

Nov 17th, 12:00 AM

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Citation

Kumar, V. (2004) Innovation Planning Toolkit., in Redmond, J., Durling, D. and de Bono, A (eds.), *Futureground - DRS International Conference 2004*, 17-21 November, Melbourne, Australia.
<https://dl.designresearchsociety.org/drs-conference-papers/drs2004/researchpapers/201>

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Innovation Planning Toolkit.

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Objective

To maintain leadership position, companies need to be continuously proactive in exploring new opportunities for innovation. An active innovation culture needs to evolve within organizations. At the core of the emergence of such an innovation culture are the 'planning processes' that innovators in companies systematically and collaboratively use to uncover unexplored opportunities.

Scholars who have studied factors contributing to the success of innovations have emphasized the need for a high degree of "discipline" during the innovation planning process. Successful innovations are the result of well-informed, purposeful, disciplined hard work. Comprehensive frameworks, structured methods, and rigorous tools are needed to support the planning process in a disciplined way.

Innovation planning needs to accommodate inputs from various specialty areas such as market research, engineering, design, business management, branding, finance, and strategy. Tools that can be used across specialty areas should take precedence.

To address the above issues, a disciplined "innovation planning process" model along with a comprehensive "innovation planning toolkit" is developed.

Approach

The research approach focused on two tracks. The first track focused on gaining a broad understanding of innovation planning processes practiced by professional and academic teams. A number of innovation planning projects were analyzed to uncover common patterns in their underlying processes. The second track focused on understanding the many activities teams engaged in at various stages of innovation planning process. Insights gained from these two tracks were later synthesized to form a set of frameworks, methods, and tools that multidisciplinary teams could use collaboratively, all organized under a logical innovation planning process.

Findings

The model developed for the "innovation planning process" has eight modes: (1) sense intent, (2) know people, (3) know context, (4) frame insights, (5) explore concepts, (6) make plans, (7) realize offerings (prototype, pilot, and launch), (8) foster uptake. Analysis has shown that these modes are non-linear in nature and that teams move from any one mode to another in no particular order depending upon their changing objectives. Analysis has also shown that teams go through these modes in multiple iterations before moving to implementation.

The "innovation planning toolkit" consists of key frameworks, methods, and tools organized under each of the modes in the innovation planning process. Even though the current toolkit explained here includes 34 components it can accommodate additional components when they are found valuable. The toolkit can also be tailored to suit the specific nature of different types of innovation projects.

The process model along with the toolkit offers a strong formalized model for companies to successfully plan innovations. The rigor and discipline these tools bring to innovation planning is a key benefit. The process model and the tools are built on knowledge and inspiration from a wide range of disciplines such as social sciences, anthropology, behavioral sciences, design, engineering, business, statistics, library sciences, and economics. The tools and processes are conceived holistically to enhance the work processes of multi-disciplinary innovation teams and to integrate the multiple drivers that contribute to the successful adoption of innovations.

Innovation Planning Toolkit

Vijay Kumar

August 20, 2004

Paper submitted for 'FUTUREGROUND" International Conference 2004.

Introduction

To maintain leadership position, companies need to be continuously proactive in exploring new opportunities for innovation. Focusing on core offerings, customer support, and relationship management is a safe way to sustain business and maintain continued revenue flows. But complacency with the successes of core offerings and eagerness to serve the core customer base frequently leads to inaction in the search for new opportunities. Companies deliberately need to be in an active sensing mode during which new opportunities are continuously sought. An active innovation culture needs to evolve within organizations. This should be predominantly characterized by continuous exploration and search for opportunities that may not be central to their business objectives. At the core of the emergence of such an innovation culture are the 'planning processes' that innovators systematically and collaboratively use to uncover unexplored opportunities.

Robust planning processes that are commonly understood, continuously practiced, and collaboratively applied by innovation teams are likely to increase the success rate of innovations. 'Innovation planning', although it may seem like an oxymoron, is really not, as the current growth of the industry providing sophisticated tools for research, analysis, and ideation tells us. Innovations can be planned to ensure their successful uptake. To plan innovations, it is possible to benefit from well-developed processes to foresee people's needs and the nature of contexts within which those innovations fit. Powerful innovation tools are needed to empower this planning process.

Scholars who have studied factors contributing to the success of innovations have emphasized the need for a high degree of 'discipline' during the innovation planning process. Successful

innovations are the result of well-informed, purposeful, disciplined hard work. Comprehensive frameworks, structured methods, and rigorous tools are needed to support the planning process in a disciplined way.

