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A DEEP DIVE INTO CREATIVE THINKING: THE NOW-WOW-HOW FRAMEWORK

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ABSTRACT
Innovation strategies are becoming even more vital for manufacturers that wish to turn their business into a service based one. Integration of product and service aspects in early design stages insists on approaches where all competences are used for to provide the foundation for new solutions. Often such creative work is expected to randomly come from ordinary work tasks or from passionate geniuses. Few companies apply an intentional and coherent process for bringing together mixed teams to create ideas for radically new product and services.
Besides describing the background for the development of a radical innovation workshop format, this article presents a three-step framework for a collaborative process in which the participants' diverse competences and skills are seen as the source of creativity. The framework, called now-wow-how, allows a workshop to be planned, designed and conducted in order to analyze an existing situation (now), a preferred alternative future (wow) and elaborate on how these two can be bridged (how). The paper provides examples of creative methods that can be used to conduct each stage, and also a guide for how to facilitate a creative workshop.

Keywords: creativity, design practice, early design phases, innovation, teamwork

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1 BUSINESS AS USUAL TURNS INTO INNOVATION STRATEGIES

The inclusion of the design and development of totally new solutions based on product-service innovations is foreseen to become a new paradigm for manufacturing industry (Alonso-Rasgado, Thompson and Elfström, 2004). Manufacturing firms tend to apply Schumpeter's description of innovation, which originates from 1934 (Edeholt, 2004), as a guiding standard. That is, from the traditional manufacturer's perspective, innovation is a new product, i.e., a physical and manufactured thing, that has reached a market. By executing business as usual guidance, there is a risk that innovation activities mainly address improvements of the existing engineered goods, e.g. faster and cheaper production with higher quality. Basically, trade offs of radical ideas are consistently done in favor of those that have proven revenues, and the strategy establishes the mindset that radical innovation is too risky and too expensive. Engineers hence spend very limited efforts on finding radically new product combinations, new markets and new customers. The importance of getting engineers involved in early and creative stages of innovation has been stressed since a long time ago (Faste, 1987; Patnaik & Becker, 1999). But, this movement towards engineers' involvement shows a very slow progress and it is plausible to argue that, not only the manufacturers' firmly established view on products, but also the lack of radical innovation processes are barriers for taking necessary actions.

Radical innovation is not straightforwardly managed in comparison with laying down the plans for a predefined product. Radical innovation starts from a position where the solution is yet to be, thus it is not doable to use a breakdown approach. It is suggested that the starting position is always an outside perspective, i.e., what the company can do for its customers (Grönroos, 2000). Yet, expressing requirements on a solution that not yet exists is as hard for customers as it is for engineers. The wide perceptions on what is actually done in an innovation process contributes also to the fuzziness. A study found at least 15 different constructs that derived from the word innovation and at least 51 different related variants (Garcia and Calantone, 2002). Consequently, the kinds of innovation activities any firm conduct will also represent different types, so best practices are hard to implement and follow. Addressing radical innovation concerns not only the solutions, but also major transformative changes for the whole company (Tidd, Bessant and Pavitt, 1999). The management of radical innovation is identified as the development of change (Drucker, 1985), as an exploration of what could be (Jacoby and Rodriquez, 2007), and as a curious stance among engineers that makes them interact and learn from customers (Brown and Katz, 2009).

A radical innovation process is theoretically easy to describe and creative methods are abundantly proposed, while they seldom fit into the established mindset of product developers. It is, for example, utterly important to preserve ambiguity to achieve breakthrough products, whilst the established approach for product development focuses on decreasing all uncertainty as soon as possible. The flux of events in diverging/explorative activities is usually kept to a minimum and applying more than one creative method to generate ideas is a high threshold to pass. As is, companies apply creative methods in isolation from a process, or implement a creative workshop process that might be perceived by engineers as too naïve. The radical innovation activities are thereby not supported and can thus be seen as a waste of time. One way to manage this is to set a number of established creative methods into a framework, i.e. an innovation process, which communicates progress of the ideas.

This paper provides such an example by a presenting the development of the now-wow-how framework for radical innovation activities. Examples of how the established creative methods are used in each step in the framework are also outlined. The framework is the base for a commercialized and radical innovation approach, called FUNC^3, which stands for Fun, Unique, Novel, Collaborative, Creative and Crazy (FUN + C to the power of 3). The framework has emerged from almost fifteen years of research on team-based innovation in manufacturing firms and in engineering education. A key trigger for the development of the creative process is the industrial partners' interest to increase their radical innovation capabilities to enable the transition into a more service based business model.

