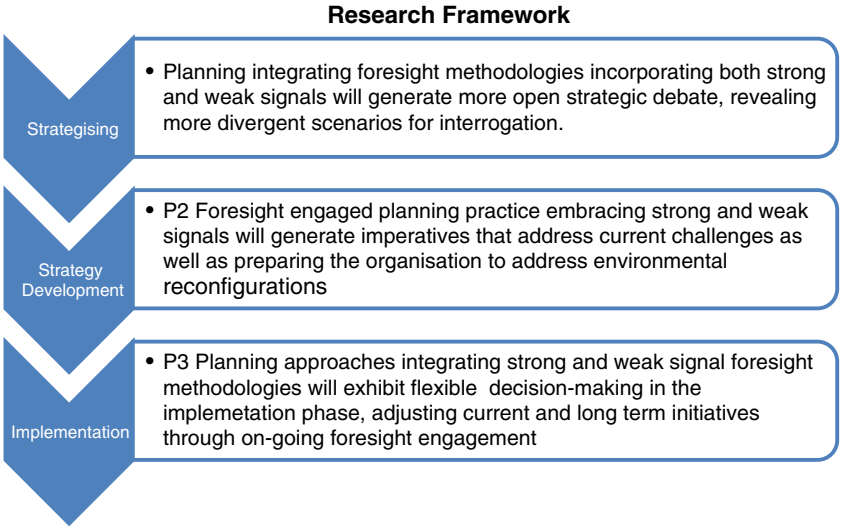

Fig. 1. Research framework.

organisation's strategy. Here, specific emphasis was placed on identifying strategic initiatives and innovation emerging from planning. Where relevant, detailed descriptions and explanations of methods, and the practice of: (1) collecting signals from the environment; (2) combining qualitative, non-econometric signals into scenarios; and (3) challenging current strategy with the outcomes of scenarios, were recorded. Interviews lasted approximately one hour and were conducted at the companies' headquarters.

A large range of source documents on planning, market research conducted to support planning, and foresight and futures screening methodologies were content analysed to capture each planning framework. Utilizing NVivo® software, interview data was coded around concepts embedded in the propositions and the structures and behaviour informing foresight practice. Data referencing is provided via NVivo® coding of the subscript. This allows back tracking to the original interview transcripts. For example, NVivo® subscript reference number $_{127}$ from interview data:

> *The view towards the external market is considered to be retrospective, and therefore the strategy development process is seen as reactive* $_{(127)}$.

Table 1
Position descriptions of interviewees.

Interviewees CO-A	
INT1	Strategy manager
INT2	Head of strategy
INT3	Head of project management & strategic financial planning
INT4	Business consultant (internal)
Interviewees CO-B	
INT5	Corporate foresight specialist
INT6	Head of corporate development
INT7	Head of market research
INT8	Head of market management
INT9	Senior market manager
INT10	Market manager
INT11	Senior market manager

Quotations from foresight experts are coded with the relevant expert's reference number.

Concepts were then classified into higher-order concepts, developing relevant and meaningful relationships between concepts through constant comparison with the data [76]. Following an analytic induction strategy, explanations of differences between relationships emerging from the data in each case and those contained in the a priori developed research propositions were sought [77–79]. Categorisation and cross-case analysis followed recommendations of Norr, Ghauri and Gronhaug, and Huberman, and Saunders et al. [72,80–82], using a 2 × 2 matrix to categorise and compare data.

Once the analysis of the case data was completed, a panel of six independent foresight experts selected on the basis of publications, academic position, and business planning expertise and experience were invited to comment on the research findings. The panel comprised senior managers, including the former Head of Innovation for one of the largest UK companies, the former Deputy Head of Innovation for one of the largest Swiss companies, two leading foresight experts based in Germany and the USA, and two accomplished university professors from the UK and the USA. On average, the six foresight experts had worked in their current organisations for 8.8 years and each had over 27 years of experience in planning. This process of interrogation of the research findings by foresight experts was incorporated into the research design to explore the generalizability of the research findings.

4. Research findings

The first section of the Research Findings describes the planning approaches of each case organisation. In the second section, interrogation of the research propositions reveals foresight practices occurring within the planning approaches.

