Detailed Review of Idea Generations' Techniques, Activities, & Processes

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Except from Dissertation

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2.7.2. Techniques, Activities, and Full Processes for Idea Generation

Again there are many techniques, activities, and processes for generating ideas; importantly one should be very careful to distinguish among them. According to Encarta, a technique is “procedure, skill, or art used in a specific task” and should not be confused with activities, or processes. For example, a technique may be to do “what if scenarios” and “visualization exercises”, while an activity would be a brainstorming session where several of these techniques can be employed.

An activity can be something like marketing research, brainstorming, proto-typing, charting, or surveying customers. An activity may be short (like a five minute session of prototyping) or a long protracted task (like surveying all the customers a company serves) conducted over several months.

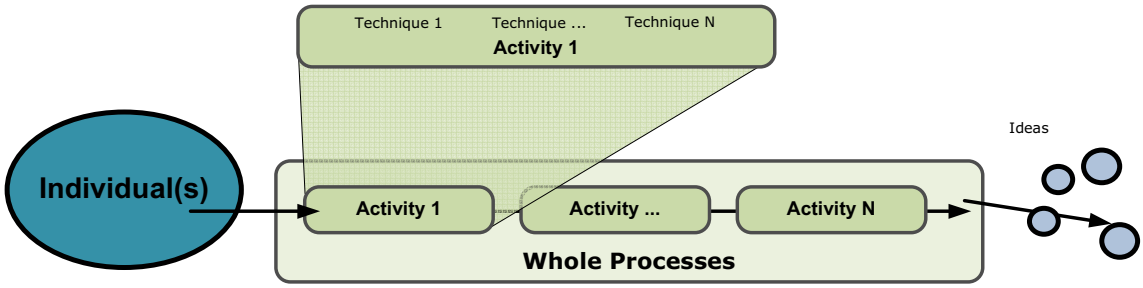

Figure 2.21. Illustration of How Techniques are Embedded in Activities, which are Embedded in an Idea Generation Process)

A process is a series or ordered set of activities with a desired set of outcomes. Idea generation processes include IDEO's deep dive, blue ocean strategy processes, and outcome-based innovation. Tables 2.6 to 2.10 list idea generation techniques, activities, and processes. Naturally, there may be some arguments created over the categorizations, but offering practitioners an ordered list is valuable regardless of discrepancies in these categorizations.

Table 2.6. Techniques which Aid in Idea Generation

Techniques	Description	Reference	Note
Visualizations	Imaging the solution, imaging the problem, visualizing the actions, items, issues, recombining and associating things visually	* PDMA handbook 2005 chapter 17, * Jack Foster "How to Get	
Experimentation for validation	Measure, tests, validate, via physical, virtual, or thought experimentation with the goal of confirming a hypothesis or gathering data	* PDMA handbook 2005 chapter 17, *Tom Kelley, * Rochford Linda 2001 * Hardagon 2000	This is very broad, and can include product, technical, market, concept, functionality, manufacturing and testing
Experimentation for Learning	Learning, trials, or spawning new thoughts through physical, virtual, or thought experiments	* Design Thinking Tim Brown Harvard Business Review June 2008	
Graphing, plotting, charting	Helps visualize unknown or un-seen relationships	* PDMA Handbook 2005 chapter 17	There are hundreds of different ways to display information
Scenario games	Create scenarios and try to play them out to their logical end.	* Jack Foster "How to Get Ideas" pg 117, * Rochford Linda 2001	
Aggregation , Combination	Combining characteristics of a product, service, offering, processes, into a single thing	* Rochford Linda 2001	
Metaphors & Analogies	Compare a problem, solution, or thing to a person, place, thing, concept, time, or experiences to draw out relationships	* PDMA handbook 2005 chapter 17, * Jack Foster "How to Get Ideas" 110	Our truck is tough like a ram, why not make it look more like ar ram
Though experiment	Measure, tests, validate, explore, through thought by deductive or inductive reasoning and proceed through to the logical results to gain an insight	* PDMA handbook 2005 chapter 17, * Rochford Linda 2001	
Redefining question	Re-wording the question to change the perspective on the problem	* Jack Foster "How to Get Ideas"	How do I work harder to "how to I get more work done" (improve work efficiency)
Think like a child	Being open to re-questioning base assumptions, look at the world with extreme curiously to find new relationships	* Jack Foster "How to Get Ideas" pg 55	Why do refrigerators have to have doors?
Lateral thinking	The shifting of thinking patterns, away from entrenched or predictable thinking patterns to new or unexpected ideas	* Edward de Bono The Use of Lateral Thinking, published in 1967. * Jack Foster	
Remove boundaries, and base assumptions	Remove boundaries, and retest base assumptions, do not assume restriction unless strictly told	* Jack Foster "How to Get Ideas" pg 102	
Set strict limits	Set limitations, remove typical options	* Jack Foster "How to Get Ideas" pg 106	Find solutions within limitations
Purposefully break the rules	purposefully violate base assumptions, and rules	* Jack Foster "How to Get Ideas" pg 115	
Re-define the problem	Change the format of the question,	* Jack Foster "How to Get Ideas" pg 131	
Abstraction	Make the problem or situation more abstract	* Rochford Linda 2001	Increase company revenue changed to better the company
Adaptation	Adapting a solution, offering, process to suit a companies need by modifying it	* Rochford Linda 2001, * Hardagon 1997 & 2000	
Reduction	Reducing the amount, functionality, or features of a particular thing	* Blue Ocean Strategy 2005	
Elimination	Eliminating a particular, feature, attribute	* Blue Ocean Strategy 2005	
Raise or increase	Increasing a particular feature, attribute or factor above the norm in that industry	* Blue Ocean Strategy 2005	Large button telephones, calculators and remotes
Creation	Creating new features, attributes, factors, which an industry has not seen	* Blue Ocean Strategy 2005	
Division of part	Breaking up the whole in to smaller and smaller features, functions, or pieces	* Rochford Linda 2001	
Iteration	Repeating a process or set of actions with the goal of narrowing them down to a set of solutions	* Rochford Linda 2001	
Devil's Advocate or methodical doubt	A method of exposing every weak point, while letting others quickly find solutions	* Rochford Linda 2001	
Detailed observation	Looking closely at something, trying to understand every facet and function	* Hardagon 1997 & 2000 * Tom Kelley 2001 & 2005	