2 FROM LONE GENIUSES TO THINKING TOGETHER

In our research we have found that ideas for innovations, in many cases, come from "lone geniuses" with a specific passion, typically they evolve as spin-offs from ordinary work tasks. A characteristic is that these ideas, which come from passionate people, are lacking appropriate resources for realization. Often the progress of the idea is conducted in parallel with the ordinary assignments. Such parallel creative work is typically mentioned as "skunk works", which then become a negative phenomenon,

i.e., unsanctioned innovation projects that run undercover of other work tasks. The intention of skunk works was originally the opposite, to provide a team authority and resources to solve specific and complex problems (Lockheed Martin, 2011). In a similar vein, the Tiger Team approach (Reddy, Wood and Cleetus, 1991) stresses the importance of small groups collaborating to solve complex problems. The Tiger Team approach adds the necessity of a multidisciplinary team that possesses a diverse set of competences and expertise, but also highlights the importance of the work environment. The divergent competences are seen as a prerequisite for coming up with new ideas, new combinations, new solutions and new products, though it is often also the cause for inefficiency. Teamwork could easily end up in a team war instead, where conflicting views are expressed in a collective monologue (Paulus and Brown, 2003), which is taking away all creativity and innovation activities. Examples of pitfalls of teamwork are; struggle for power, slackness, inefficiency, fear and delusion (Paulus and Brown, 2003). Holding on to one's own solutions, unwillingness to accept other's solutions, conflicting priorities and/or goals have in a recent study been identified as the most critical factors in creative knowledge work (Björklund, 2010). A shared vision therefore becomes vital when the team should manage an innovation process. Before the engineers *"…can solve a design problem they need to understand some basics – such as what they are designing, what it should do and who should use it and in what circumstances."* (Randall, Harper and Rouncefield, 2007:2). That is, to collaborate the team needs to jointly settle the design vision, and this is a highly social and communicative activity of thinking aloud together (see Figure 1).

Figure 1. Thinking aloud and together

It has been recognized that what is perceived as working in a team does not necessarily mean "true collaboration" and that the team "think together" (Törlind, 2002; Larsson, 2005). A "thinking together" strategy proposes facilitation of a creative dialogue for multifunctional team in order to build a platform for radical innovation work. The value of teamwork, like social bonding and knowledge sharing, could be realized if a supportive approach is implemented intentionally rather than by default (Paulus and Brown, 2003). Basically, the idea of thinking together along with Needfinding (Faste, 1987; Patnaik and Becker, 1999) and design thinking (Kelley, 2001; Brown and Katz, 2009) has been the theoretical base for the development of the innovation process.

3 RESEARCH GOES INTO PRACTICE

Our research leading to the development of the now-wow-how framework started roughly fourteen years ago when a product development process for global student projects was needed. Students from ME310 course, Team Based Design with Corporate Partners, at Stanford University, USA, were going to collaborate with students from Creative Product Development, a final-year course in Mechanical Engineering at Luleå University of Technology, Sweden. Both of these courses had branded a user-oriented approach and were conducted in cooperation with real companies as clients. The Swedish students did not have experiences in the Needfinding methodology. Needfinding (Faste, 1987; Patnaik and Becker, 1999) originates from Stanford University, and is, in short, early design activities of observing people. In addition to Needfinding, a framework called Participative Product Innovation (P^2I) was developed to guide the course at the Swedish side. P^2I was successfully used for the purpose to let students run and manage the projects themselves in cooperation with the affiliated companies.

P^2I guides the design process to focus on identification of user needs and the utilization of a user perspective, thus describing a user driven approach. But, as we discovered over time, it does not necessarily support a radical innovation process. So, the need for something that would trigger more creative and innovative work was recognized. Studies - interviews, shadowing and observations - were performed to find out how the creative work in product development was conducted, in both distributed (e.g., Törlind 2002) and co-located (e.g., Larsson 2005; Bergström 2009) settings.
Over time a meeting format called Radical Innovation Workshop (RIW) evolved, including several creative methods for different situations. The main part of the included methods was initially inspired from existing solutions, as for instance Roger von Oech's Creative Whack Pack (1992), but some of the methods have been adapted to fit a user-driven approach. In the beginning of the year 2000, RIW was tested, evaluated and improved based on the workshops given in industry and in student projects. RIW was initially conducted in industry for the purpose to gather research data about the creative work itself, by being present and observe the work. But, fairly soon most RIW were conducted on request from companies. Between 2007-2012, eighteen workshops have been conducted. In average, each workshop has had 9 participants from manufacturing industry and lasted typically one or two days. Preparation for each workshop has been done in a dialogue with representatives from the requesting company; in these dialogues data about the challenges for radical innovation work has been gathered. Eight of the workshops focused on improving and implementing RIW.

