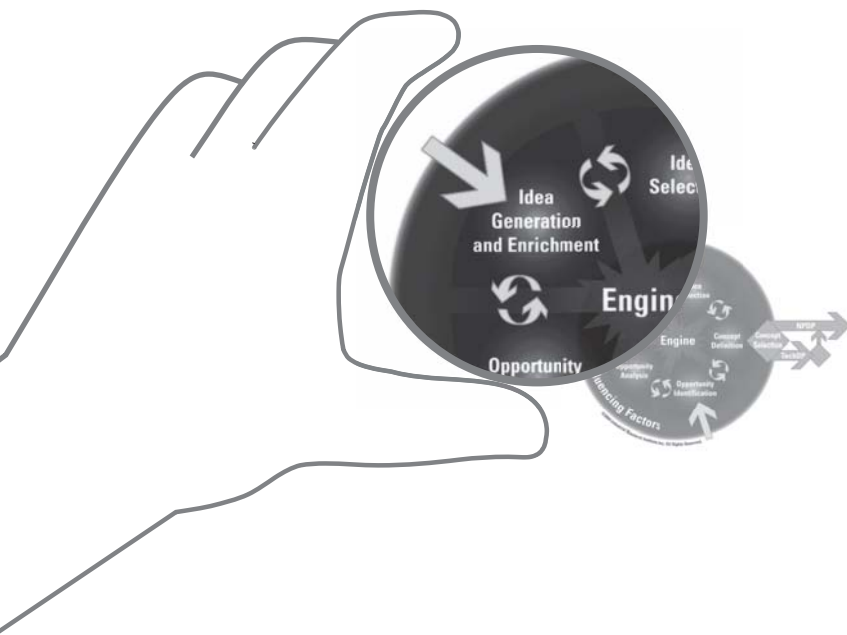


Benchmarking Report

The Front End of Innovation Portrayed



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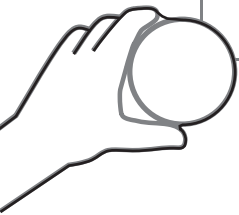
 pkoen@stevens.edu