Table 2.7. Activities which Specifically Trigger Creativity

Activities	Description	References
Activities that are Specifically Creative		
Brainstorming	Creating ideas in open discussion, (typically many techniques are applied)	**Chapter 17 PDMA handbook 2005, Rochford, Ref Tom Kelley, Ref Hardagon, Hsiao, S. -., & Chou, J. -. (2004*
Method "6-3-5"	"6 participants write 3 ideas within 5 mins on paper, then pass ideas to next person till one full rotation is made	* Belliveau, P., Griffen. A., & Somermeyer, S. (2007) The PDMA ToolBook 1 for New Product Development, Hoboken, New Jersey: John Wiley & Sons. Inc
Problem inventory analysis	generating a list of negatives of a offering then finding solution to eliminate those negatives	*(2007) The PDMA ToolBook*
Visualization exercises	Same as techniques just proceed as a formal activity	*(2007) The PDMA ToolBook*
Experimentation activities	Measure, tests, validate, explore, via physical, virtual, or thought experimentation	** 2005 PDMA hand book chap 17, Tom Kelly, Ref 30, Hardago, Stefan Thomke 2001*
Scenario activities	Instead of the technique, this a full activity where scenarios for marketing strategy, business unit strategy, tech strategy, were feasible scenarios are thought out	** Foster, J. (1996). How to Get Ideas, Berret-Koehler Publishers, San Francisco163* ** Rochford, L. (1991). Generating and screening new product ideas. Industrial Marketing Management, 20(4), 287-296.*
Six thinking hats	role based brainstorming activities where each individual plays a different role, Facts, optimism, judgment, feeling, creativity, control	** DeBono Group http://www.debonogroup.com/6hats.htm*
Focus group activities	A collected group of individual focusing on giving feedback on a particular, product, service, and process	** Rochford, L. (1991). Generating and screening new product ideas. Industrial Marketing Management,*
Incubation & relaxation	Relaxing and thinking lightly or not at all about the problem to be solved (sleeping) letting the mind sub-consciously work on the problem	** Foster, J. (1996). How to Get Ideas, Berret-Koehler Publishers, San Francisco163*

Table 2.8. Activities which Seed Individuals with Ideas

Activities	Description	References
Seeding activities		
Environmental scanning	Scanning the outside environment in the areas mentioned in (environmental scanning)	*Drucker 1985, Auster & Choo 1993, REF 27*
Systematic search of a field	researching all direction starting from fixed starting point	** Rochford, L. (1991). Generating and screening new product ideas. Industrial Marketing Management, 20(4), 287-296.*
Conferences and trade shows	Industry conferences to aid in learning about new knowledge, technologies, developments.	
Reviewing idea databanks	Reviewing the ideas in an idea bank	**Hardagon, A. and Sutton, R.I (2000) Building and innovation factory. Harvard Business Review, 78 May-June 157-166 Link*
Technology fairs	same as conferences but held internally just for employees	**Hardagon, A. and Sutton, R.I (2000) Building and innovation factory. Harvard Business Review, 78 May-June 157-166 Link*
Suggestion & improvement capture	Capturing ideas and issues from internal and external individuals	
Deep questioning	Question with the goal of deeply understand all aspects of a offering, service, industry	** Foster, J. (1996). How to Get Ideas, Berret-Koehler Publishers, San Francisco pg 146.*
Tech boxes	Maintaining a archive of products, materials, pictures and other things that can seed ideas	**Hardagon, A. and Sutton, R.I (2000) Building and innovation factory. Harvard Business Review, 78 May-June 157-166 Link *Kelley, T., & Littman, J., & Peters (2001). The Art of innovation, Lessons in Creativity from IDEO, America's Le*
Company get togethers	Meeting where employees can talk informally like at bars, restaurants, or parties	

Table 2.9. Activities Which Use Analysis to Spawn Creativity and Ideas

Activities	Description	References
Analysis based idea generating activities		
Opportunity identification	Locating unmet needs or gaps in the market place that can present opportunities	** Flynn, M., Dooley, L., O'Sullivan, D., & Cormican, K. (2003). Idea management for organizational innovation. International Journal of Innovation Management, 7(4), 417-442.*
Opportunity analysis	Analyzing to see if a opportunity possess real value, and looking for potential problem and issue that can be solved to realize that opportunity	* Flynn, M., Dooley, See above.
Customer needs analysis	The customer needs are determined via surveying, interviewing, or feedback mechanisms. Feedback then is analyzed to determine customer needs	
Wasted base analysis	Looking for sources of waste tangible and in-tangible and finding ideas to utilize that waste	
Competitive mapping	Mapping competitor via, offering, pricing, branding, or other means to extract gaps and understanding	
Analysis of customer feedback	Examining customer feedback to determin unmet needs, or opportunities	
Ethnographic research	Researching customer behaviors and cultural aspects across different cultures to gain insight and understanding	Belliveau, P., Griffen. A., & Somermeyer, S. (2007) The PDMA ToolBook 1 for New Product Development, Hoboken, New Jersey: John Wiley & Sons. Inc
Application	Examining possibilities and results by application	*(2007) The PDMA ToolBook*
Attributes based discriminant analysis (PREMAP)	Develop by performing a discriminant analysis from brand's effective attributes, then mapping and analyzing them	** Rochford, L. (1991). Generating and screening new product ideas. Industrial Marketing Management, 20(4), 287-296.* ** Foster, J. (1996). How to Get Ideas, Berret-Koehler Publishers,*
SWOT analysis	Looking at the strengths, weakness, opportunities, & threats to a competitor or offering	
Morphological analysis/ Matrix	"Splitting up problem into parts and look for partial solutions to each, leading to generation of ideas"	** Belliveau, P., Griffen. A., & Somermeyer, S. (2007) The PDMA ToolBook 1 for New Product Development, Hoboken, New Jersey: John Wiley & Sons. Inc.*
Competitive intelligence activities	Observing, reporting, & documenting competitor actions (changes in offerings, prices, brand, partnership, strategy …)	
Critical path mapping & analysis	Graphically representing activities their duration and finding gaps and problems with their flow	
Dimensional investigation	Mathematical equation used to relate functions, and economic properties of the product	** Belliveau, P., Griffen. A., & Somermeyer, S. (2007) The PDMA ToolBook 1 for New Product Development, Hoboken, New Jersey: John Wiley & Sons. Inc.*
Porters analysis	Using porter's analysis to understand an industry and gain insight into power relationship	
Portfolio analysis	Looking at the portfolio of offerings to find new possibilities, gaps, or weakness in the offerings	
Gap analysis	Comparing where a specific performance metric should be against where it is	
Patent scanning	Reviewing new or expired patents to see new product or service opportunities	
Whole product solution analysis	Analyzing the offerings of an emerging market and determining which offering must be made to complete the whole product solution	** Moore, Geoffrey, (2004). Crossing the Chasm, HarperCollins Publishers, New York, New York,*
Marketing research	Researching the market, competitors, and market condition to determine trends, changes, and gain insight	
Forecasting	Predicting trends, and forecasting future developments in an industry, then trying to predict customer needs and requirements	** Kahn, K. B., Castellion, G., Griffin, A. (2005). The PDMA Handbook of New Product Development: 2nd (228-248). Hoboken, New Jersey: John Wiley & Sons. Inc*
Root Cause Analysis	Looking for root causes of: failure, issues, and problems in the process of trying to diagnosis a system, behavior, or processes	