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4.1. Planning approaches

Content analysis of the planning documents and interview data confirmed that in CO-A there was a top-down driven approach to planning in which foresight, and risk management were allocated limited importance. There was limited documentation on CO-A's planning approach and future strategy. While one planning document[2] described a logical sequence of 1) corporate direction of the holding organisation, 2) analysis of the market, environment and insights from experts, 3) strategic direction and programmes, the document was silent on the extent and nature of strategic debate and strategising. Information from regional managers was summarised using PEST. A list of opportunities and threats was created (295) and interrogated against current competitor positions. PEST and SWOT were used in "an attempt to bring some structures into the strategic planning" (294). The information collected was obtained just prior to planning, but not updated between planning cycles.

However, there were indications of initiatives designed to understand the future and its potential impact on the organisation. One of the knowledge generating activities that had the potential to create foresight for CO-A, was the annual workshop with internal regional market leaders where success factors, environmental changes and their potential impact in the short and long-term (up to five years) [3] and actions required, were discussed. This initiative of the Head of Strategy was directed at determining long-term impacts and summarizing them in a strategy document. However, there was no evidence that this information was integrated within CO-A's LT planning, as the insights derived on potential future changes and challenges to current strategic direction were not introduced at the executive managers' planning forum.

As a consequence of a lack of progress made to identify new sources of growth and revenue for CO-A, a proposal for an innovation management initiative was developed and presented.[4] The goal of this initiative was to 1) conduct R&D activities, 2) lead systems management processes, and 3) consult and manage projects. These future-planning related activities were very different to the integrated foresight and innovation activities of CO-B.

Foresight and early warning management activities in CO-B dated back to 1998, when a proposal for such a system was presented to the executive team.[5] It was centred on the idea of weak signals detection and management, which was described as 'unclear data which might indicate strategic discontinuity'. Early signals management included scanning and monitoring of the environment and strategy workshops. Senior managers at CO-B were of the view that a lack of foresight activities resulted in knowledge gaps, which needed to be closed.[6]

CO-B strategists acknowledged that strategic analysis was a challenging task and a proposal for the introduction of formal foresight methodologies to understand potential futures and their impact on the organisation was prepared for the executive team. The first phase of the foresight project included four major objectives[7]:

1) To create the foundation to support CO-B private customers' strategy development;
2) To generate knowledge and gather experiences about corporate foresight and analyse how valuable and meaningful a view into the future for retail banking could be;
3) To collect, describe and rate weak and strong signals in order to discuss them and their interactions in workshops, and determine the key drivers for future development in the form of long-term scenarios; and,
4) To define and describe the necessary tasks and projects required to generate CO-B's success in these scenarios.

To enhance their LT planning process, CO-B's foresight project was operationalized in four phases between 2004 and 2006.[8] External partners were selected for inclusion, and then processes for the collection of strong and weak signals via an internal futures agent network (comprising fifteen staff from different departments) were determined. External data collection included desk research and interviews with experts, researchers and futurists. Data processing involved the structuring and prioritisation of data, analysis of interdependencies, development of 'raw' scenarios and multiple workshops to enrich and validate the results. These activities were managed by an internal, interdisciplinary project team. Senior managers in key customer stakeholders were also invited to participate early in the process.

Approaches to communication about planning were very different in the two organisations. CO-A had a relatively formal process with a 'vademecum'[9] (a practical small booklet for all employees) published annually. It included sections such as a message from the CEO, a description of the organisational culture, CO-A's strategy, key personnel, revenue, and employee and customer satisfaction. The corporate strategy description was formal and written in hierarchical, defensive language, and was financially driven. In contrast, CO-B utilised both formal and dynamic interactive communication approaches.[10] Interactive approaches included multi-media scenarios which described the potential future and indicated plans derived as a consequence of foresight activities.

CO-B's process of communication to build an organisation-wide understanding potential future was evidenced in sharing and discussing insights, strategising future directions in formal and informal meetings, and establishing foresight activities and thinking across the organisation. This ongoing investment in foresight impacted on CO-B's cultural values, building a dynamic, long-term thinking and creative organisation. These aspects are explained further in the next section as the three propositions are interrogated. An overview of the planning approaches of CO-A and CO-B is presented in Table 2.

