

Effective Brainstorming in Three Easy Steps

NEW PRODUCT INNOVATION
No. 12 in a Series of Papers

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WHY DO COMPANIES USE BRAINSTORMING?

Successful [New Product Development \(NPD\)](#) demands that firms meet market and [customer](#) needs. [Brainstorming](#) is a methodology that helps provide market guidance to the NPD project because it involves diverse people, gives several points of view,⁽¹⁾ and allows the [NPD Team](#) to get input from a large customer base⁽²⁾. Customer interaction during the [Fuzzy Front End](#) of the innovation process is even more critical, and *more useful*, than in later stages of the [New Product Development Process](#)⁽²⁾.

Considering the *high risk and uncertainty* of breakthrough product development efforts⁽³⁾, companies can streamline their innovation



efforts by focusing on the **compelling value to the customer**⁽⁴⁾.

One way to do so is to bring customer interaction into the [idea generation](#) process by describing their wants and needs through [Market Research](#)⁽²⁾. Occasionally, firms should even include a *customer representative* in their idea generation, or

brainstorming sessions, to ensure benefits of new product innovation are linked to customer demand.

BRAINSTORMING DEFINED

So, what is brainstorming? Webster's⁽⁵⁾ defines brainstorming as:

The unrestrained offering of ideas or suggestions by all members of a conference to seek solutions to problems.

Whereas, the Product Development and Management Association (www.PDMA.org) defines brainstorming as follows.

A group method of creative problem-solving frequently used in product concept generation. There are many modifications in format, each variation with its own name. The basis of all these methods uses a group of people to creatively generate a list of ideas related to a particular topic. As many ideas as possible are listed before any critical evaluation is performed.

And yet another source⁽⁶⁾ offers this definition of brainstorming.

Brainstorming allows teams to pool their knowledge and creativity in an open, non-critical environment. It is an effective technique when a solution to a problem is likely to be found with existing knowledge.

Each of these definitions offers insight to the process of creating ideas, the structure, and the desired outcome of a brainstorming session. **Each** of these definitions complements the others. **Each** of these

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definitions demonstrates that *creative thinking* involves experimentation, hypothesis, speculation, and trial and error ⁽⁶⁾. To narrowly define brainstorming using just a single viewpoint would bury the concept that *diverse perspectives strengthen creative outcomes* ⁽⁷⁾.

In this paper, we will identify **three easy steps** to a successful brainstorming session. These steps will help your company produce better ideas for new products and help to fill your [product pipeline](#) for the next generation, as well.



Note that each of these steps builds upon the other process steps: clear [brainstorming](#) session **objectives** requires effective **teamwork** and **tools**; a team with an open **attitude** toward innovation requires succinct **goals** for the brainstorming session; and selecting the appropriate **tools and props** for the brainstorming session requires an understanding of each team member's

expertise in the **innovation area** of interest. We will first take a look at Step 1, the tools and props needed to have a successful brainstorming session, and then work to the more difficult arenas of selecting team members (Step 2) and the specific objectives (Step 3) for innovation.

STEP 1 - TOOLS AND PROPS

How many meetings have you attended that seemed to have an agenda like this ⁽⁸⁾?

1. *Presentation*
2. *Presentation*
3. *Coffee*
4. *Presentation*
5. *Presentation*
6. *Lunch, etc.*

Meetings are the single biggest time wasters in American business today ⁽⁹⁾. There are *only three situations* in which *brainstorming* meetings should be pursued ⁽⁶⁾ ⁽⁹⁾; every other meeting covers consensus, directives, or other tasking to operate the business day-to-day.

- Current Solutions are **Not Working**.
- Problem is so **Critical** that it Needs an Innovative or New Solution.
- **New Product Development**.

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For any productive meeting, including a brainstorming session, preparation is invaluable. *For every hour* planned in the brainstorming session, the team leader or facilitator should *invest 10-100 hours* in preparation ⁽¹⁰⁾. Prior to the innovation session, the facilitator should solicit the “challenges,” as well as identifying speakers, their roles, ⁽⁸⁾ and the responsibilities for team participants.

Each participant should be *invited individually* (not as a part of a mass-distribution e-mail, for example) where his or her *role and significance* to the innovation effort is enthusiastically communicated ⁽⁹⁾. Whenever possible, allow autonomy in the creative process by “walling it off” from the corporate culture by holding the brainstorming session **away from the normal office work environment** ⁽⁷⁾ ⁽⁹⁾. As a rule of thumb, the meeting room should *accommodate three times the number* of invited participants, or about 80-

100 ft² per person ⁽⁷⁾ ⁽¹⁰⁾.