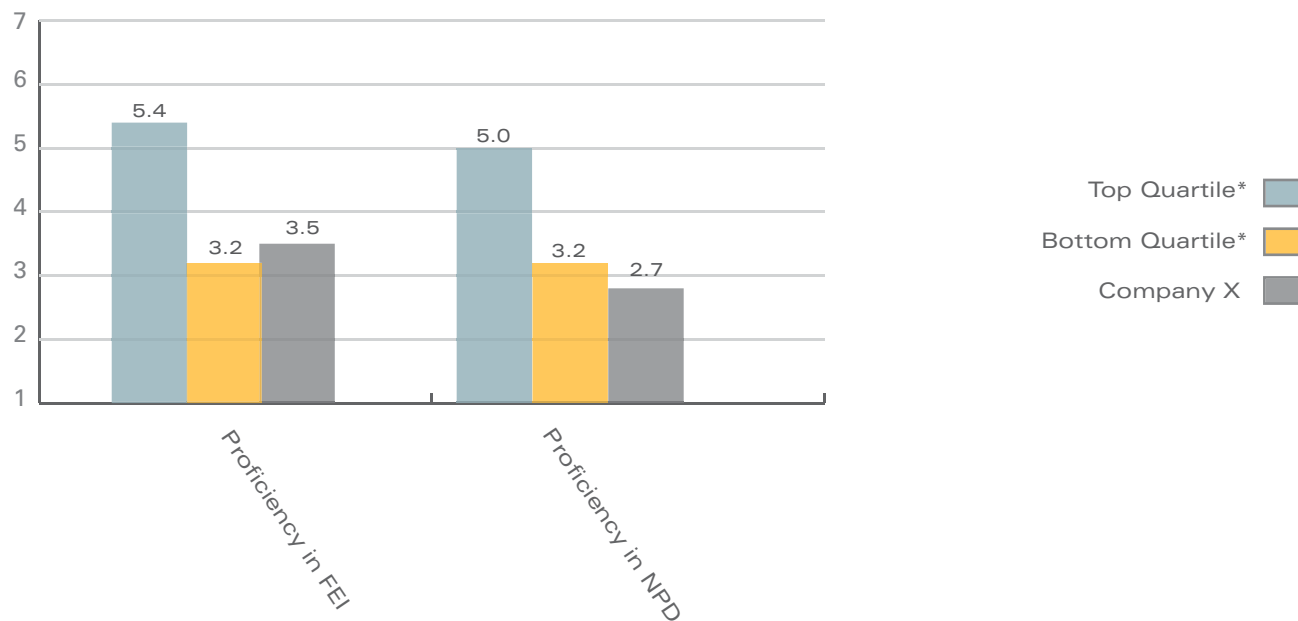
Companies that participated

3M
Aalborg Portland
Accruent
Albany International
AMBU International
American Express
Anderson Company
Applied Materials
Armstrong
Asahi Kasei Corp
Asten Johnson
AT&T
Baker Hughes
BASF
Baxa Corporation
Bayer Material Science
BD (Becton Dickinson)
Bel-Art Products
Black & Decker
Boeing
Bose Corporation
Boston Scientific
Bristol Meyers Squibb
Bunge
Cabot Corp
Cadbury Schweppes
Cargill Inc
Chevron Texaco
CIT
Citigroup
Clorox
Coloplast
Corvis
Crompton Corp
Dana Canada Corporation
Danfoss
Delta Faucet
Dow Corning
Eastman Kodak
Eaton Truck
Emcore
Emerson

Evident Software
ExxonMobil
Flint Ink
Foss Analytical A/S
General Electric
Gillette
Goldman Sachs
Goodrich Corp
Graver Technologies
Guidant
Gumlink
Hallmark Cards
Hartz Mountain Corporation
Hendrickson International
Hershey Foods
Hitachi Chemical Co
Honeywell
IBiquity
Infineum
INS Professional Services
Intel
International Flavors & Fragrances, Inc.
ITW Tech Center
John Deere
Johnson & Johnson
JP Morgan
LeCroy Corp.
Lucent Tech
Mars Electronics International
Masco Corporation
Masterfoods
Mead Johnson
MeadWestvaco
Medpointe Pharmaceuticals
Merck
Merrill Lynch
Michelin Tire Company
Moen, Inc.
National Starch and Chemical
NetCentrics Corp.
New York Life Insurance
Omnova Solutions, Inc.

Organon Pharmaceuticals
P&G
Panasonic
Parata System
Precor
PSE&G
Publishers Circulation Fulfillment
RAD Data Communication
Radiometer
Rhodia
Rich Products Corporation
Sanofi-Aventis Pharmaceuticals
SC Johnson & Son, Inc.
Schenectedy International
Schering-Plough
Scholastic Inc.
Sherwin Williams
Software House International
Startrak
Stryker Orthopaedics
Symyx Technologies
Tamsco
Teijin Limited
Teknor Apex
Telcordia Technologies
Telelabs
Tennant
The Scotts Company
T-Mobile
Unilever
UPS
US Army
Valvoline, Inc.
Verizon
Visteon Corp
Watson Laboratories
Welch Allyn
Welch's
Weyerhaeuser Company
Wiremold/Legrand
WMC Resources
Wrigley
Zebra Technologies





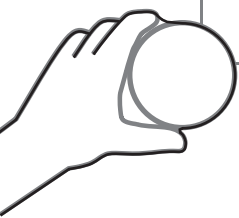
□ *Proficiency in FEI*

Our FEI projects generate competitive advantage; we use tools and methods to anticipate the next wave of innovation; are able to achieve a balanced portfolio of platform and incremental projects and expect our FEI platforms over the next 3 years to exceed our revenue and profit objectives.