Table 2.10. Full Idea Generation Processes

	Processes	Description	*References*
	Full Idea generating processes		
1	**Full Contextual research process**	Detailed studies of customer unmentioned needs and situation	** Conley, C.V. (2005). Chapter 15: Contextual Research for New Product Development. In A. Kahn, K. B., Castellion, G., Griffin, A. (2005). The PDMA Handbook of New Product Development: 2nd (228-248). Hoboken, New Jersey: John Wiley & Sons. Inc. Link to*
2	**Outcome based innovation**	Uncovers desired user outcomes then generates ideas to fill those outcomes	**Ulwick, A. W. (2007, Fall). Turn customer input into innovation. Harvard Business Review, 80(1), 91-97. *Sutton, N. (2007). Outcome-driven innovation®: A critical review. Masters thesis, Cranfield CERES*
	Ulwick's Job Mapping	Define the job process then use a set of techniques to add, remove, combined, or split the jobs into parts, use that understand to generate ideas	** Bettencourt, L., & Ulwick A., The customer centered Innovation Map, Harvard business Review, May 2008 109-114*
3	**Deep Dive by IDEO**	Similar to contextual research but heavier on idea generation	** Kelley, T., & Littman, J. (2001). The Art of innovation, Lessons in Creativity from IDEO, America's Leading Design Firm, New York, New York: Doubleday publishers * Kelley, T., & Littman, J. (2005). The Ten Faces of Innovation: IDEO's Strategies for Beg*
4	**Blue Ocean strategy**	Heavy on new ways to analyze market to find gaps to generate new sub-markets with very little immediate competition	** Kim, W. C., & Mauborgne, R. (2005). Blue Ocean Strategy How to Create Uncontested Market Space and Make the Competition Irrelevant. Boston, Massachusetts: Harvard Business School Press*
5	**TRIZ based innovation**	A russian idea generation technique combined with strategy	** Hart M. book review of Fey, V., & Rivin,. E Innovation on Demand: New Product Development Using TRIZ, New York, New York, Cambridge University Press*
6	**Flynn's idea generation process**	Utilizes environmental scanning, opportunity identification, and ends with idea generation	** Flynn, M., Dooley, L., O'Sullivan, D., & Cormican, K. (2003). Idea management for organizational innovation. International Journal of Innovation Management, 7(4), 417-442.*
7	**Lead User innovation**	Following and working with lead users to generate leading edge ideas	** Von Hippel, E., Thomke, S., & Sonnack, M. (1999). Creating breakthroughs at 3M. Harvard Business Review, 77(5), 47-57, 183.*
8	**Multi-day ideation retreats**	A fully structured retreat design to run through many idea generation activities over a series of days	** Miller, C.W. (2005). Chapter 17: Getting Lighting to Strike: Ideation and Concept Generation, In A. Kahn, K. B., Castellion, G., Griffin, A. (2005). The PDMA Handbook of New Product Development: 2nd (228-248). Hoboken, New Jersey: John Wiley & Sons. In*

2.7.3. Review of top idea generation processes

Many of these techniques and activities are well known in business practices while others are not. For the goal of brevity this study does not discuss any of the techniques or activities in detail, and instead will concentrate on elaborating on idea generation processes. These idea generation processes are consider extremely valuable because they have been tested to be effective in generating valuable ideas and again tie together a set of activities, which utilize multiple

techniques to produce ideas. There seems to be few full idea generation processes which have been proven to be effective in creating valuable ideas. An individual could slap together a set of activities from the tables above and label it an idea generation processes. But creating an effective idea generation process is much more difficult. Hence, this research views proven idea generation processes as gems, because of their rarity and difficulty in refining. Consequently, the following section discusses the top idea generation processes in detail.

2.7.3.1. The Contextual Research Idea Generation Process

Chapter fifteen of the 2005 PDMA handbook written by Conley (2005) reviews contextual research for new product development. Contextual research can be thought of as indepth customer research, where one looks for information about what people do, rather than what they think and say. The context is the every day situation of the customer, their environment; their behavior, the situation they are in, and their local environment (Conley, 2005).

Typically, customer feedback leads to minor changes or incremental innovations in the product, whereas, contextual research looks at the bigger picture to determine unseen opportunities for innovation by looking at the environment, interaction, processes, activities, and customer types. As Von Hippel puts it, this information is “sticky” because it is very difficult for the user to convey this detailed information” (Von Hippel, Tomke, & Sonnack, 1999).

The power of contextual research is its ability to communicate this “sticky” information and use it to spot unmet needs or simulate new innovative ideas. The process of contextual research involves: (1) designing the study, (2) selecting the research team, (3) gathering required research tools like cameras, (4) selecting the customers to observe, and (5) creating a topic guide for interviews.

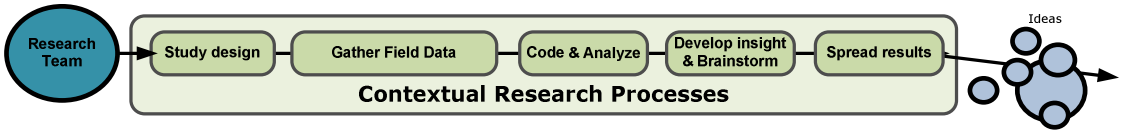

Figure 2.22. Illustration of the Contextual Research Process

The research is based on a vigilant observation of users in their environment. This is commonly done by job shadowing or observation from a distance. Also it is recommended that users verbalize their actions by talking about them out loud. Activities should be captured on rich media like video, photographs, and audio tape, as well as more traditional lead mediums like note pads. It is recommended that this take place over several observation sessions. After the research info is gathered it is analyzed to determine the goals of each activity and then coded into bite-size chunks. Coding is used to identify patterns of issues. “In analyzing data, one must avoid simply responding to problems seen in the field, because many problems are symptoms of a larger systematic issues” (Conley, 2005, p. 98).

The coded information is then used by the new product development teams to extract insight and simulate ideas. Next, several brainstorm meetings are performed with each concentrating on a different issues or patterns discovered during coding. The generated ideas should be recorded, sorted, and voted on, then documented. Reporting the contextual research to the larger organization is a vital step, and helps seed other individuals outside the NPD group with idea and information. Report of the research can be displayed by videotaped examples, diagrams, illustrations, photographs, and in the traditional written form. This process produces the largest benefit in that it develops a deep understanding of customer needs which has been said to develop the most valuable ideas (Veryzer, Mozota, 2005; Flint, 2002).

Another benefit is the hard to see customer issues and problems can be uncovered and solved. Also by heavily document the finding, the research can be used at future brainstorming session for years to come. Finally, by spreading the

research results individuals all over the organization can be seeded with valuable information. This can be thought of as taking advantage of the organization's creativity to help spawn more ideas. A typical study is cited to take 20 to 30 visits, and take anywhere 12-16 weeks at a cost of $150,000 plus.

2.7.3.2. Outcome Based Innovation

Outcome-based innovation by Anthony Ulwick looks at gathering the customer's desired outcomes, not their espoused needs or wants. By doing so he states more valuable products and service ideas can be obtained (Ulwick, 2007). He also warns about the dangers of responding directly to customer wants and whims, and says a company should not be entirely customer-driven. A major change in the way interviews are conducted is required to gather the customer's desired outcomes. For example a customer may say he wants a medical tool made out of a more expensive stainless steel, when in fact he is looking for an outcome of increased durability.