Tables should be arranged in



a *semi-circle* to eliminate “power positions”

and to eliminate side conversations – the **team should work on only one problem at a time**. Some companies furnish “team rooms” with comfortable chairs and sofas to encourage *flexibility, motivation, and curiosity* in the creative process ⁽⁷⁾.

Additionally, the meeting room should have *plenty of wall space* to accommodate flip charts ⁽⁹⁾, along with a storehouse of *colored markers* and *adhesive tape* so all ideas are recorded and viewable at all times ⁽¹¹⁾. Participants should be provided with note pads to jot down idea “headlines”. A team of approximately eight people can **yield as many as 200 ideas** in just a single day ⁽¹⁰⁾ of brainstorming! In the next section, we will identify the *roles* and *required attitudes* of the *team members* for successful innovation.

STEP 2 - ATTITUDES AND TEAMS

Effective innovation leaders will spend as much time to *acquire the best talent* and to *maintain an environment conducive to innovation* as they do on funding issues ⁽¹²⁾. But is **technical expertise** in the area of interest an automatic bid to the brainstorming team?

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Not necessarily! As many studies have indicated, the ability to **integrate** and **organize** disparate past experiences can enhance the creative solution to a given problem ⁽¹³⁾. Making *new connections between known domains* promotes analogical reasoning and leads to **greater creativity**. Thus, the team should include team members whose *expertise is outside the domain* of the problem to provide a different perspective ⁽¹⁴⁾. In fact, because today's research environments contain such huge volumes of data, some experts recommend *adding an artist* to the technical *brainstorming network* in order to better visualize all of the available data ⁽¹⁵⁾.

This *trans-disciplinary team* will be composed of the following individual roles ⁽¹⁰⁾:

- Decision-Maker,
- Facilitator (or Team Leader), and
- Participants (or "Ideators").

Ideally, the brainstorming session should be *limited to 6-8 people* ⁽⁹⁾, since too few people will limit the creativity of the group and too many people are not manageable in the *dynamic idea generation environment*. Participants should include those experts that have influence within a vertical slice of the organization ⁽⁹⁾. By participating openly in the

evaluation of options, the *participants become vested and supportive* of the final outcome from the brainstorming session ⁽⁸⁾. A.J. Chopra explains, "*The more ownership people feel they have in a plan or decision, the more willing they are and likely to help you move it forward.*"⁽¹⁶⁾

DECISION-MAKER

The **Decision-Maker** is the person with the *greatest immediate personal stake* in successful resolution of the problem – he or she

"owns" the problem.

Contrary to first thought, the



Decision-Maker must be **the most creative person** in the room since the brainstorming process involves both generating ideas ([divergent thinking](#)) and evaluating ideas ([convergent thinking](#)). Ideas are evaluated within the *constraints of time, technology, and resources* ⁽⁹⁾ of which the Decision-Maker is more aware than any other team member. He or she should **always describe the attributes**

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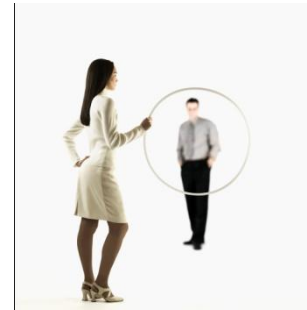
of ideas in positive terms, even if the idea is not selected for further evaluation.

At the conclusion of the brainstorming session, the Decision-Maker should send each individual a *handwritten thank you note*, with a copy to the participant's boss, to further recognize their expertise and knowledge. Further success of the idea will be demonstrated if the Decision-Maker continues to *inform the participants of implementation* of the solution generated by the brainstorming session.

FACILITATOR

Ensuring that the Decision-Maker and all participants stay positive and motivated is the Facilitator – concerned with the process of the meeting, but disinterested in the content ⁽⁹⁾. The Facilitator has spoken at length with the Decision-Maker *prior to the innovation session* to understand the *goals and objectives of the meeting*. He or she has also spoken with each team member *prior to the brainstorming meeting* so each is alert for useful and unique information and will persist in looking for the creative solutions. Ideas are shared in the group setting, but ultimately coalesced in the mind of an individual ⁽¹³⁾.