Innovation planning needs to accommodate inputs from various specialty areas such as market research, engineering, design, business management, branding, finance, and strategy. Tools that can be used across specialty areas and commonly understood by diverse specialist team members should take precedence.

In short, to innovate successfully companies need a disciplined innovation planning process, supported by structured methods, tools, and frameworks that can integrate multidisciplinary teams and multiple specialty areas.

Research Objective and Approach

The first objective of this research is to model a disciplined innovation planning 'process' that could be commonly understood by team members belonging to various specialty areas. The second objective is to model an innovation planning 'toolkit' consisting of a set of tools that teams can collaboratively use during the innovation planning process.

The research approach included a study of a number of innovation planning projects that companies, consulting firms, and academia carried out. The analysis uncovered common patterns in the underlying processes these projects used. Building on these patterns, a generic model for innovation planning process was developed.

Analysis also resulted in an understanding of the many activities teams engaged in at various stages of innovation planning process. These findings pointed out several tools teams could effectively use to plan innovations. Some of these tools are tried and tested but some are newly developed to help unsupported, but crucial, activities teams engage in. All these tools organized under the innovation planning process model form the 'innovation planning toolkit'.

Innovation Planning Process and Toolkit

The model generated for the innovation planning process has eight modes: 1) sense intent, 2) know people, 3) know context, 4) frame insights, 5) explore concepts, 6) make plans, 7) realize offerings (prototype, pilot, and launch), 8) foster uptake. These modes are briefly described below and are shown on the map in Figure 1. Pertinent characteristics of each of these modes are included in the descriptions below. Even though these modes are numbered, it should not suggest strict linearity. This is because in real life team members move from mode to mode very frequently in no particular order, depending on the specific goals prevalent at any given time. It is only for convenience that these modes are explained in the order shown.

The innovation planning toolkit that can be used to support these modes is shown in Figure 2. Illustrated here are only a few key tools under each of these modes. Within the limited scope of this short paper, these tools are very briefly described.