4 THE PROGRESS OF THE NOW-WOW-HOW STRUCTURE

In 2010, one manufacturing company decided to implement a radical innovation strategy, and they asked us to educate their innovation coaches in the facilitation of the innovation process. Innovation coaches are selected key persons from the company that are assigned responsibilities for implementing the new innovation strategy. We had until now conducted the RIW based on our experiences and over time learnt how to facilitate the workshop. A large part of our experiences came from being involved in the research area of team-based innovation, in the development of the RIW format and in the improvement of the included methods. When we were asked to package and hand over our experiences to the company, we realized that we had run RIW in a particular way, namely as a diverging and converging process. However, we had not made the structure of the creative process visible.
Nevertheless, 25 international innovation coaches at the company were educated in the innovation process. From 2010 and still today the innovation process is being implemented in various environments, thus not only in manufacturing industry. For example, recently a workshop was held in a software development company and in a company that provide commercialized human spaceflights. Further, the process is used in joint student/company projects. During 2012-1013 it was used in the PIEp projects *Innovation pilots* and used in workshops in more than 20 different companies. Also an e-book with multimedia has been developed to improve the dissemination and training.

4.1 The now-wow-how layout

We realised that what was supported in the RIW format was the diverging flows of creative, thinking outside the box activities, and the converging activities of selecting ideas or topics for the next steps. This recognition led to the efforts to visualise the overall structure for the workshop format.
In hindsight we think that the diverging and converging flow in the now-wow-how practice was inspired by established product development models (e.g. Ulrich and Eppinger, 2008; Cooper, 2001), since that is both part of our background and what we could observe that was used in the companies. Yet, a Future Workshop model (Kensing and Madsen, 1991) was used as a base for the appearance of the model. A Future Workshop consists of the stages critique, fantasy and implementation, though these activities did not fit directly into our area of application. We found that the stage critique could be too negative and could spoil the permissive atmosphere that we were intending to facilitate. We also found that the stage fantasy was out of question in an engineering context. We were told that an engineer is a problem solver and does not spend time on fantasies. Instead the stages now-wow-how were used and the novel transition points were added in-between the stages. This makes the now-wow-how framework unique in comparison with a Future Workshop, and also provides some similarities with established product development processes. The latter has been important to communicate the framework to industry representatives.

Now is symbolized with an up side down question mark, wow is symbolized with an exclamation mark, and how is symbolized with a question mark, see Figure 2.