The steps in the process are (1) plan the outcome-based customer interview, (2) capture desired outcomes, (3) organize the outcomes, (4) have customers rate the importance of each outcomes, (5) use the outcome to uncover opportunities, and (6) brainstorm ideas for the selected opportunities.

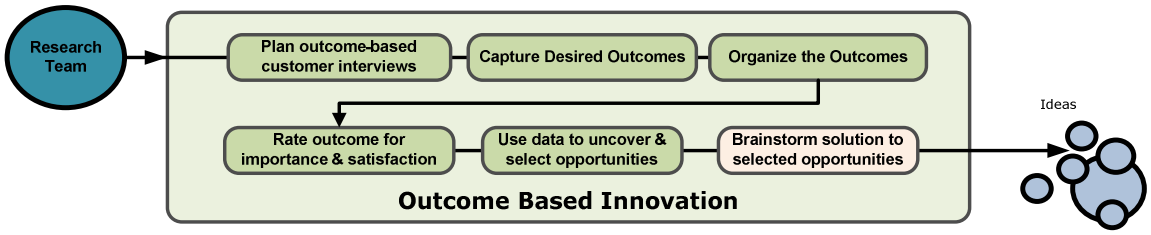

Figure 2.23. Illustration of the Outcome-Based Innovation Process

The first step requires the selection of the customers. Conducting outcome driven interviewing requires training and practice because the interviewer must coax out desired outcome not needs or solutions, then restate the outcome with measurable results. For example, an interviewer must get the customer to say an outcome like “they want to easily remove your oil in 5 minutes” not the feature of “have a more accessible oil plug.”

Organizing outcomes requires compiling a list of collected outcomes, removing duplicates, and categorizing outcomes into groups. Rating outcomes is the next important step and requires the research team to present a full list of outcomes to the user so (a) they can rate the respective importance of each outcome, and (b) they can rate their level of satisfaction if that outcome is achieved. Next the research team must categorize and rate uncovered opportunities. Ulwick proposes a numerical rating system to rank uncovered opportunities. Finally, the top opportunities are the topic of idea generation activities like brainstorming activities.

The benefit of this process is that it is deeply rooted in customer understanding, and better yet, the fact that the customer has identified his level of satisfaction if the given outcomes can be satisfied. Hence, the risk that customers may reject new proposed products and solution ideas is much lower. So, this process is seen to develop higher quality and higher value ideas. Moreover, the process starts by focusing on customers being served by the company, but at the same time allows for new strategic options for new products and services to be developed. This process is a poweful way of coming up with high quality incremental and disruptive product and service ideas because it was quoted to be successfully used and because it has a well thought out flow.

2.7.3.3. IDEO’s Idea Generation Process

IDEO’s idea generation process shares similarities to contextual research except it is much shorter in duration and more intense in its level of activities. IDEO is a world famous multidisciplinary design firm with their own special idea generation

process focused on delivering valuable ideas in a short one or two week period to their clients. Their process uses substantially fewer resources than a full contextual research study (Kelley & Littman, 2005; Kelley, Littman, & Peters, 2001).

The process starts with a meeting with the client and the idea generation team so the problem can be bounded, like developing a new tooth care product. The team, typically multidisciplinary in nature, splits into subgroups, then goes out into the field to observe users, buyers, and influencers of the target area much like contextual research. After about a day's worth of information collection, the teams reassemble to discuss their findings.

Unlike contextual research, which spends a lot of time coding and analyzing data, IDEO's process goes right into discussing the findings. During this discussion which is, like a "show and tell" activity, they discuss problems they found, strange behaviors they noticed, and the overall context of the users' situations. They do this by reviewing pictures, videos, or demonstrating activities. Next they move into a series of brainstorming and screening activities. First, each individual writes as many ideas as they can, in say, a 20 minute period, after which they all discuss their ideas. Then a collaborative brainstorming session takes place.

At the end of the session each individual is asked to submit their top four ideas which are then posted on the walls around the room. The group votes on the submitted ideas, and from one to three ideas are pushed into prototyping. During prototyping the teams do everything they can to transform the ideas into a physical or tangible prototype. The process ends with a formal presentation to the clients where a few fully developed ideas along with their prototypes are shown and discussed.

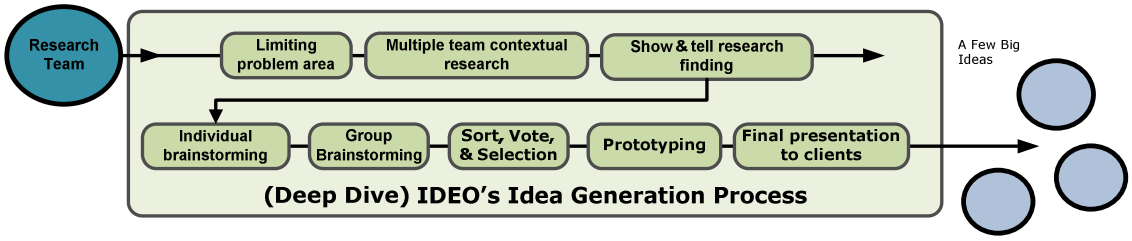

Figure 2.24. Illustration of the IDEO's Idea Generation Process

Again this process has a base in customer understanding, but not as strong as a base in outcome-based innovation or contextual research. This obviously helps ground the idea in a level of practicality, while giving it the needed stimulus for brainstorming.

This process is also much heavier on the creativity aspect because many of the activities are designed to simulate and encourage creativity. The prototyping phase is pronounced, mainly because IDEO deals heavily with customer product designs and because they see a strong creative value in prototyping and experimentation. This process can be applied formally inside a company; however, the culture required to effectively conduct this process must be finely tuned to be tolerant of the wildly creative atmosphere required by it.

2.7.3.4. Blue Ocean Strategy

The main premise of Blue Ocean Strategy by Kim and Mauborgne (2005) is that a market can be created which has all the attributes of the main market but has a lower level of competition and much more room to grow. This approach makes the analogy that existing markets are like red oceans colored by the blood of competition, and that blue oceans are fresh untapped or emerging markets where competition is relatively scarce or nonexistent. For example, Cirque du Soleil created a new type of circus and Net Jets created a new market space between charter jets, private jets, and commercial travel.

Kim and Mauborgne (2005) proved the value of blue ocean markets through their study of 180 companies which found blue ocean products and services account for 61% of gross profits, even though they accounted for the smallest number of launches (14% of total product and service launches). The results of blue ocean activities can range from creations of new product and services ideas all the way to dramatically altering the way a company offers its business services.