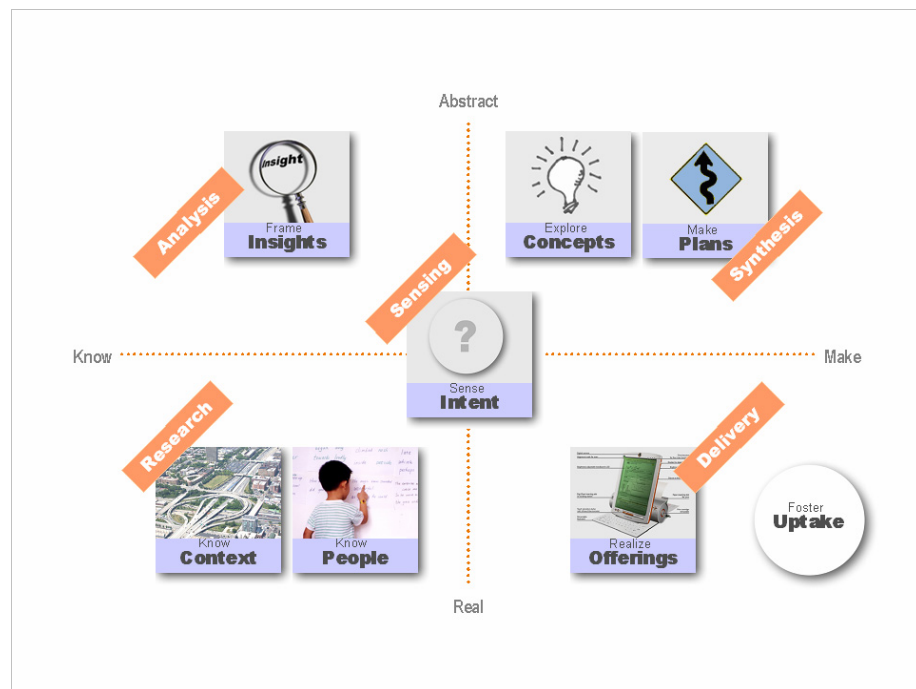


Figure 1. Innovation Planning Process

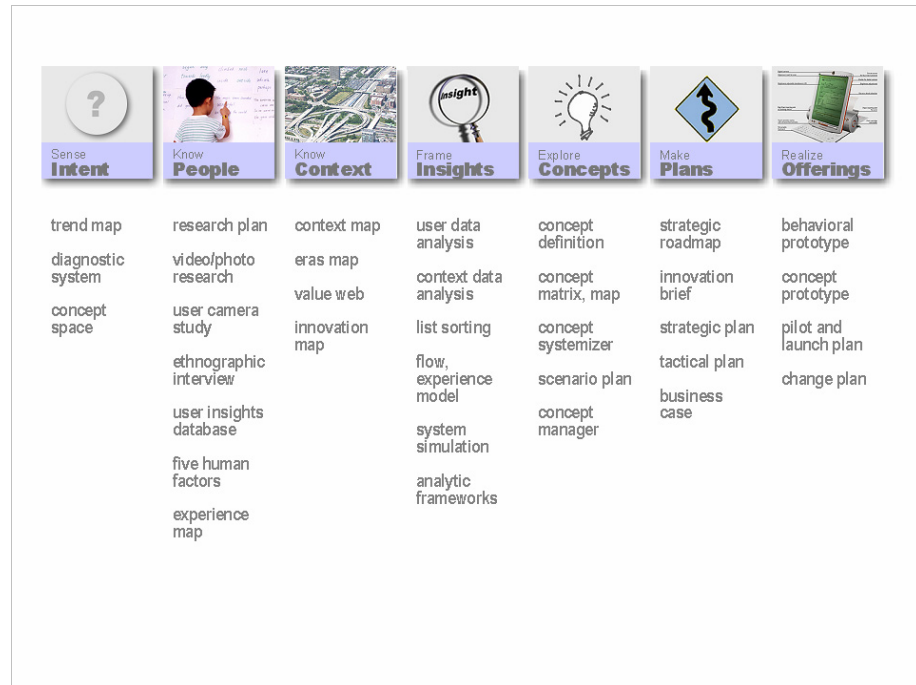


Figure 2. Innovation Planning Toolkit

1. Sense Intent

Sense changes, diagnose conditions, and form initial innovation intent

Innovation planning activities start with an initial intent, a rough goal, a hypothesis, a gut feeling, or some form of initial prompt. For example, a product innovation such as a portable MP3 player starts with the initial intent of supporting people's desires to have control over their music collection and listen to digital quality music anywhere. Trends in digital music technologies, people's changing preferences in interacting with media, and companies' evolving business focus on music market segments, all contribute to establishing the innovation intent here. In this mode innovators need to be in an active sensing mode to focus on opportunities and thereby pragmatically generate their initial innovation intent.

Three primary activities characterize this mode -- see changes, diagnose conditions, and form initial strategies. Innovation teams' primary focus is to see the 'changes' impacting people's lives and understand how companies respond to these changes. They see comprehensive views of 'trends' in areas such as business, technology, culture, and policy and try to uncover potential opportunities for innovation. Continuous

diagnosis of conditions, both internal and external to the company, is another key activity in this mode. Just as doctors diagnose patients, here innovation teams determine the conditions of the company, its competitors, partners, and industry through a series of inquiries, measurements, and evaluations. Initial strategies are then formed that reinforce the innovation intent.

Some key tools that support the activities in this mode are described below:

Trend map	Mapping tools to visualize broad emerging trends in culture, business, and technology.
Diagnostic system	Tools to visualize results of diagnostics performed on companies and industries.
Concept space	Diagrammatic tools to organize problems, issues, and opportunities, and frame up the concept space.

2. Know People

Look for people's unmet needs

In this mode, the primary focus is to understand 'people', within the broad scope of innovation intent. Traditional market research produces valuable insights about user's needs when the products and services provided to them are known and well defined. But, going beyond this, innovators need to uncover new innovation opportunities by exploring people's unmet and unarticulated needs. Ethnographic observational research, prevalently used in social sciences, supports this type of inquiry well.

Observing people in their own environments during their normal routines and settings reveals a richer set of insights about their needs, especially their unmet needs, than what can be gained from traditional market research such as focus groups, questionnaires, or interviews. Truly novel innovations emerge from uncovering needs people did not even know they had, and questions researchers did not even know how to ask. Developing a deep understanding of people's unmet and

unexplored needs can challenge industry assumptions and lead to major shifts in companies' innovation strategies.