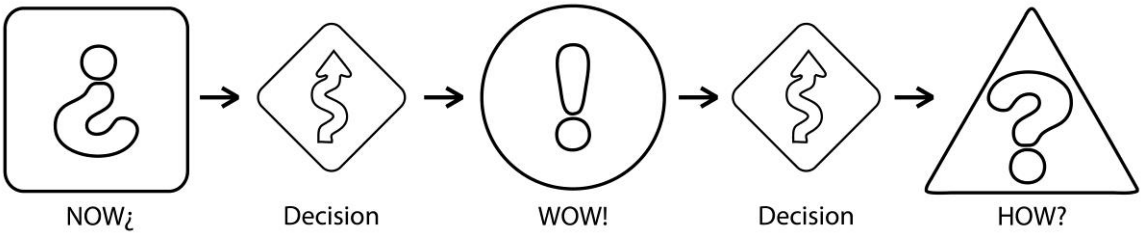

Figure 2. The now-wow-how structure

4.2 The now stage

Starting from the right, in the first stage, *now*, the current problematical situation is investigated by the participants. The focus in the now stage is to describe an as-is state, and the starting point for building a shared design vision. This stage is a vital input for the innovation process. One method that fits into this part is, for example, word association, in which the participants associate terms and concepts to the chosen topic. Word association is a mind-map method that helps the workshop participants to explore what they relate to the topic at hand, and thus also explore the outmost boundaries of the topic. We have found that people in many cases assumes that they mean the same when they use an expression. For example, the requirement "reliability" was an extremely important topic in one workshop, but as facilitators we realized that the team had different interpretations that the participants were not aware of. The participants were asked to conduct word association and they realized that "reliability" related to the finished product, the quality of the production process and to the result that the product itself produced. A word association clarifies the essence of the words that are used, and subsequently to the understanding of the topic. The word association method starts with writing a topic in the middle of a whiteboard. The participants write down word they relate to the topic on sticky notes and speak out aloud when they post them on the whiteboard. If necessary they can explain how they think, but not in long talks. Discussions about definitions of words are forbidden and the participants should listen to the explanations provided by the other participants. The word association looks like a mind map when the time is up or the posting of words have petered out. Also, storytelling is a method that can help participants to investigate the as-is situation. We apply storytelling as an individual, and personal, exercise. The task to create the story is sometimes sent out beforehand as homework to prepare for the intensive workshop, and sometimes time is allocated in the beginning of the workshop. Though, it is recommended that the participants in the latter case are made aware of the topic for the storytelling exercise before the workshop, so that they are "mentally" prepared when coming to the workshop. The client, i.e. the person or organisation that has requested the workshop, settles a theme for the workshop and this theme provide the constraints for the storytelling exercise. The constraints are needed for the participants to be able to reflect on a topic, however the topics are still kept open-ended. Guiding questions for storytelling could, for instance be; describe your view of ecological sustainability, tell us the story when the product failed or describe a typical customer of your products.

4.3 The wow stage

The next stage *wow*, in the middle in Figure 2, has the purpose to envision a preferred future situation, and is in its nature the stage where the most diverging and thinking outside the box activities take place. The participants are encouraged to really explore and expand the solution space beyond what is doable in a short-term. When working in the wow-stage it is important to support the participants to generate ideas and emphasise that there is nothing that should delimit their thinking. Basically, nothing needs to be solved at this stage and everything is possible. Paradoxically, thinking outside the box will be supported by making up constraints or, metaphorically speaking set the boundaries for the box that participants should think outside. So, the creative work benefit from constraints, but these constraints should challenge the problem definition and not the activities. As Brown and Katz (2009) suggest the topic could be based on what-if-expressions, e.g. *"what if our company are 100% ecologically sustainable? What would happen then?"*. Setting the ratio of ecological sustainability to 100 %, which is understandable but too high to be practicable, triggers creative thinking in the team. Another

method that has been successfully used to think outside the box is "next years headlines", that is the participants are free to imagine what a newspaper would write about the company and the topic in the future. This method is often found as playful and some participants experience it, at first, as not serious work. Generating a lot of crazy ideas that cannot be turned into products challenges the nature of the problem-solving engineer. Thinking outside the box activities, which cut across the normal (business-as-usual) way of thinking, is at the heart of creativity (de Bono, 1985). The method "next years headlines" spur creativity when the participants are asked to propose wild ideas that they do not have to take the responsibility for implementing. However, the wild ideas often implant a seed that can grow into innovations. A participant in one of the workshops expressed his experiences of crazy ideas in a follow-up interview as: *"you created an atmosphere in the workshop where it was allowed to come up with ideas that are impossible to realize. This is not really accepted at my normal working place. What I now see is that these crazy ideas often contribute to interesting solutions later on".*

4.4 The how stage

In the last stage *how*, at right in Figure 2, the participants should go deeper into the ideas and start to elaborate on possible solutions. Still, the efforts should generate interesting new ideas in relation to the topic that has been decided on. So, the outcome from the last stage does not need to be possible to realize because the concepts can be refined and improved in a new iteration supported by the now-wow-how framework or in another way. A method used for idea generation is brainstorming. The classical brainstorming techniques were developed in the 1960's. Osborn (1963) is one of the pioneers whose classical brainstorming has branched out in many different variants. Brainstorming is an easily performed method, but oftentimes it is not applied as a creative session. In many cases brainstorming, as conducted in typical meetings, is more or less an invitation for to someone else than the meeting chairman to speak up. *"Let us sit down and brainstorm"* is in such a case more an expression than an efficient method for creative and collaborative work. This type of brainstorming, or rather dialogue, can be recognised by two main characteristics, namely the person that is leading the meeting takes the notes and the keywords that s/he put together has the appearance of a bulleted list. The basic logic for performing a creative brainstorming session is to extend your view and explore alternatives that are not obvious from start. If facing a bulleted list with immediately realistic ideas it could be assumed that the participants have jumped directly into solutions, probably such that they could have found anyhow. Brainstorming as recommended in now-wow-how framework is far from this. There are totally other rules for a creative brainstorming session, than for sitting down and just talk. But, since the scenario described above is more common than rare there is a need to emphasise how the method should be used.