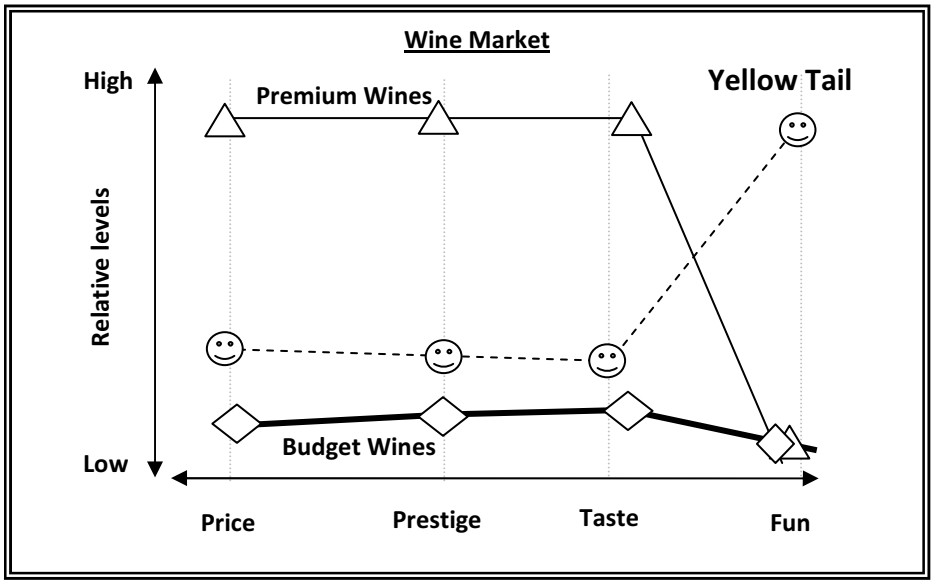

Figure 2.25. The Strategic Canvas from Blue Oceans Strategy with Three Plotted Value Curves

The Blue Ocean Strategy is built around the strategic canvas (shown in the figure above) which is a very useful tool for analyzing factors of competition in a market. Figure 2.25 shows the value curves of budget wines, premium wines, and Yellow Tail wine. Notice the difference in the value curve of the Yellow Tail as being high in fun. The combination of the value curves of Yellow Tail wine sets it apart from competitors. Blue Ocean does not suggest a given process but rather a set of activities which rather easily be combined into a formal idea

generation process. For the sake of clarity, this thesis has created one such process based on pages 89 to 93 of the book (Kim & Mauborgne, 2005).

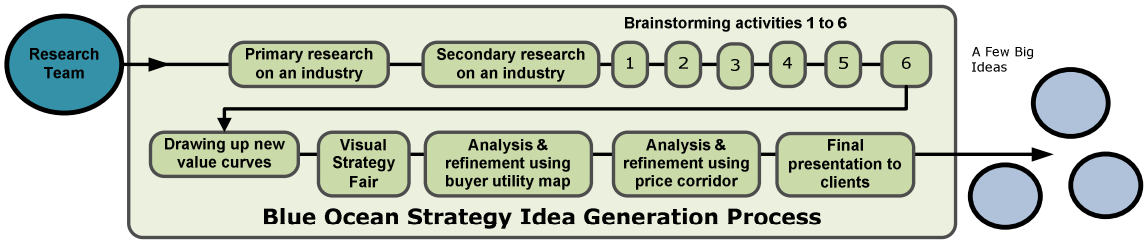

Figure 2.26. Illustration of a Blue Ocean Strategy Idea Generation Process

The proposed process starts with a development team conducting primary research by speaking with customers, non-customers, competitors, and similar solutions in different markets. The team then conducts secondary research (literature scanning) on trends in the market, demand, major factors of competition, and strategic changes in their markets. Next, the team proceeds through six separate brainstorming activities, each resulting in two to three new value curves. Each brainstorming activity uses the techniques of reducing, eliminating, raising, and/or creating factors for the new value curves. The brainstorming activities are:

1) Look across the industry to determine trade-offs which customers innately make. For example, NetJets saw the trade-off in convenience and cost between charter/private jets and commercial airline travel, and tried to capture the best of each.

2) Look across strategic groups within an industry. Toyota did this when they created Lexus by adding the quality and amenities of a Mercedes to Toyotas while reducing the price, and removing some of the more expensive/un-necessary features.

3) Look across chains of users, influencers, & buyer to see if there can be shifts, addition, reduction, or elimination in the value curve which would better satisfy a single or all groups. An example is the paper towels which are perforated in thirds stratifying mothers (buyers) who were concerned about their children (users) wasting paper towels.

4) Look across complementary products and services which the customers use before, during, and after. For example, Barnes & Noble uses in store coffee bars and food to enhance their value curve because they realized their customers were leaving to get those items and by putting those things in their stores resulted in longer customer visits and a more pleasant customer experience.

5) Look across functional and emotional appeal is simply taking something functional and making it more emotional or vica versa. Starbuck added and emotional experience to a coffee house, while the Body Shop removed the emotional packaging and presentation of perfumes and soaps.

6) Look across time by having an insight into trends, “how the trend will change value to customer and impact the company’s business model.” Three principles to assessing trends are they must be decisive to your business, be irreversible, and have a clear trajectory. For example, Cisco saw the trend for increased data exchange and hence they adapted their value curve to fully take advantage of this trend. Apple saw the clear trend of downloading music online and legalized it with Apple’s iTunes.

After each of the brainstorming sessions, one to three value curves are created. The new value curves are shown in a visual strategy fair where each is discussed for 5 minutes. The judges (possibly executives) cast votes or assign points to each curve. The best curves are then analyzed, tested, and refinement using the buyer’s utility map, and price corridor of mass tools among others. After refinement the ideas with their respective value curves are again presented to the executive committee for review.

Again the goal of the Blue Ocean Strategy process is very different than other idea generation processes because it looks for ideas which can dramatically change the strategy of a company. This researcher sees this as a valuable process which could augment executive's strategic planning processes.

One should note, ideas from this process most likely cannot be placed directly into the new product development process, because they require changes to the company as a whole which is greatly outside the scope of the NPD process.

2.7.3.5. Flynn's Idea Generation

Flynn's process uniquely highlights environmental scanning as a major step. The first step in his processes involves setting the strategic direction and can be based on product portfolio needs (Flynn, Dooley, & O'Sullivan, 2003).

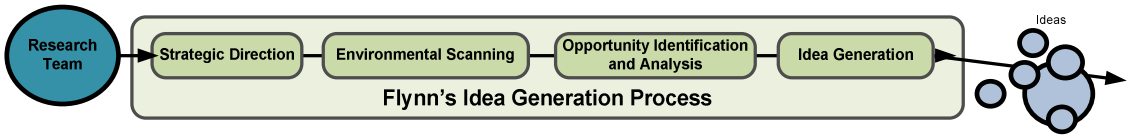

Figure 2.27. Illustration of Flynn's Idea Generation Process

The goal of the next step, being environmental scanning, is to capture stimulus and information. This activity should be bounded because not everything can be observed. The goal of the following step, of opportunity identification and analysis, is to find opportunities (as mentioned in section 2.6.7) and validate the value of those opportunities. Finally, opportunities are used along with information from environmental scanning in idea generation sessions, and ideas are captured and recorded.