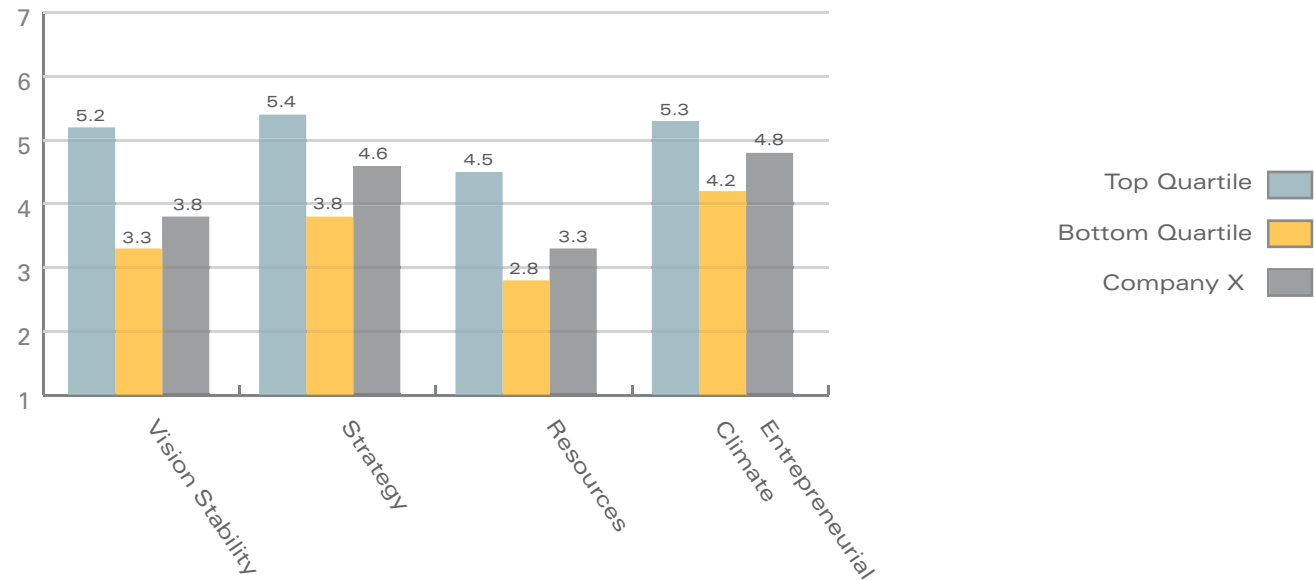
□ *Proficiency in New Product/Process/Service Development*

All NPD projects over the last 3 years have been on budget and on time; have exceeded our sales and profit objectives and have opened up new markets that have not been served previously.

* "Top Quartile" represents the mean score of companies that rank in the highest 25% on FEI proficiency (75%-100%).
 "Bottom Quartile" represents the mean score for companies that rank in the lowest 25% on FEI proficiency (0% - 25%).



Strategy, Resources & Climate



□ *Vision Stability*

Our FEI vision statements are stable over time for both markets and technology.

□ *Strategy*

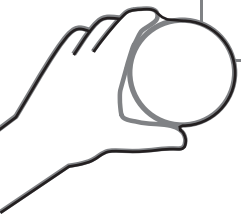
We set aggressive FEI goals, have defined areas of strategic thrust, and align efforts with core competencies.

□ *Resources*

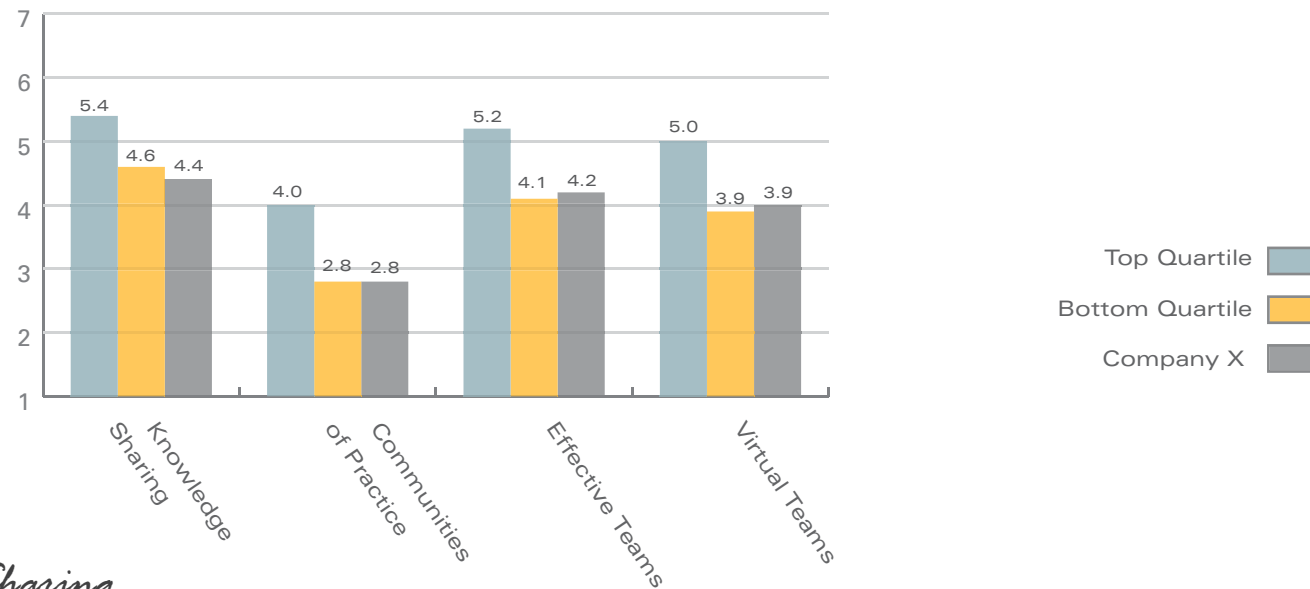
We allocate sufficient resources to look at new market opportunities, idea generation, idea selection, building FEI business cases, resources, boundary spanning activities and for working on non-official projects.