Brainstorming should create ideas, and what is seen as an idea is a word, a short sentence or an image that comes up in a participants mind. Accordingly, there are no good and bad ideas only ideas. The ideas should be generated and presented under a limited timeframe, no one are allowed to judge the quality of the ideas and the participants should make an effort to find as many ideas as possible (Kelley, 2001). There is a set of rules formulated for an effective and creative brainstorming session, which also distinguish brainstorming from ordinary meeting behaviour (Kelley, 2001):

- Suspend judgement
- Build on the ideas of others
- Be visual
- Go for quantity
- Encourage wild ideas

When the participants goes with the creative flow and builds on each other's ideas, brainstorming is seemingly chaotic and quick. Basically, sticky notes and/or a whiteboard to write and sketch down ideas are the only required equipment. Using sketching, and not only words, clearly improves group communication, idea development and expression (Tang, 1991). We use the above mentioned rules for, what we call, *active* brainstorming, but has added the rule that brainstorming should be performed on the feet, standing in front of a whiteboard or a wall where sticky notes can be posted. We encourage each participant to write or sketch any idea that comes into his or her mind. Further, the participants are asked to speak out aloud when posting the ideas, this makes the room noisy but it also makes it possible to be inspired from other people's ideas. When participants have practiced this procedure they just say their idea and does not talk directly to the other participants, since they have experienced that turn taking does not exist and that people can post the same ideas. As recommended, any judgement or

discussion during the brainstorming is powerfully "punished" by using, for example a sound signal (Kelley, 2001). The participants need to be reminded that they should just "go for it" and that every idea is an idea. Often people try to think up a good idea, but standing and waiting for the one winning idea does not provide lots of ideas. Moreover, as soon as someone has written/sketched something on a note they should immediately post it on the wall or whiteboard. The participants are not allowed to pile up the notes/ideas and post them in a row. This is actually more of a brainwriting method (e.g. Rohrbach, 1969), and this behaviour makes it hard for the other participants in the brainstorming session to build on those ideas. Active brainstorming is a physically and mentally exhausting exercise, so it is recommended to assign a certain time limit for the idea generation part, for example 5-10 minutes. But, the situation can also be that the participants cannot come up with ideas, i.e. everyone are thinking and not posting. If so, stop the session and chose a new topic. The matter of allocating time for creative work is discussed in literature. Some argue that a tight time schedule will not make people come up with their best ideas, rather *"when creativity is under the gun, it usually ends up getting killed"* (Amabile, Hadley and Kramer 2002, p. 52). We have found that some of the idea generation activities benefit from having fairly tight time limits, i.e., the directed activities when the participants conduct a certain method. The tight time make participants focus on a wider picture of the topic and they are prevented to dig into details. Also, the occurrence of information overload in diverse teams has been found as one cause that kills a team's creativity (Sethi, Smith and Park 2002).
The "landscape" of ideas that are displayed on the whiteboard after the idea generation session is part of the result from the brainstorming. This landscape of ideas acts as a record of the session and supports re-interpretive thinking and easy access to earlier ideas (van der Lugt, 2005).

Figure 3. A landscape of ideas and the making of categories

After the settled time limit of generating ideas in the brainstorming session, the landscape of ideas should be clustered into categories. All participants should jointly do this effort; the activity of clustering is an opportunity to explore the ideas further. As a consequence of the categorization a new landscape of ideas evolve. It might be good to document and keep track of the different landscapes of ideas, for example by taking photos. We have in our workshops found that the processes of taking part in the creative work is vital and the process cannot readily be understood of non-participants, hence we keep documentation to a minimum. We have developed a number of templates on A3 sheets of paper on which important thoughts that evolve in the workshop can be saved, for example, the concepts that are developed in the how stage should be documented on a concept template (see Figure 4).
The activities in the how stage should aim to make ideas and concept tangible and visible, but a common comment from engineers is that the concept is in their view not a *concept*. In their view, a concept consists of a more detailed plan for how to develop a product. However, the aim for the now-wow-how framework is not to end up in such a concept, but rather a better formulated idea that can feed input to an ordinary product development process.
Within the innovation discipline there are spokesmen that put rather harsh critique on this kind of generation of lots of ideas, and they stress that the practical matter of implementation is neglected. For example Levitt (2002), state that *"All in all, ideation is relatively abundant. It is its implementation that is more scarce."* (p. 138). In our view, this is not the case in manufacturing industry. The realization of ideas, i.e. problem solving, is part of the engineering perspective, while the creative work, such as defining the customer's problem, gains limited attention. In fact, as we have argued in

the introduction of this paper, that this matter is found particularly troublesome when changing the business point of view towards engineering services.