The major issue with this process is that it is too broad to be directly useful. All of the activities could vary greatly in scope and be un-manageable if not bounded, like environmental scanning. Hence, this researcher sees Flynn's

process as a general map which can be used to make more specific idea generation processes. To illustrate this, Figure 7.28 shows a process which more specifically generates ideas from information captured from competitors.

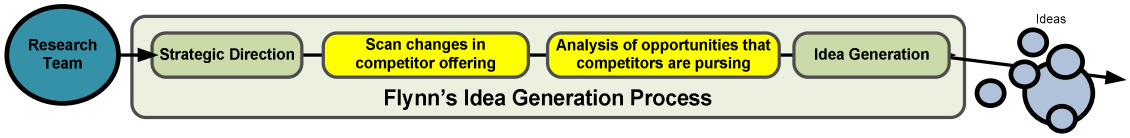

Figure 2.28. Modification of Flynn's Idea Generation Process

2.7.4. Detailed Examination of Sources of Ideas

The previous part of this chapter had an underlining assumption that ideas were being generated from individuals inside the company, which is not always the case. Many more ideas are being generated by others outside the company which could be turned into new innovative products and services. It is a severe error to think ideas can only come from inside your company. This error has been termed the "not-invented-here" syndrome (NIH syndrome) where a company rejects idea generated outside its walls because they think those ideas are inferior to their own. Ideas from outside the company, can be (a) used directly with **little or no modification**, and/or (b) can be **modified to suit the needs of the company,** and/or (c) can be **used to seed people inside the company with stimulus to help them generate their own ideas**.

At present, there are many external sources of ideas; again a source is an individual or group of individuals. Additionally, there are many internal sources of ideas other than individuals in the new product development groups.

The literature on idea management and idea banks states many companies in general lose or drop ideas which are not from their usual sources, and hence idea management programs should be put in place to capture these ideas (Flynn, Dooley, & O'Sullivan, 2003; Gorski, & Heinekamp, 2002).

The following tables were compiled to show the many potential sources of ideas, and also show respective activities and methods which can idea from those sources.

Table 2.11. Major Categories for Source of Ideas

	Source
1	Employee sources / Internal sources
2	Customer sources
3	Organizational sources
4	Supplier sources
5	Competitor sources
6	Other companies

The sources of ideas have been split into five main categories. In-particular, Alam (2003), Belliveau, Griffin, & Somermeyer (2002), and Stasch, Lonsdale, & LaVenka (1992) have spoken in detail about sources of ideas and provided a strong base to create the following tables. Employees are highly cited as sources of ideas especially in articles discussing ideas management and idea banks. Typically, executives and R&D employee submit ideas, but expanding the envelope to all employees in the company can tap valuable sources of ideas.

Parnell, & Menefee (2007) show that employees may have different perspectives based on their positions that may influence their decision making. This gives a basis for the obvious assumption that employees in certain positions may be more likely to come up with ideas based on their perspectives and duties. So, a line operator may be more likely to come up with ideas for reducing line cost and down time, while an executive may be more likely to come up with strategic ideas to fend of competition.

Table 2.12. Employee Based Sources of Ideas

	Source	Description	Direct way to get ideas	In-direct ways to generate ideas	*References*
			Employee Sources		
1	**Executive**	Executive in the company	direct solicitation, utilized idea generation activities and processes,	Suggestion system, idea database	*Ref 30, 58*
2	**Management**	Management professional in the company	Same as 1	Same as 1	*Ref 30, 58*
3	**Finance**	Self-explanatory	Same as 1	Same as 1	
4	**Sales**	Self-explanatory	Same as 1	Same as 1	
5	**Sales Reps**	Sales reps differ from sales in that they work for the company through in-direct means	contractual agreements, direct solictation,	Same as 1	*Ref 30*
6	**Marketing**	Self-explanatory	Same as 1	Same as 1	*Ref 30*
7	**R&D**	Self-explanatory	Same as 1	Same as 1	*Ref 30*
8	**Customer service**	Self-explanatory	Same as 1	Same as 1	*Ref 30*
9	**Operation / production**	Self-explanatory	Same as 1	Same as 1	*Ref 30*
10	**Think-tank**	A group dedicated to coming up with new ideas, research, and knowledge	Same as 1	Same as 1	*Ref 28,33,58,*
11	**Annoymous employees**	Self-explanatory	Same as 1	Same as 1	
11	**Quality control**	Self-explanatory	Same as 1	Same as 1	*Ref 30*

2.7.4.1. Customers as Sources of Ideas

Customers are the first major source of ideas, and have been split into the seven categories shown in Table 2.13. Interesting most companies focus on their **core customers** groups because they provide the bulk of the business. However, innovation experts strongly advocate reaching out to new customer groups. To avoid this natural tendency to concentrate on the core customers, 3M has an edict which requires 30% of revenues of a business unit must come from new products released in the last four years (Collins, & Porras, 2002).

Table 2.13. Customer Sources Which Can Result in Ideas

	Source	Description	Direct way to get ideas	In-direct ways to generate ideas	*References*
			Customer Sources		
1	**Homogeneous customer group**	This is typically a sub-segment of the companies customer which all share similar characteristics and attributes	Direct solication; Customer submitted ideas; interviews; statifaction surveys; focus groups; customer contracts negotations, others	Deep market research; contextual research; problem analysis; Customer Gap Analysis; satisfaction surveys , many others	*Ref 18,21,27,23,*
2	**Core customer groups**	Customer groups that provide the bulk of the revenue or profit for the company.	same as 1	same as 1	*Ref 54, 32, 30, 58, REF Neal & Corkindale 1998,*
3	**Lead User**	Highly advanced user has needs way in advance of the bulk of the market place, because they are visionaries and try an advances quiker to get a competitive edge	Direct customer request, interviews, lead user processes, focus groups, customer projects	See lead users innnovation process by von Hippel	*Ref von Hippel HBR 1999, Urban & von Hippel 1986*
4	**Possible new customer group**	Customers the company is not yet serving but would like to.	same as 1	same as 1	
5	**Dis-satisfied customers**	Customer that are dissatisfied and are still with your company, or have switched to a competitor. May also include dissatisfied customer of a competitor.	Customer interviews, customer feedback surveys, dissatisfaction survey, focus groups	same as 1	*Ref 58, Wharton: How to turn customer ideas into innovation HBR Companies and the customer who hate them McGovern & Moon*
6	**User, inflencer, buyer customer groups**	The individuals buying, using, and influencing the purchase may be very different. Each group should be considered differently for ideas, to better satisfy all groups.	same as 1	same as 1	*Ref Blue ocean strategy, Ref Harvard Business Review on Innovation 2001 Chan Kim & Mauborgne*
7	**Anonymous**	Customer who submit ideas annoymously or been recorded as annoymous	Received though annoymous submittion or direct contact but not recorded	Idea contests, suggestion systems	*Ref 40*

Homogeneous customer groups are customer groups with similar needs and attributes and are often studied during market segmentation studies. By listening to them, ideas can be extracted which may better serve those groups.