[2] Strategy CO-A 2007 to 2009, internal document (26 September 2006).
[3] CO-A File Note Regional Market Analysis, internal document (2 December 2005).
[4] Innovation Management proposal CO-A, internal document (3 April 2007).
[5] CO-B Early Warning Management System, internal document (13 November 1998).
[6] CO-B Strategy Development Process, internal document (17 October 2003).
[7] CO-B Future Screening project briefing, internal document (18 June 2004).
[8] CO-B External Company Presentation, Head of Corporate Development, European Futurists Conference, Lucerne/Switzerland (22 November 2006).
[9] CO-A Vademecum 2007, internal document.
[10] CO-B External Company Presentation, Head of Corporate Development, European Futurists Conference, Lucerne/Switzerland (22 November 2006).

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4.1.1. Proposition 1: strategic debate and divergent scenarios

Two critical practices that enabled foresight activities in CO-B were: a) the practice of transferring activities within and beyond the futures agent network and b) iterative, interactive and inclusive communication on foresight and alternative strategies which enabled contribution to, and participation in, planning across hierarchies. The futures agent network was responsible for the continuous development of future scenarios and updating the weak and strong signals database. The futures agent network meetings were ad-hoc but formally met three or four times a year to relate experiences, share insights and build an understanding of changes in the environment based on new signals. These activities are consistent with a foresight 'community of practice'. The network's collective insight was presented in strategy reviews and incorporated into strategy development activities.

CO-B respondents indicated the success of the futures agent network was a function of 1) voluntary participation, 2) participants' proximity to the daily business, and 3) participation being independent of existing company hierarchies. These 'futurists' stimulated conversations across divisions and hierarchies on aspects of change and strategy adjustments and/or initiatives to re-align with changing environments, embodying the concept of 'foresight-as communication'. 'Foresight-as-communication' in CO-B was evidenced though open conversations and debates which established a sense of informality in information exchange, encouraged staff to bring forward their ideas (619), and facilitated the emergence of foresight conversations across organisational hierarchies (621).

The relatively "flat hierarchy" of CO-B fostered a positive and open working environment. However, this friendly atmosphere resulted in some conflicts being kept "under the table" (370, 371). Change within CO-B was described as "revolutionary" and "evolutionary" (374). When revolutionary change in strategic direction occurred as a result of an idea or vision of the CEO, the result was one of "chaos and confusion" (374). Once the change was communicated, understood and accepted, "evolutionary" change followed (374).

Despite these challenges, there was an overall culture of creativity and innovation in CO-B (368). Foresight communication created awareness of future environments and potential sources of innovation (650), established awareness of the importance of continuous and discontinuous innovation and provided insight on strategic surprises. In addition, scenarios were created to test potential response strategies (651). This pro-active attitude to identifying and addressing future challenges was largely a result of the value CO-B placed on building foresight, and the encouragement received to change direction in response to various scenarios (652).

In contrast, CO-A's traditional planning approach created a culture where people protected ideas, where managers contained the communication of planning information to executives and where conversations about the future were limited to one or two scenarios that were extensions of the current environment. There were conflicting opinions on the nature of the corporate culture of CO-A. When asked to describe CO-A, interviewees used phrases such as "open, transparent" and "friendly" (357), yet later when detailing various roadblocks relating to employees' experience with innovation, the culture of CO-A was described as "money oriented, very hierarchical, authoritarian and tough" (364). In CO-A, knowledge regarding the strategy process in the executive team "varies very much" (412). In principle, the strategy team creates a list of situations and discusses these with the executive team (413). However, in an effort to avoid "overstraining" executives, the strategy team limits information

Table 2
Comparison of LT planning of CO-A and CO-B.

Process step	Applied in	CO-A characteristics	CO-B characteristics
Strategy preparation	CO-A, CO-B	Start in September, standard planning tasks	Start in July/August, standard planning tasks
Foresight and weak signals management	CO-B	NA	Integrate insights from updated report on weak signals and potential scenario consequences
Definition of core strategic topics	CO-B	NA	Proposal with key topics based on ongoing analysis and insights from foresight process (August to September)
Strategic analysis	CO-A, CO-B	Strategy analysis using PEST and SWOT with workshops for management and executive teams	Strategy analysis of PEST drivers via business units, methods employed are situational and different by business unit
Alignment of strategy with input from business units	CO-B	NA	Understand input from business units around key strategic topics via meetings/ workshops
Alignment with strategy of holding organisation	CO-A	Communicate key challenges to holding organisation	NA
Strategising with the executive team	CO-A, CO-B	Define competitive advantages, business strategies and finances in a workshop with the executive team (March to May)	Present strategy analysis and develop long-term strategy via an executive workshop in the first week of January and a two day March workshop
Development of strategic programmes	CO-A, CO-B	Strategic programmes workshop comprising executive team (May to June)	Validate assumptions via market research, scenarios and define strategic initiatives (covered in above March workshop)
Development of market/ business unit plans	CO-A, CO-B	Market, country and functional plans (October to December)	Business/market plans and strategies for all functions (April)
Strategy validation and presentation	CO-A, CO-B	Consolidate plans and present to holding organisation (August to December)	Prepare strategy document for CO-B and holding organisation (March to June)
Communication of strategy	CO-A, CO-B	Internal and external communication of strategy (January to March)	Create and implement communication of strategy document and distribution of plans—June

