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TEMPLATE OF THE BUSINESS FORESIGHT PRACTICES REVIEW RESULTS

beFORE - Becoming-Oriented Entrepreneurs in universities and companies

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Guidelines: The aim of this template is to identify core foresight and innovation/entrepreneurship competences in relation to knowledge, skills and social competences that a future-oriented manager should possess. The information about the competences and the scope of business foresight practice could be retrieved from e.g.: 1) well documented foresight practices in the existing published works; 2) beFORE project partner's experience in (knowledge about) application of business foresight in the given enterprise. The number of the analysed cases is motivated by its availability.

A name of the enterprise	Boeing Company
A country	other (USA)
A city	Washington
A field of activity	Aircrafts production
A size of the enterprise	Large
What was the scope of foresight practice? (a short description, up to 1500 characters including spaces)	<p>Boeing R&D is conducted in support of current products (products that will be delivered to customers within one to three years), development of products that can be transitioned into the business units over the mid-term (three to five years), and development of longer-term enabling technologies that might lead to game-changing future business opportunities. The levels of near-term, mid-term and longer-term projects are adjusted from year to year depending on business and environmental factors. In making adjustments to the portfolio of projects in the different horizons, consideration is made for maintaining core competencies and competitive advantages, tracking emerging disruptive technologies, and leveraging work conducted by others.</p> <p>Foresight-like practices occur in across many teams and groups within Boeing such as: Boeing Satellite Systems; Boeing Technology Scouting Group (BTSG), Boeing's Enterprise Technology Strategy organization. The company established practices for dealing with long-term considerations such as the following: forecast and market analysis, technology forecasts, technology plans, product plans, competitive forecasts, Future Options Rooms (environmental scanning), scenario planning, executive interactions. Within such foresight practices, some employees, according to the Forward Deployment strategy (created by this company) are considered a kind of brokers between Boeing's customers, engineers and scientists. Sales representatives near company's customers around the world are the core of this strategy. Therefore the abovementioned foresight practices facilitates the communication with customers, better understanding and predicting their needs and integration of various dimensions of the long-term thinking with detailed business plans of the company. It is also a necessary condition of being the leader in the competition with the other companies in the same branch of the industry and eventually - an implementation of the successful business.</p>
Core foresight and innovation/entrepreneurship competencies	<p>Boeing Technology Scouting Group (BTSG) scouts tend to be:</p> <ul style="list-style-type: none"> - lateral thinkers, - knowledgeable in science and technology, - respected inside the company,

- cross disciplinary,
- outward looking, and
- imaginative.

Team members who:

- know how to pick the few winning high value capability matches and
- have the skills to bridge the gaps in the innovation process during the multi-year effort to implementation

Being able to:

- well position the team with customers and to work closely with the customers
- help the customers reformulate their issues into generic level problems so as to broaden the possible solutions spectrum. (*“Needs” that are summarized or specified in databases, forms, or presentations typically do not provide enough clarity on the underlying issues or leave not much room for creativity and innovation*).
- develop an abstraction of the problem, and break up problems into easily implementable questions,
- ensure large flexibility and diversity of customers and offerings,
- unveil key psychological and emotional components common to many airplane passengers to inform product development team.

In order to “quest to delve deeper into the mind of the passenger” qualitative analytical techniques were used more than quantitative methods in order to grasp customer needs (as opposed to traditional customer surveys).

This included development and use of two proprietary data gathering techniques called:

- **archetype discovery**
 - *examining “participants’ earliest experiences in the subject area being studied to extract unarticulated emotional components of an air travel experience; and*
- **idealized design**

- *getting feedback on the “ideal” flying experience as limited by the use of currently available technologies and realistic operational feasibility.*

BOEING SATELITE SYSTEMS ESTABLISHED PRACTICES FOR DEALING WITH LONG-TERM CONSIDERATIONS:

- **Forecasts and market analyses:**
 - generating internally and using external expertise to collect diverse perspectives on markets, competitors, product, and strategic opportunities and challenges;
- **Customer perspectives and forecasts:**
 - initiating and maintaining close contact with customers;
- **Technology forecasts:**
 - producing detailed assessments of technology availability, capability, risk and cost;
 - studying and participating in technology forecasts and thus
 - developing an intimate perspective on future opportunities to improve Boeing products.
- **Technology plans:**
 - openly discuss, review and assess company technology plans
- **Product plans:**
 - converting technologies to operating products responsive to the needs of a changing marketplace as well as to the actual developments coming from the laboratories (internal and external)
- **Competitive forecasts:**
 - Carrying out competitive analyses and forecasts addressing key questions: ‘What may competitors do?’, ‘Who will competitors be?’, ‘Who will customers be?’, ‘What are their strategies likely to be?’
- **Future Options Room/ Environmental Scanning:**
 - Carefully maintaining and displaying (online and physically) a broad array of information resulting from environmental scanning activity to give executives a better appreciation of the dynamics of the business environment
- **Scenario planning** (formal and informal):

	<ul style="list-style-type: none"> ◦ Using formal and informal scenario methodologies to integrate the thinking that comes from all the future-related activities implemented in the company; ◦ Using formal and informal scenario methodologies to prepare for future possibilities; and ◦ Using formal and informal scenario methodologies to develop strategies to develop future states. <p>- Executive interactions:</p> <ul style="list-style-type: none"> ◦ Intense sharing of personal views and insights with other team members with an orientation to mutual learning. <p>THE COMPANY BELIEVES THAT LONG TERM SUCCESS DEPENDS ON:</p> <ul style="list-style-type: none"> - Building culture that values long-term thinking and planning; - Developing strong business strategies, which have been based on being prepared for change.
<p>The source of knowledge about the foresight activities of the enterprise</p>	<p>R. H. Van Atta, M. J. Lippitz, R. L. Bovey, R. D. Dubin, S. L. Blazek, <i>Commercial Industry Research & Development Management Best Practices</i>, Institute for Defense Analysis, Virginia 2011.</p> <p>Boeing Frontiers Magazine, June 2011.</p> <p>K. Burmeister, A. Neef, <i>In the long run</i>, Munchen 2005.</p>
<p>Other observations or comments</p>	<p>Boeing Satellite Systems is a part of Boeing Integrated Defence Systems (IDS) , a major unit of the company that provides a wide variety of the systems and services to government markets around the world, as well as commercial satellites.</p> <p>Boeing’s Enterprise Technology Strategy organization, which reports to the CTO and is responsible for developing a companywide strategy for determining critical technologies and has invested hundreds of millions of dollars into key research and development areas to maximize yield and technology readiness throughout the company.</p> <p>Boeing Technology Scouting Group (BTSG) performs a type of open innovation, playing a matchmaking role across the enterprise between external technology sources and internal business needs. BTSG works with the BUs to understand their business environment and needs and to identify gaps in their capabilities for which tech scouts can seek outside solutions. They spend about half their time understanding what BUs need and the other half finding and vetting external technologies (referrals). BTSG is one of several technology scouting teams within</p>



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Boeing, but it is the only one that uses an external network of referral agents—including venture capital firms, economic trade organizations, investment arms of large corporations, and university technology transfer offices—to find new and indirect value for the enterprise, usually in adjacent industries such as construction or energy. As such, it complements networking and scouting efforts by BUs that tend to focus on traditional aerospace suppliers. Money-for-information is not sufficient to ensure the success of a scouting network. Technology scouting relies on formal and informal information sources, including the personal networks of the scouts.

The company is also using technically savvy employees to serve as brokers between customers and engineers and/or research scientists.