□ *Entrepreneurial Climate*

Our people are actively encouraged to champion new ideas; discuss and consider opposing opinions and diversity of view points; feel that they can go out on a limb in putting a new idea forward; tolerate uncertainty and ambiguity; and are not punished for championing failed projects.



Engine (People Side)



□ *Knowledge Sharing*

Our organization encourages open informal communication among all employees. Sharing knowledge, expertise and information is recognized and rewarded. In addition we encourage and support relationships between our marketing and technical people.

□ *Communities of Practice*

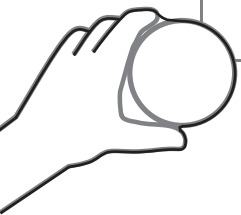
Our organization encourages and supports communities of practice (i.e. volunteer groups) formed around key areas of interest. Each community of practice has a dedicated coordinator with a budget and has a formalized time commitment of at least 25 per cent.

□ *Effective Teams*

FEI teams have leaders with recognized credibility throughout the organization and assure exceptional team performance. FEI teams have sufficient resources to allow them to concentrate on their project work; are passionately committed to their FEI projects and spend time and effort beyond their expectations.

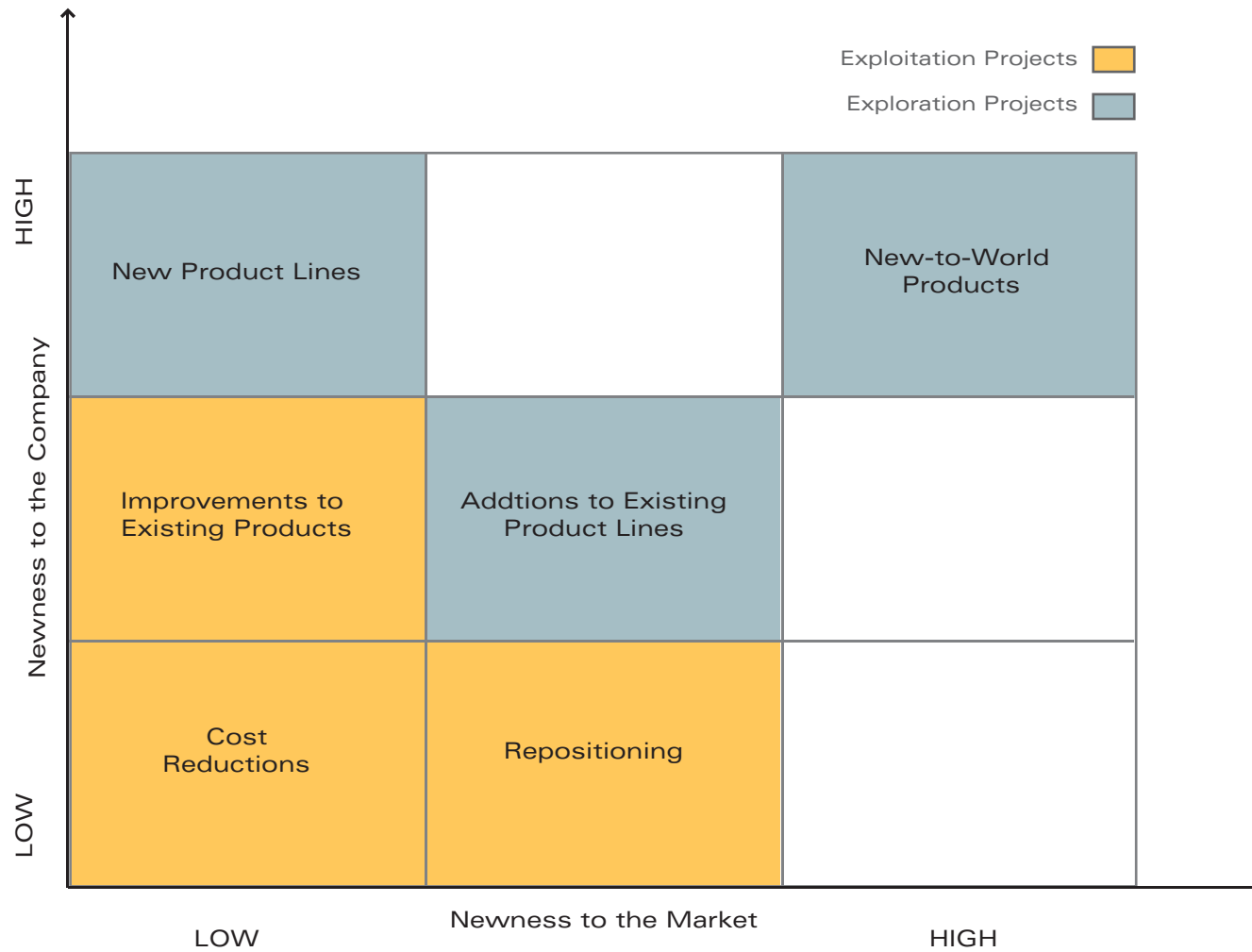
□ *Virtual Teams*

FEI teams are effective when members are in locations significantly distant from each other; are proficient in IT tools which allow them to effectively communicate and are competent in developing projects in multiple countries which are culturally different.



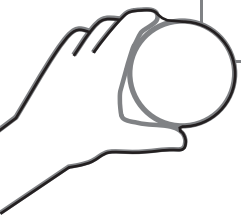
Exploitation vs. Exploration

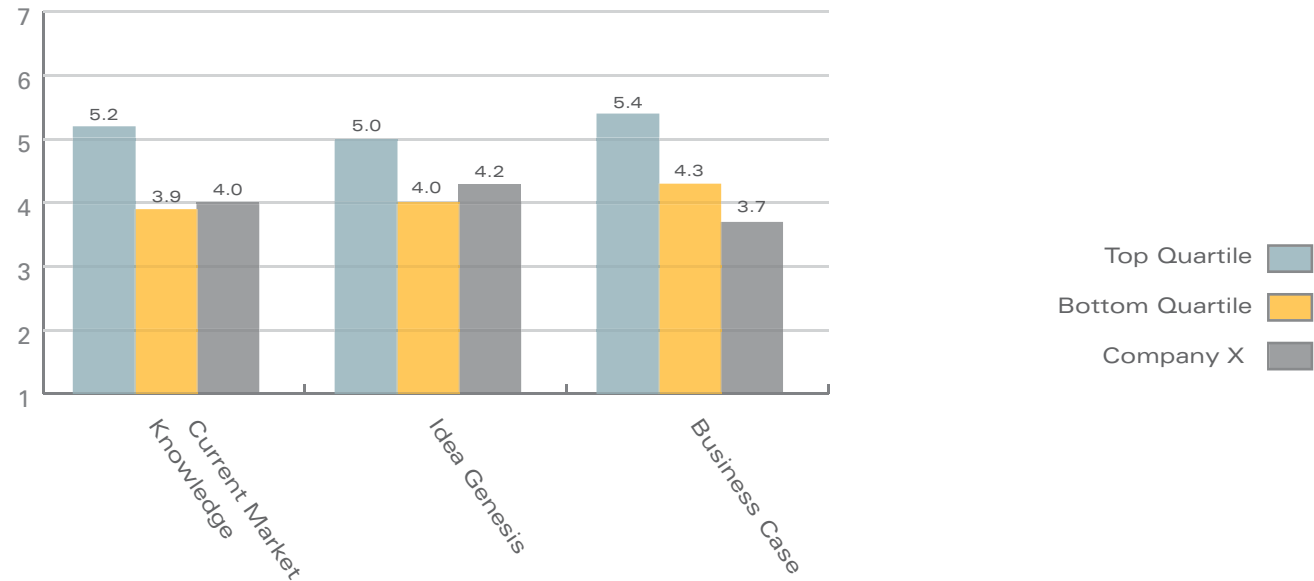
Booz - Hamilton¹ & March² Innovation Typology



¹ Booz-Allen & Hamilton 1982. New Product Management for the 1980's. BA&H Inc., New York

² March, J. G. 1991. Exploration and Exploitation in Organizational Learning. Organization Science, 2(1): 71-87.





□ *Current Market Knowledge*

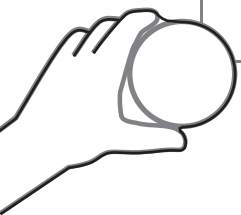
We perform a thorough analysis of the external environment and market potential; our review approach is a formal and documented process; we understand our customer's buying behavior and what drives their purchase decisions.