Research plan	Tools to help plan research subjects, tools, time frame, and resources.
Video/photo research	Tools to capture people's activities in their real environments, review them, recognize unmet needs, and extract insights that can drive innovations.
User camera study	Tools to help people capture, on their own, their activities, environments, and objects, and share their subjective experiences with researchers.
Ethnographic interview	Protocols to support conversational interviews (not pre-prepared) with people in their own environments.
User insights database	Sharable database to organize observations about peoples' daily activities and help find insights.
Five human factors	Frameworks to understand the five human factors related to people's interactions – physical, cognitive, social, cultural, and emotional.
Experience map	Tools to map out and tell stories about people's holistic experiences with products, environments, messages, and services.

3. Know Context

Look at the big picture and learn about opportunities

While in this mode, innovation teams study the contexts within which innovations need to fit. Contextual research usually looks at entities like companies, competitors, industries, networks, markets, financial models, technologies, processes, products, services, brands, and channels. Focusing on the 'state-of-the-art' knowledge about each of these entities is valuable in this mode. To promote collaboration, innovators organize their research findings under commonly understood categories like

business, technology, and design. The overall goal is to focus on the most relevant information, recognize possible opportunity areas, and determine the right principles on which to reliably build innovations.

Here, innovation teams commonly face the challenge of navigating through complexity, particularly caused by the abundance of available information. For efficiency, it is often beneficial to use comprehensive frameworks to selectively direct inquiries into specifics while still maintaining an overall connection. Data-mining techniques applied to large databases are usually good for narrowing down vast amounts of information into usable chunks. For better collaboration among innovation team members, 'overview' visualizations that show relations among the parts of the context at a high level are found to be very valuable.

Context map	Tools to organize contextual elements such as users, products, services, messages, companies, and create overviews.
Eras map	Diagrammatic tools to track the distinct changes that occur to context elements and show them under major eras on a time scale.
Value web	Entity relation diagram tools to illustrate the value exchanged among the context elements.
Innovation map	Mapping tools to create overviews of innovation occurrences, types, numbers, rates, and uptake, both at company and industry levels.

4. Frame Insights

Find patterns in research data and extract insights

The main focus in this mode is to analyze the research data generated from the previously described three modes – Sense Intent, Know People and Know Context. Innovators look at the research data in multiple ways so that important relationships, patterns, and insights can be evolved. They use a variety of data-organizing and sorting tools to uncover defensible general

patterns. For example, analysis of people's daily activities using sorting tools reveals activity grouping patterns and the priorities people assign to them. By analyzing the 'problems' faced by people in their daily lives, patterns about their unmet needs emerge. Similarly, analyses of contextual data would show patterns that are important to consider about companies, their offerings, or any other contextual aspect. High-level framing up of all the insights and patterns that emerge from multiple analyses of data is at the core of this mode.

Equally valuable as the insights themselves is the 'link' that can be established between insights and concepts. To make this link, insights are often turned into 'principles'. Principles are predetermined policies or modes of action that are used to drive concepts. A second option is to turn insights into 'criteria', standards or rules on which ideas can be based. Sometimes the insights are simply stated as needs that are to be fulfilled, as 'need statements'. A more powerful way to create this link is through new 'frameworks' -- a set of assumptions that supports a way of viewing possible reality -- that are comprehensively built from the research data, to drive concept generation.

User data analysis	Tools to help sort, organize, and analyze the data derived from user research.
Context data analysis	Tools to structure contextual data and create overview patterns of relations, flows, historical developments, and value exchanges.
List sorting	Tools to sort lists based on relations, create clusters, and show patterns in diagrams like matrix, Venn, map, net, tree, or profile.
Flow/experience model	Tools to show flows of information, materials, transactions, and experiences as people interact with the context elements.
System simulation	Tools to visualize context as a system of interconnected parts, simulate its behavior, and analyze evolving patterns.

Analytic frameworks	Toolset that uses numerous existing frameworks to organize contextual information and analyze the resulting patterns.
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5. Explore Concepts

Explore point concepts to systems to platforms

Relating analysis to ideation in a disciplined and collaborative way is a big challenge for innovation teams. Here, teams need to focus intensely on concepts that emerge directly from the insights and identified opportunities. There should be a logical transition from insights to concepts. Concept exploration should be purposefully based on the defined criteria, principles, need statements, or other frameworks that come from research and analysis.

There are four main activities teams engage in -- concept exploration, organization, evaluation, and systemization. During concept exploration, focusing on the right ideas is key – ideas that are driven by the insights -- even if there are only a few, unlike the large quantities of ideas that traditional brainstorming processes seek. Keeping concepts organized under useful categories and hierarchies adds to the efficiency of the exploration. More iteration of concepts with frequent evaluations makes the concepts more robust. Moreover, exploring concepts happens at many levels. There is ‘micro’ exploration to conceive point-concepts that solve specific functions, such as ‘pushing a button’. There is ‘macro’ exploration that builds system level concepts by integrating point concepts into a whole. Switching back and forth between micro and macro explorations is beneficial for integrating concepts as a system.