A **lead user was** shown to be a source of ideas by Eric von Hippel, and is defined as users who are working at the for-front of trends and technology in their markets and are experience problems way before their peers. Von Hippel also proposed a full detailed idea generation process for use with lead users, called “lead user innovation” (von Hippel, Tomke, & Sonnack, 1999).

Dissatisfied users are a great, often overlooked, source of new ideas because they are aware of the problems which led to their dissatisfaction. Contacting dissatisfied customers is left to customer services which should try to capture information from dissatisfied customers. This information can be used by new product development team to come up with better ideas. For example, one

woman who was very dissatisfied with Nabisco Oreo packaging which could not be easily closed, told customer service the company should change the packaging immediately. The result? Nabisco (Oreo) released a simple resealable flap that has since increased the freshness and consumption rates of their Oreos.

Users, influencers, and buyers are different customer groupings even though they are often referred to as a single unit. For example, a user of a construction tool may be a construction worker, the influencer may be a foreman, and the buyer may be the owner of the construction company - each of which have their own specific needs. Finally, customers may sometimes **anonymously submit ideas** to a company. Unfortunately, follow-up feedback or additional information cannot be obtained (Perk, Cooper, & Jones, 2005).

2.7.4.2. Non-for-profit Organizational as Sources of Ideas

NASA is well known to be a source of inventions and ideas, and has been credited with many well known inventions like the microchip. N**ational laboratories** are a government funded way of inducing innovations in US companies by creating new knowledge and spreading novel concepts. There are a number of national laboratories each having their own licensing and technology transfer departments. Keeping up with the invention and discovery of all of these can be a daunting task. National labs are very similar to NASA in that they all have formal licensing departments and continually market their achievements.

Table 2.14. Non-for-profit Organizational Based Sources of Ideas

	Source	Description	Direct way to get ideas	In-direct ways to generate ideas	*References*
Non-Profit Organizational Sources (not competitors)					
1	**NASA**	NASA openly lists inventions that can be licensed and tries activity to seek placements for the promising technologies	Visit website, talk to licensing officer, scanning new technology releases	Scanning new technology releases at there website; scanning SBIR, STTR awards; Open innovation network	*technology.jsc.nasa.gov/*
2	**National Lab**	National laboratory of the US and other country produce many technology related ideas	Visiting respective website, talking to licensing officers at each lab, solicing national labs, scanning new technology releases	scanning published literature, open innovation network	*Limited by design, R&D laboratories in the US national innovation system Crow, Bozeman 2001 , www.lanl.gov, www.anl.gov, www.sandia.gov, www.jlab.org, www.bnl.gov, www.inel.gov,www.inl.gov, www.lbl.gov, www.nrel.gov, www.llnl.gov*
3	**National Org**	These are typically non-for profit national organization of all types.	Same as 1	Same as 2	
4	**University**	University are known for transferring inventions and discoveries to the private sectors, include professors, researcher, & students	Same as 1+idea competitions, + idea awards	Same as 2	
5	**Research Parks**	These are groups of research companies, where the research park promotes their technologies, and ides	Same as 1 + Open Innovation network	Same as 2	
6	**Groups of practices**	This are organization dedicated to aiding a professional group, like the national society of professional engineers and the National lawyers guild	Same as 1 + conferences, meetings, networking, solicitations	scanning published literature, referral, search and find	
6.1	**Professional**		Same as 1 + Conferences, trade shows, meetings, talking to members	conference proceedings,	
6.2	**Consumer**				
6.3	**Economy**	Looks at general region or nations			
6.4	**Religious/race**				
6.5	**Interest/hobbies**	Hobby and interest groups.	Same as 6.1		
7	**Media sources**		Speaking with editors	Searching media	

National organizations are primarily non-for-profit organizations. Every country has a list of national organization most of which are not funded by the country. Examples would include NSF, boy scouts, and so on. The largest problem with organizational sources is there are so many. It is difficult to know which ones

may have valuable ideas relevant to one's business. For example, auto manufacturers want to stay tuned into national or regional auto clubs and race car teams so they can capture new technology ideas which could reduce cost. Direct solicitation or hosting events like idea competitions are ways to extract ideas from national organizations

Universities have been a hot bed of new technology and ideas over the last 20 years and have been growing greatly in their licensing efforts in recent years (2000-2008)**.** The researcher, professors, and students at universities are ripe sources of novel ideas, concepts, and creativity which can be harvested by companies. Open innovation models include universities into their networks. Scanning research papers on a particular subject area will show which universities are highly active in those areas. Those universities can then be directly solicited for ideas, via contacting the faculty, department heads, or licensing technology officers. Similarly, idea competitions can be held to gather ideas from universities. The rules may state who is allowed to compete: professors, researchers, or students, but in the interest of gathering the best possible ideas and open field is best.

Research parks are a rather new development and may be associated with a university. They play a role in incubating technologies, and companies; as well, as aid in transferring technologies to industry. The University of Rhode Island found, that, as of 2004, there were 150 research parks in North America (unauthored, 2004). Again, the methods of gathering ideas are similar to that of universities; however, the licensing and business development officers are much better able to direct solicitors to a relevant business in their research park.

Finally, there are thousands of **groups of practice**, such as the national society of professional engineers and national lawyer's guild. They include international, national, regional, state, and local organizations. Yahoo directories are an excellent means to locate groups of practices, because it is organized by type, category and region; however, it does not hold all organizations. (See HTTP://DIR.YAHOO.COM/BUSINESS_AND_ECONOMY/ORGANIZATIONS/).

Groups of practices and be organized into professional (like the lawyers guild), consumer (like association for consumer research), economy (social venture network), religious/races, special interest, or hobbies (like Nascar or aircraft owners & pilots associations). These groups of practice can be valuable points of ideas. Again because there are so many, it may require more energy to locate and solicit relevant groups of practices. One should also note that groups of practice outside of a company's core business area may hold sources of new ideas. For instance, a boater's conferences may hold valuable ideas for home builders looking for water proofing ideas. Unfortunately, it can be time consuming to join and scan groups of practices to far outside ones core business area.

2.7.4.3. Suppliers as Sources of Ideas

Suppliers are great sources of ideas and they can also help integrate those ideas to one's business. Suppliers were loosely structured to include any organization which supplies a company with anything from work to actual goods, and includes current and possible suppliers, consultants, idea consultants, and research firms. Robert tucker states: "If you ask a supplier if they have any ideas or new technologies they usually provide none, whereas, if you bring a problem or opportunity to them and ask them to help solve it they are delighted and provide many ideas" (Tucker, 2003, p. 2).