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on strategy feedback given to the executive management (324, 412). The official strategy framework did not include discussions looking ten to twenty years in the future, although this may occur informally (408).

CO-A's corporate strategy development team directed the LT planning process and produced an annual strategy document. This document contained environmental and internal information, primarily collected via interviews with regional managers (249, 125). The focus of these expert interviews was on "mega trends" as well as the current strength and weaknesses of the regional service providers (293, 490). This document provided a framework within which each company division was assigned goals. These goals, while based on the information summarised in the strategy document, was ultimately based on decisions made by the corporate group (127, 253, 256).

Comparison of the approaches of CO-A and CO-B confirmed support for proposition 1, i.e. *In comparison with traditional planning approaches, planning integrating foresight methodologies incorporating both strong and weak signals will generate more open strategic debate, revealing more divergent scenarios for interrogation.*

4.1.2. Proposition 2: strategic imperatives addressing current challenges and environmental reconfigurations

Interviewees in CO-A described their strategic programmes as "relatively weak", and spoke of how the company planned to invest "millions" in hiring an external company to brainstorm, and deliver innovative ideas (827). This planned change to the planning process reflected awareness of the innovation benefits that foresight could provide, but as this process change added an element that was external to the company, interviewees recognised that cultural change was unlikely to follow.

Within CO-A's five year time frame for long-term planning, scenario building was not employed to create a view of the future (741), as the company did not believe that "these sorts of thoughts and considerations should happen at company level" (741). CO-A was described as being driven by a need for structure and goal setting rather than innovation and long-term planning (121, 122). A view about the future was generated in a "relatively concentrated form" (655) through conducting interviews with nine, internal, regional experts (655, 671). CO-A's emphasis on strong signals identification and forecasting underpinned CO-A's strategic initiatives which were directed towards changes already occurring in the environment.

In CO-B, a "time map" was created to identify weak signals with the potential to drive future markets. By way of an example, desk research, interviews and foresight workshops identified the emerging importance of 'convenience' to customers. This insight led to the development of a strategic goal to "have easier products, less products" and more clarity in their market strategies (828). Even though CO-B's brand was "strongly connected to security", which in a security oriented society was considered to be a "very good position" (755), by addressing the "convenient" world, a positive market impact was anticipated. Thus, CO-B's foresight activities resulted in the development of strategies to strengthen the current position in security while building a 'convenience' position to meet future market reconfigurations around both these dimensions. To align internally with these anticipated market changes, initiatives were planned to achieve cultural change, a new organisational structure, and a review of current, medium-term market strategies and market positions, and product portfolios (755, 758, 828).

Strategic initiatives generated in CO-B were developed within portfolios to prepare the organisation for emerging and anticipated futures. CO-B operationalized these portfolios within organisational and cultural change strategies. On the other hand, CO-A's strategic initiatives were located within current and well-defined emerging environments. Thus, in this research context, proposition 2 was supported by the data, i.e. *In organisations where planning integrates foresight methodologies incorporating both strong and weak signals, strategic conversations will generate imperatives that address current challenges as well as preparing the organisation to address environmental reconfigurations.*

4.1.3. Proposition 3: adjusting current and long-term initiatives through on-going foresight engagement

Managers in CO-B strove to create a mindset within the organisation that encouraged thinking and debate on long-term issues and trends. In this way, scenarios depicting very different futures were opened up for debate and discussion. These scenarios were then tested against the organisation's readiness for change. In CO-B, foresight was viewed as an on-going process that defined and re-defined forces influencing the emerging landscape (164).