Other roles filled by the Facilitator include *opening the meeting* with an appropriate introduction to the problem and an “icebreaker” exercise for the team members to open their communications, *build trust* and to *stimulate creative thinking* ⁽⁹⁾. As a peer to the Decision-Maker (or as an outside consultant), the Facilitator should also know how to [manage conflict](#) when it arises. The Facilitator will establish “ground rules” before the meeting and reinforce these throughout the innovation session as necessary ⁽⁶⁾.



1. **Don't** criticize or judge any idea during the brainstorming session, and especially during creative, divergent thinking phases.
2. **Do** combine ideas to create new possibilities and opportunities.
3. **Do** give free rein to your imagination and view the problem from many different directions ⁽⁶⁾.
4. **Do** produce as many ideas as possible, because it's easier to add practicality to a fresh but flawed idea than it is to add freshness to an old, tired idea ⁽¹⁶⁾.

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He or she will *manage the progress of the meeting*, managing the ebb and flow between *divergent and convergent thinking* processes to build and evaluate ideas. The Facilitator is also responsible for ending each brainstorming session by *documenting responsibility for next steps*⁽⁶⁾.



Each idea should be presented in terms of a "headline" for *easy documentation* and the participant should be able to *describe the content and the intent of the idea* in less than a minute. If the ideator is taking longer than a minute

to describe the idea, he or she may have a pre-determined solution and may be "working the problem" instead of *generating new and creative ideas*. Because of the diversity of the team assembled for brainstorming, it is highly recommended to **avoid all jargon**, abbreviations, and buzz words, giving clarity to the documented ideas even years after the session is over⁽⁶⁾.

Most importantly, the ideator's role is to think **creatively and innovatively**.

IDEATORS

Lifting the heavy weight on the brainstorming team are the "ideator" participants because the *core roles of innovation are predominantly visionary*⁽⁴⁾. The image of a lone genius with a flash of brilliance is typical of most cartoons and comic strips, but real-life *creative knowledge* actually results from the group being hyper-alert to new possibilities⁽¹³⁾.

During the divergent phases of brainstorming, each participant should speak in turn and phrase ideas as "**How to**" questions^{(6) (9) (16)}. For example, instead of saying "*That's too expensive*," the ideator can say, "*How do we decrease the cost?*" This subtle difference in questioning demonstrates respect for all the other team members' ideas, and makes the Facilitators' job much easier!

STEP 3 - OBJECTIVE

Perhaps most important in the brainstorming session is to *correctly set the objective* for the session. The Facilitator will interview the Decision-Maker at length about the problem beforehand, as well as help select the diverse team members to *actively and creatively participate* in the session. But, even with a

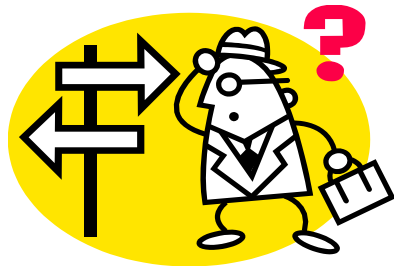
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stellar team and a beautiful conference facility, solutions to the problem will not be generated unless the problem is succinctly communicated. *People need to understand why they are working, not just how they are working*⁽⁴⁾.

As discussed above, brainstorming sessions should be reserved for **solving the really tough problems**, those that “keep you awake at night”. In fact, the most successful innovation sessions are those that present the problems for which there seems to be absolutely **NO** solution⁽⁹⁾.

Stating the problem in terms of the goals and *linkages to the business and innovation strategies* will help the brainstorming team to focus their creative energy as well as easing implementation of the idea later⁽⁶⁾.

Creatively framing the question is the responsibility of the Decision-Maker with the assistance of



the Facilitator. Quantity and quality of ideas emerging from the brainstorming session will be enhanced by *narrowing the scope to a*

search for ideas to a specific area that has been determined to be “**strategically interesting**”⁽¹⁰⁾.

Innovative firms will interact extensively with customers to obtain the necessary input for the NPD projects⁽²⁾ – this is *direct input to the objective of the brainstorming session!* So, choosing the problem with *great care and judgment*⁽¹⁷⁾ will further ensure that innovation is viewed as a *constant force* in the organization, rather than a distinct program⁽³⁾.

Clearly setting the objective of the brainstorming session will accomplish *three important aspects of innovation*⁽¹⁸⁾:

1. Solutions to the problem must be **novel** in the history of the field,
2. Solutions must creatively address the **strategic problem** being approached, and
3. Ideas must be able to be **successfully implemented**.