Table 2.15. Supplier Sources

	Source	Description	Direct way to get ideas	In-direct ways to generate ideas	*References*
			Supplier Sources		
1	**Current suppliers**	The current suppliers to a company could provide ideas	Solicitation, problem statement, direct contact, part of contract requirements,	Scan for news from suppliers, locate best practice suppliers, Open innovation networks	*Ref 27, 54,*
2	**Possible suppliers**	These are possible supplier which may be activity or in-activity biding for business	Solicitation, direct contact, part of bid requirements,	same as 1	
3	**Consultants**	Consultants of all types may provide ideas.	contracting with consultants, solicitations, direct contact,	solicitation, open innovation networks	*Ref 18*, 30*
4	**Idea consultants**	Using companies like IDEO, design firms,	requirements for contract	solicitation, open innovation networks	*Ref Tom Kelly,*
5	**Research firms**	Marketing, consumer, industry, and economic research firms can be sources of ideas	same as 1	solicitation, open innovation networks	*Ref 59*
6	**Partners / Alliances**	Partners and Alliances which supply resources, knowledge, capabilities	Contractional agreements, + same as 1	solicitation, open innovation networks	

Amazingly, **research firms** were never mentioned as sources of ideas before. Firms like Forester research which identifies trends in the market place have an excellent sense of the opportunities which exist and often state such in their publications. Also they can be contacted directly for ideas. Partners and alliances were put under supplier sources because they supply resources, knowledge, and capabilities to a company.

2.7.4.4. Competition as Sources of Ideas

Competitors could be great sources of ideas, as NPD handbook showed many businesses are fast follower of the best in class competitor. **Best in class competitors** are often cited in popular media as pioneering a new process, releasing new products, and so forth. Ignoring best in class competitors can be a large mistake because they are often rich sources of ideas.

Direct competitors are all the companies in direct competition to ones business, which may include best in class competitors. While, **indirect competitors** are companies which are in a similar business and are servicing customers outside of markets which your business is concerned with. For example, a car dealer in Indianapolis selling Jeeps is in indirect competition with a car dealer selling Jaguars in the same area. Whereas a **friendly competitor** may be a Jeep dealership in Denver Colorado who is willing to share helpful tips and ideas.

Table 2.16. Competitor sources

	Source	Description	Direct way to get ideas	In-direct ways to generate ideas	*References*
			Sources from competitors		
1	**Best in class competitors**	Best in class competitor are often looked toward for sources of new ideas	Direct communications with competitors, competitative intellegence, direct observation	Market research firms, best in class practice reports, GAP analysis of competitors, SWOT analysis of competitors, competitive mapping, porters analysis, market research	*REF 3, 18*
2	**Direct competitors**	Direct competitors to the business	Same as 1	Same as 1	*REF 3, 18*
3	**Indirect competitors**	Competitors in market outside of the companies given competivite area,	Friendly communication, + same as 1	Same as 1	
4	**Friendly competitors**	Friendly competitor that are not in real competition with one's company	Direct solicitaion, Friendly communication, + same as 1	Same as 1	
5	**Substitute sources**	As Porter defines markets that could be substitutes to ones market	Same as 1 + industry trends reports	Same as 1	
6	**New potential entrance sources**	As Porter defines markets that could be threats to enter ones market	Same as 1 + industry trends reports	Same as 1	

Substitutes are, as Michael Porter defines it, products and services which can be substituted for ones which your company is selling. For instance, cereal companies look at substitutes like breakfast bars, fast food restaurants, and others cereal substitutes for changes and new ideas.

Finally, **potential new entrances** are companies treating to enter the industry. For example, the core US airline market close observed the launch of JetBlue and closely examined all of JetBlue new innovative like in seat TV systems.

2.7.4.5. Other Companies as Sources of Ideas

Unfortunately the category of direct competitors and non-for-profit organization, do not account for the millions of for-profit companies which exist that can be used as potential sources of ideas. Most notably, media sources are great sources of ideas.

Media sources include publications like: journals, magazines, patents, article databases, books, articles, and new publication; as well as, media like radio programs, television shows, and movies.

Table 2.17. Sources of Ideas From Other Companies

	Source	Description	Direct way to get ideas	In-direct ways to generate ideas	*References*
	Sources from other companies				
1	**Other companies**	All other companies around the world	All	All	
7	**Media sources**	Books, magazines, articles, patents, newspaper,	Speak with editors,	Searching media	
3	**Inventors**	Indepent inventors	direct solicitation,	scanning new invention disclosure	

Keep in mind the original author is the source of the idea and the publishers, being the media companies, are the means of distribution. If one considers the publishers a group of individuals then they would be a formal

source of ideas, even though they are re-distributors. For instance, a magazine like Harvard business review are great source of ideas for improving management even though the new source of the idea may be Michael Porter.

Media sources may be great sources of ideas which should not be neglected. Formal scanning mechanism for new ideas should include relevant media sources because of their targeted nature and breadth of coverage.

Independent inventors are also valuable sources of ideas however they are difficult to locate, contact, and solicit. Nonetheless, having one or two highly talented inventors which can be called upon for idea can be of great value.

2.7.5. Issues with External Sources of Ideas

Of course there are many issues with obtaining ideas from outsides sources. Some companies believe receiving outside ideas may jeopardize internal development efforts. For example, this researcher contacted Arm-hammer to submit an idea but was sadly informed they will not listen to outside ideas.

There are hundreds of issues in setting up and receiving ideas from external sources. One should consider the benefits and downsides carefully. If possible the downsides should be reduced or eliminated via creative problem solving, because there are greater benefits than risk in sourcing external ideas. Also, one should remember their own company may be afflicted with the not-invented-here syndrome, which may severely limit their ability to innovate.

2.7.6. Which Source of Ideas is the Best?

Given the detailed review of the sources of ideas, one might ask: “which sources of ideas are the best?” The answer is: “it depends.” It would be ludicrous to state one group is the best sources of ideas. There are too many factors affecting the production of ideas from a single source to make any kind of reasonable conclusions across sources. For example, things like: culture, management, leadership, and incentives vary greatly between even similar sources of ideas.

Additionally, the typical sources of high quality ideas in one industry may be different than another industry. So given those variations and the large number of affecting factors, concluding one source is the best source of ideas is absurd.

The question should instead be: “what sources can this company turn into great sources of ideas?” This would suggest things can be done to improve the quality of ideas coming from internal and external sources. The following sections will dive into and explore the feasibility of this suggestion.

2.7.7. Major Issue with Idea Generation (Lack of Control Models)

Unfortunately, even after this detailed review of idea generation and its respective literature; no models were uncovered which could be used to manage the whole idea generation process. This represents a massive gap in the literature. Further, a conceptual understanding of how to manage the idea generation process has not been developed in the literature. This constitutes a severe limitation in the literature which must be rectified.

2.7.8. Summary of Section 2.7

To summarize, a detailed series of tables respectively showing idea generation techniques, idea generation activities, and idea generation processes were created to fill the gap in the literature. Following this discussion, the top idea generation processes were described and critiqued.

The next section described how companies may react differently to outside ideas based on their innovation category and level of concept development. This was followed by a detailed series of tables showing the sources of ideas, which was offered to fill a gap in the literature.

Finally, this section concludes with the question “what can be done to improve the quality of the ideas generated?” This question will be addressed in the Chapter 3.