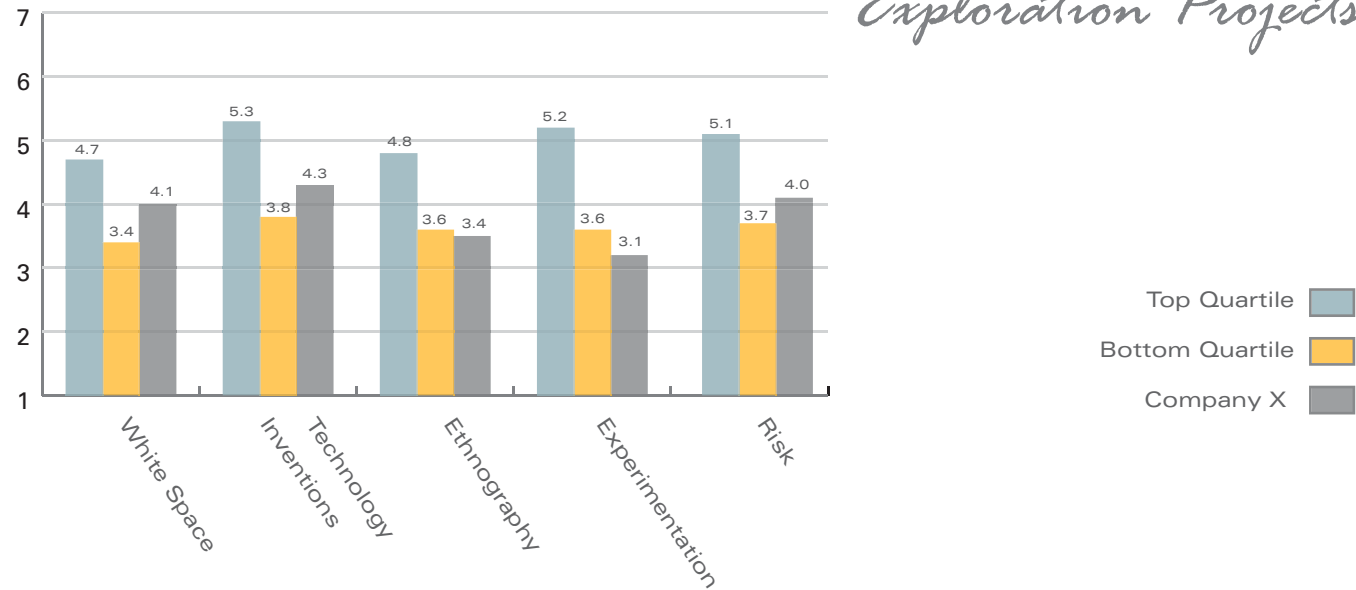
□ *Idea Genesis*

We have a systematic method for capturing, sharing and recording ideas received and are proficient in using established methods to identify/obtain new ideas (e.g. focus groups, market surveys, brainstorming)

□ *Business Case*

Before going forward with a low risk project, we assess the feasibility of manufacturing; of meeting technical requirements; financials; expected competitive response; intellectual property freedom to operate and to develop competitive patents; and market and sales effort are all well understood.





□ *White Space – Disruptive Market Knowledge*

We understand our current customers' future behavior; anticipate competition's future reactions; actively look for opportunities at the margins of our business (i.e. over served or underserved customer), at new to the world opportunities and at businesses which can disrupt our current business.

□ *Idea Genesis using Technology Driven Inventions*

We identify new ideas by assessing technology driven inventions and new emerging technologies.

□ *Idea Genesis using Ethnography*

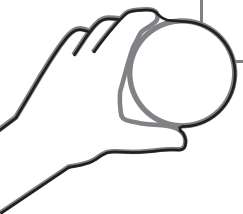
We observe our own and future customers in their own environment; we understand the unarticulated reasons why customers are making product choices.

□ *Experimentation*

New products are developed by experimenting with a multitude of ideas with our customers which may eliminate undesirable features and allows us to try combinations of traditional and new technologies.

□ *Risk Analysis*

Project decisions are made using a risk model where both commercial and technical risk are evaluated; projects are managed using a technology stage process where expenditures are narrowly focused on the highest risk areas.



*Thank you very much for contributing to the
creation of a body of knowledge regarding the
front end of innovation.*