With "futures screening" being encouraged at all levels of the organisation (621), interaction across "different hierarchical levels" ensured strategy became a "summary of the different discussions" (623), and, within specified roles and responsibilities, flexible decision-making was encouraged. The collaborative, open process favoured by CO-B allows it to keep up-to date because listening to and using information in a "top-down and bottom-up process" maximises the information available for review (289). As a consequence, CO-B continuously updates documents, and updates and aligns strategy and business plans (346,339). CO-B is described as being in a constant state of "change" (287), responding to the content of the strategic analysis as necessary, and using elements of foresight to re-prioritise company goals and projects (336).

In CO-A there were no incentives for staff to act innovatively or flexibly, as their marketplace was designated as stable and they had "so far lived well". The higher concern in CO-A was product quality; an immediate concern that took precedence over innovation and foresight development. This, however, was noted to place the company at risk in the future as they were falling "far behind" in innovation (632).

Key differences in planning practice observed in the two companies that impacted on their ability to flexibly adjust operational decisions were the spread and distribution of strategic knowledge, the nature of communication and currency of strategic knowledge. CO-B encouraged communication about foresight and strategic initiatives across all areas of the organisation. There was a particular focus on enabling communication across hierarchies to encourage input and support relevant and appropriate operational decision-making flexibility across all divisions (638). This spread of knowledge and exploration of numerous strategic alternatives was seen to "enrich" the future of the company (648).

CO-B demonstrated a flexible approach to change that was visible within its planning framework. As a consequence of continuous and open communication and ongoing foresight

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engagement in strategising and implementation phases, ideas were constantly being analysed and discussed, and strategies were continually evolving and changing. The hierarchical structure supporting the planning approach in CO-A discouraged flexible decision-making at the operational level. Thus, proposition 3 was supported by the data, i.e. *in comparison with traditional planning approaches, planning approaches integrating strong and weak signal foresight methodologies will exhibit flexible decision-making, adjusting current and long-term initiatives through on-going foresight engagement.*

5. Discussion

Recent literature highlights the importance of foresight guiding the development of innovation for future environments [16,83]. Doz and Kosonen [84] posit that "superior anticipation and greater foresight allow deliberate reform...to be undertaken in time for firms to maintain strategic advantage and value creation". However, Teece [85] warns that determining and balancing a portfolio of strategic initiatives "may not be apparent up front, and learning and adjustments will be necessary".

In examining and comparing the divergent planning approaches and practices of two organisations embedded within a common overarching governance, our research has provided insights into *how foresight can be effectively integrated into LT planning*. A comparison of two contrasting LT planning activity systems revealed key drivers of a successful foresight integrated LT planning process as:

- A top management priority: foresight is recognised, funded and supported by the CEO and the executive management. Foresight input is required and openly shared/discussed during the annual strategy development activities.
- Supported by an innovation friendly culture ("new is good"): the company is open to new ideas; it promotes innovation activities in an open, non-bureaucratic environment, mainly driven by its business units rather than from a centralised innovation function.
- Operated within a flat hierarchy: most team leaders are only one or two structural levels from the CEO. In addition, because of its "open door policy" and monthly senior management meetings, time is given to employees who would like to present a new process or product idea and request funding.
- Future-looking: both management and employees anticipate and understand potential future changes. Insights from foresight activities are shared in workshops and communicated via the strategy process.
- The iterative incorporation of both weak and strong signals into continuous scenario building: real-time scenario building through the integration of continually updated weak and strong signals provided a platform for a) the development of medium and long term strategic initiatives and b) testing the continued relevance of the operationalization approach of current initiatives.

In our research context, foresight operated within a LT planning framework as a "*community of practice*" underpinned by the praxis of "*foresight-as-communication*". Spee and Jarzabkowski [86] have confirmed the important role of communication before, during and after the planning process. Our research has revealed how foresight communication and planning communication were embodied within a community of practice, with a futures agent network at its hub. The community of practice provided a vehicle for organisational and individual learning and discussion about foresight, in terms of its impact on strategic adjustments and initiatives [87], and enabled flexibility in operational strategic decision-making. As Soekijad et al. [87] explain "learning occurs most effectively in informal, voluntary, self-organising settings in which people interact through shared practices". Our research has confirmed the critical role of the senior management constructed hub (i.e. the futures agent network) in capturing foresight and stimulating strategic initiative conversations within the broader community of practice operating within and beyond organisational boundaries. This hub facilitated the sharing of foresight knowledge and stories, and perspectives on strategy adjustments and innovation in relation to anticipated environments within the community of practice. Foresight communication therefore shaped, and was shaped by, planning activities.