Peter Drucker has said⁽⁶⁾, *“Innovation is both conceptual and perceptual. Purposeful systematic innovation begins with the analysis of potential opportunities.”*

Thus, firms should enter into the brainstorming activity to *solve intractable*

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problems or to **develop new products** only with clear objectives. Such firms are more likely to build a *balanced portfolio of research projects* and to deliver higher [Return on Investment](#) than their competitors ⁽¹⁹⁾.

CONCLUSION

R&D and business managers need to be patient. *Several solutions* to a problem *may be explored* to get to the best one ⁽¹⁷⁾. In [New Product Development](#), the [brainstorming](#) process, if applied according to these **three easy steps** assures that an effective technology program is market related ⁽¹⁾.

Happy Brainstorming!

QUICK REFERENCE GLOSSARY

Check our [website](#) for a quick and easy list of terms used in New Product Development. Some terms used in this article are shown here.

Brainstorming: A group method of creative problem-solving, frequently used in product concept generation. There are many modifications in format, each variation with its own name. The basis of all these methods uses a group of people to creatively generate a list of ideas related to a particular topic. As many ideas as possible are listed before any critical evaluation is performed.

Conflict Management: Involves acquiring skills related to conflict resolution, self-awareness about conflict modes, communication skills, and establishing norms for managing conflict to increase productivity of the team.

Convergent Thinking: A technique generally performed late in the initial phase of idea generation to help funnel the high volume of ideas created through divergent thinking into a small group or single idea on which more effort and analysis will be focused.

Customer: One who purchases or uses your firm's products or services.

Divergent Thinking: Technique performed early in the initial phase of idea generation that expands thinking processes to generate, record and recall a high volume of new or interesting ideas.

Fuzzy Front End: The messy "getting started" period of product development, when the product concept is still very fuzzy. Preceding the more formal product development process, it generally consists of three tasks: strategic planning, concept generation, and, especially, pre-technical evaluation. These activities are often chaotic, unpredictable, and unstructured. In comparison, the subsequent new product development process is typically structured, predictable, and formal, with prescribed sets of activities, questions to be answered, and decisions to be made.

Idea Generation (Ideation): All of those activities and processes that lead to creating broad sets of solutions to consumer problems. These techniques may be used in the early stages of product

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development to generate initial product concepts, in the intermediate stages for overcoming implementation issues, in the later stages for planning launch and in the post-mortem stage to better understand success and failure in the marketplace.

Market Research: Information about the firm's customers, competitors, or markets. Information may be from secondary sources (already published and publicly available) or primary sources (from customers themselves). Market research may be qualitative in nature, or quantitative.

New Product Development (NPD): The overall process of Strategy, Organization, Concept Generation, Product and Marketing Plan creating and evaluation, and Commercialization of a New Product.

New Product Development Process (NPD Process): A disciplined and defined set of tasks and steps that describe the normal means by which a company repetitively converts embryonic ideas into salable products or services.

Product Pipeline: The scheduled stream of products in development for release to the market.

Return on Investment: A standard measure of project profitability, this is the discounted profits over the life of the project expressed as a percentage of initial investment.

Team (Teamwork): A group of persons who participate in the new product development project. Frequently each team member represents a function, department, or specialty. Together they

represent the full set of capabilities needed to effectively and efficiently complete the project.

Team Leader: The person leading the new product team. Responsible for ensuring that milestones and deliverables are achieved, but may not have any direct authority over project participants.

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ABOUT THE AUTHOR



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Prior to founding Global NP Solutions, Dr. Jurgens-Kowal acquired over 12 years of experience in leadership and management positions with ExxonMobil Chemical Company and a total of 16 years as a practicing Chemical Engineer. Her corporate career encompassed various functions, including New Product Development, Portfolio Management, Licensing, Marketing, Logistics and Supply Chain, Manufacturing, Project Management and Research Technology.

Teresa has extensive experience leading successful teams, managing the product development life cycle, and defining the portfolio strategy. Her deep expertise in intellectual property management, product and process licensing, portfolio planning, customer service and various business processes make her an *ideal teacher* and *trusted advisor* who knows both the theory and practices of New Product Development.

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Teresa holds chemical process and catalyst patents, and is published in the *Journal of the American Chemical Society* and *Journal of Physical Chemistry*. She is a frequent book review contributor to the *Journal of Product Innovation Management*.

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