Concept definition	Tools to define point and system concepts as concise statements, diagrams, sketches, or illustrations.
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Concept matrix, map	Tools to explore concepts in a matrix or map space with two dimensions defining the concept space.
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Concept systemizer	Tools to synthesize systemic solutions by integrating point concepts.
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Scenario plan	Tools to create future scenarios and build stories using the explored concepts.
Concept manager	Database tools to manage the large number of concepts innovation teams produce.

6. Make Plans

Making roadmaps for the future through actionable plans

To make the concepts actionable, innovation teams develop a working plan. These plans ensure that the concepts are in alignment with the research findings and the innovation intent. In this mode, teams focus on speculating how concepts that add new value to people can also add value to companies. The actionable plans developed chart out innovations that not only offer high quality experience for people and fit well with the context of use, but also provide a strategic advantage to the companies that produce the offerings.

Teams apply principles learned in the previous modes to make strategic plans that include innovations like products, communications, services, systems, organizational processes, environments, and brands. Compelling stories are made part of these plans to clearly explain to stakeholders both the initiatives and the effects. Teams also create implementation plans that communicate to the stakeholders the necessary steps to implement the concepts, the required resources, and the returns. The plan along with the concepts that the teams propose clearly identifies the changes needed in the company to create new offerings. Plans also include roadmaps that show the speculated progression of innovations in distinct phases.

Strategic roadmap	Planning tools to track the strategic evolution of concepts over distinct phases.
Innovation brief	Story-telling tools to logically present the key findings and concepts to internal and external audiences.
Strategic plan	Tools to build the company's innovation strategies using the explored concepts.

Tactical plan	Tools to plan the tactical steps needed to realize the concepts.
Business case	Tools to transform the concepts into a viable business plan.

7. Realize Offerings

Realize concepts through iterations-- prototypes to pilots to launch

The success of concepts depends much on their adoption by users and their fit with the context of use. An effective way to ensure this success is to test the concepts in real situations early on and iteratively before investing too much on the first introduction. In the early stages of concept planning, when the ideas are still fresh and not fully fleshed out, there is great value in prototypes in their raw form to study users behaviors. Problems and issues with concepts can be identified early on in order to take the prototype to its next level of refinement. After a few iterations, a pilot offering is created for evaluation in a selected real situation. Based on the feedback, the offerings are refined again for launch and continued implementation. A re-iterated planning process this way increases the chances for success.

In this mode, the major focus is on the conceptual design of the prototype. Teams also focus on meaningful evaluation criteria for each of the iteration cycles. These evaluation criteria are created based on the innovation intent and the insights framed earlier.

Behavioral prototype	Tools to build faster, cheaper prototypes to test the functions of the concept early on and identify problems.
Concept prototype	Tools to build look-like prototypes, with or without simulated functions, and evaluate physical features.
Pilot and launch plan	Tools to plan pilots and launches based on feedback from earlier prototype iterations.

Change plan

Tools to plan possible organizational changes brought about by new innovations.

8. Foster Uptake

Foster a positive environment for successful innovation adoption

This mode is the overlap between innovation planning and innovation implementation. Here, we move from the planning mode discussed above to a series of modes that ensures the successful implementation of new offerings. Management teams use various implementation tools to ensure continued success of an innovation over its lifespan. Since the focus of this research is on innovation 'planning', 'implementation' tools are out of scope of this paper and are not discussed here.

Conclusion

The immediate next steps planned for continued research include refining the prescribed model, testing tools on different types of innovation planning projects, conceiving new tools as additions to the toolkit, evaluating the effects these tools have on team work, and ultimately measuring the resultant innovation success rates.

The innovation planning process, supported by structured methods, tools, and frameworks described above offers a strong formalized model for companies to successfully plan innovations. The rigor and discipline these tools bring to the innovation planning process is a key benefit. The process model and the tools are built on knowledge and inspiration from a wide range of disciplines such as social sciences, anthropology, behavioral sciences, design, engineering, business, statistics, library sciences, and economics. The tools and processes are conceived holistically to enhance the work processes of multi-disciplinary innovation teams and to integrate the multiple drivers that contribute to the successful adoption of innovations.

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