The emphasis on constantly 'refreshing' information supports the recursive nature of foresight-as-communication, with conversations, stories and interactions (praxis) occurring within routines and procedures (practices) orchestrated by the futures agent network (Fig. 2) (see also [88–90]). Futures agent network members drew together and distilled the disparate foresight knowledge embedded in the multiple conversations into a written document which stimulated further discussion and debate as future scenarios were fully developed, explored and challenged in planning workshops. Subsequently, strategies were revealed as a "summary of the different discussions". In this way individual learning from the broad community of practice was transformed into group (futures agent network) learning and, through workshop discussion and debate, into organisational learning. This knowledge and practice integration flowed back into the broad community of practice through interactive media (see also [87]). Consistent with the view expressed by Fenton and Langley [90] that "narratives of strategy not only constitute legitimate strategic practices, they also have implications for who is and can be seen as a 'strategist'", those engaged in the community of practice were participating in the role of strategist.

The research has also identified *leadership, structural and cultural dimensions* shaping foresight integrated planning practice. Flat hierarchies, trans-departmental committees and the futures agent network provided the structure to support the sharing of continually updated, emerging knowledge across hierarchies and departments, facilitating operational strategy decision-making flexibility.

We have confirmed *the critical role of top management support* in the effective operationalization of foresight integrated planning practice. Spee and Jarzabkowski [86] describe the role of power in directing both the process and practices of planning. CO-A's senior management utilised power to control the planning approach and practice while CO-B's senior management team deployed power to enable an inclusive approach through making significant investments in strategy, foresight and innovation capabilities, and providing the infrastructure and processes to encourage employee engagement in foresight and planning. CO-B's senior management team created a strong and large corporate development team to drive strategy and innovation. They established a trans-departmental strategy committee and fostered a top-down and bottom-up,

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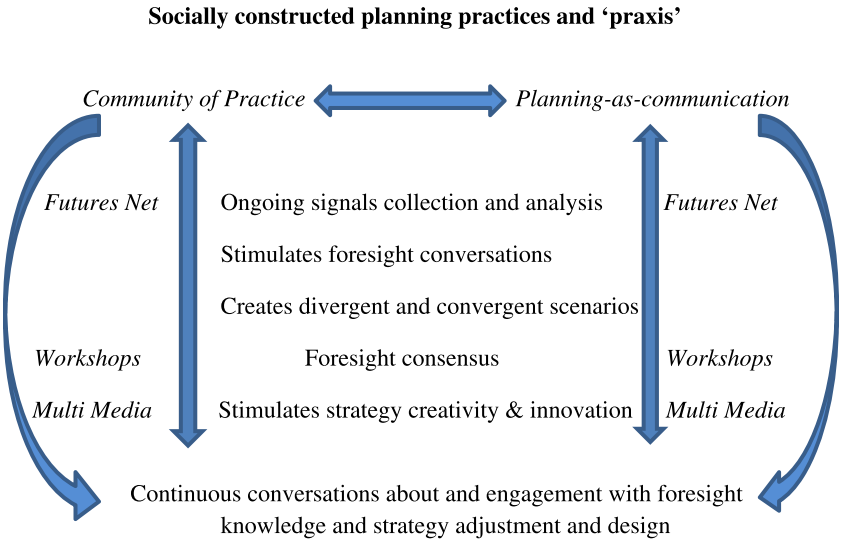

Fig. 2. Socially constructed planning practices and 'praxis'.

decentralised planning approach. The senior management team developed the foresight strategy and funded the futures agent network, both initiatives directly approved and supported by the CEO's office. To facilitate engagement of staff across hierarchies in planning activities, a practical methodology was created around qualitative methods for the collection, analysis and grouping of signals. They also encouraged engagement with customer stakeholders holding workshops to identify issues and define actions for future change. Resource investments to support foresight engaged planning practice, including scenario development tools, foresight methodologies, and processes and technology to disseminate and capture foresight. Strategic initiative conversations were ongoing and enabled managers at all organisational levels to understand and interrogate the potential complexity and instability of revealed futures. These findings are consistent with those of Armstrong, Cairns et al. and Visser [91–93]. Stoffels [94] and Armstrong [91] reinforced the importance of user-friendly methods in integrating knowledge on environmental instability with other market and trend information. Further, Burkhard, Spescha & Meier [95] confirmed that it is the role of top management to create a vision for the organisation.

Scanning methods employed to capture *strong and weak signals* included on- and off-line desk research, interviews with customer stakeholders, technology experts and customer interface personnel, and examination of 'futures' industries (particularly the ICT industry). Scenario building emerged from techniques employed to structure the data and test signal interdependencies, with initial scenarios being subjected to strategic debate within multiple workshops prior to finalisation and validation. Recommendations of the foresight experts consulted to review the research findings with respect to a) qualitative and quantitative methodologies that can be employed to capture strong and weak signals, b) methods for integrating these signals to identify dominant theme, and c) methods for developing scenarios can be found in Appendix A.

6. Conclusion

We have contributed to the literature on LT planning through revealing when and how foresight is practiced within LT planning. The framework for foresight integrated LT planning generated from the data is generally consistent in flow with recommendations located in prior research. Previous literature has presented sources, methods and tools utilised in foresight directed planning [96–98], however, details about their application has been limited. The research has added important detail that addresses operational gaps in the planning and foresight methodology literature. The foresight integrated LT planning framework developed from the research (Fig. 3) was determined by six foresight experts to be consistent with their planning experience and their observation of planning in a number of high performing organisations in several industries. Fig. 3 specifies when and how foresight methodologies capturing weak and strong signals can be effectively integrated in LT planning to scan the environment, build scenarios and then reconfigure scenarios as they are enriched through continual monitoring. Foresight integrated planning investment and leadership encouraged:

a) open strategic debate early in the planning process to reveal more divergent scenarios, and
b) the generation of strategic initiatives with the potential to meet the needs of, and shape, current and anticipated future environments.

Communication interaction within and across hierarchies and across organisational boundaries occurred within a culture of involvement, commitment and creativity.

Knowledge sharing also stimulated process innovation, so that the LT planning approach was continually re-configured to enhance the strategic capability of the firm (note in Fig. 3, Performance Review feedback into each stage of the LT planning process). Thus, the "activity system" defined through the planning approach (with inherent resources, processes,

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practice and praxis), leadership, culture and structure both shaped, and was shaped by, foresight practice.

Ongoing investment in, and commitment by top management to, foresight integrated LT planning practice ensured: a) the human, time and technology resources were available to support continual data collection and synthesis to upgrade scenarios; b) support for the ongoing development of strategic initiatives to enhance performance in current and future environments; and c) operational decision flexibility to align with the emerging patterns.

As described in Section 5, an important structural element embedded in the foresight integrated LT planning process, the futures agent network, met both formally and informally, to build understanding of emerging environments, and to examine current and alternative strategic initiatives within emerging environments. The second important element was the integration of foresight knowledge into an accessible platform for interrogation by senior executives, future agents and other strategy practitioners across the organisation. As Oxley and Wada [100] explain: "To build sustainable competitive advantage, firms must integrate and apply knowledge created internally with knowledge acquired from external sources."

Foresight experts consulted to review the research findings commented that "many organisations have difficulties dealing with increasing speed, complexity and globalization issues: they try to focus on managing the day-to-day business and often times leave strategic planning issues to external consultants (582)". They also confirmed that although it was efficient to outsource strategic conversations, the outcomes were largely unsuccessful. Foresight experts agreed that the foresight integrated planning framework generated through this research was robust in its application across industries. The foresight practice observed in this research drove the integration of both strong and weak signals in ongoing scenario development, and consequently, the development of strategic initiatives to address, as well as shape, the emerging environment.

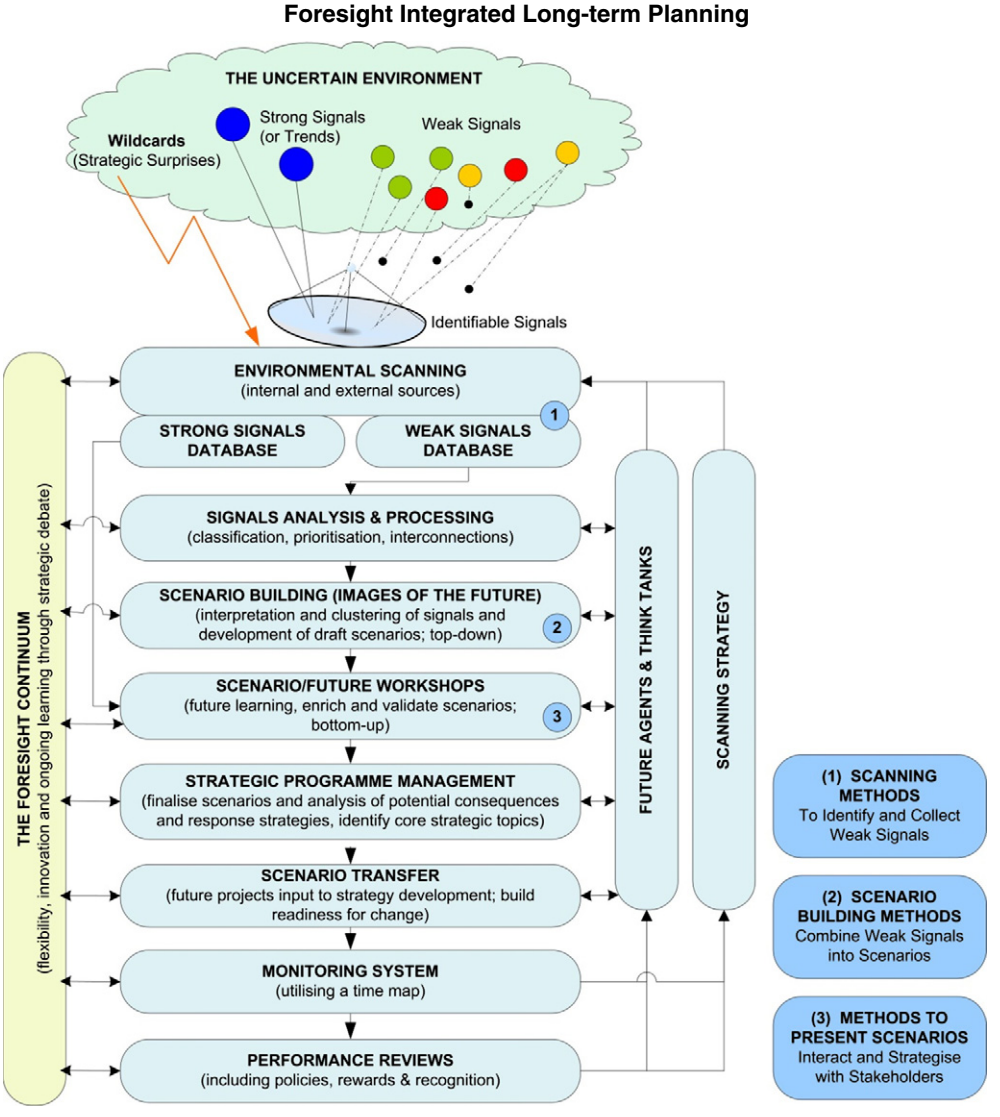

Fig. 3. Foresight integrated long-term planning.

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Appendix A

The foresight experts consulted agreed that the most common approaches to collecting signals is through media scanning and bibliographic analysis. In addition, they noted that capturing detailed consumer and business behaviour data can reveal emerging patterns, particularly as customers engage with purchased goods and services and the systems and technology involved in consumption and value co-creation processes. They encouraged the use of data mining of web site usage, service usage, and observational data, anthropological field studies of users or potential consumers, analysing best practice within industry or in related industries and utilising general web resources. In some industries, technology analysis was recommended, which can lead to maturity diagrams, portfolio restructuring and technology maps. Experts confirmed the importance of establishing:

a) external and internal networks of futures agents (including experts from industries, academia or business partners), and
b) an interdisciplinary strategic think tank, using a trend opportunity radar system, and reporting directly to top management or the Board of Directors as an important first step in developing insights from the integration of the strong and weak signals.

Delphi was not recommended for integrating signals as foresight experts were of the view that this approach provided a flawed process for dealing with the relativity and fallibility of knowledge. However, cognitive mapping (or Comprehensive Situation Mapping CSM) and influence diagramming were approaches from the quantitative school of methods, which were recommended. CSM was argued to facilitate the combination of signals as long as those signals could be treated as numeric variables, computing the propagation of change throughout a causal network. Experts were also of the view that CSM enabled the integration of quantitative and qualitative approaches in a novel and creative way for the development of organisational foresight.

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