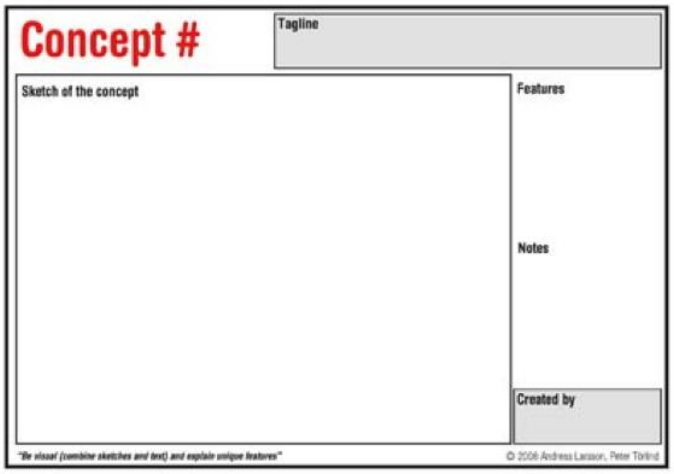

Figure 4. A concept template

Basically, the now-wow-how framework has similarities in its appearance with a stage-gated process (Cooper 2001). The stages now, wow and how are visualised with two in-between "gates", see "decision" in Figure 2. These gates provide the opportunity for the participants to reflect and to decide on the subsequent focus in the next stage. A number of methods to support the decisions and to prevent agreeing on the first topic at hand are developed. The stages in the now-wow-how framework can, if needed, be iterated several times to gain deeper insights of the topic or on related topics. The now-wow-how framework includes three suggested methods for each stage and four methods for supporting decisions.

5 FACILITATION OF A CREATIVE WORKSHOP

We have in this paper done a deep dive to explore how a framework for a more radical innovation process has emerged in academia and has been packaged and implemented in industry. The intention was to describe the steps and the methods so that anyone can practice it in their own environment. The now-how-wow framework has emerged from almost fifteen years of research on team-base innovation in manufacturing industry and in engineering education. The framework has over the years been presented in different shapes and consisted of different parts. The now-wow-how framework will continue to change and will be redesigned, but the core rationale to focus on process and activities instead of outcome will remain the same. If so, the potential for the framework to support product development, service development or any combination thereof will be higher. The idea of *"playing the game"* (Kelley, 2001) to create a sound basis for radical product-service innovations seems beneficial.
We have, as the paper shows, packaged established methods into a new framework, and we have accounted for how to execute the creative workshop. Despite the good intentions to hand over the total package, we have found that the facilitation of the creative workshop is hard to transfer. A core issue is that the facilitation depends on you as a person, as much as it depends on the workshop's topic and its participants. Facilitation, thus, brings with it all the uncomforting uncertainty that is part and parcel of a learning process. Yet, we have, based on our own experiences, developed seven recommendations for facilitating a creative workshop. These are:

1. *Expert of the process* – the facilitator's key concern is to support progress, dialogues and reflections on methods, not to be an expert of the topic.
2. *Design of the process* – is a responsibility of the facilitator. Get an overview of the knowledge domains of your participants. Are there any missing competences? Should you invite guest participants? Make sure the goal of the creative workshop is clear and devise your agenda to achieve these expectations. Two persons being facilitators are recommended for longer workshops.
3. *Be prepared* – always prepare a backup plan for the unexpected. What if the participants run dry on ideas? How to deal with dominating people? How to deal with quiet and shy people? What if

old conflicts come up to the surface? Look for approaches that could support also a worst case, for example suggest methods based on group work or individual work, open or closed approach.

4. *Involve everyone* – who is talking and who is not? Ask question to those who are quiet, and interrupt those who are dominating, for example by commenting; *"what you are saying is interesting and let us hear what John has to say about that".* Make sure that no one is mocking laughter of another's idea; use a signal to make them aware that this behaviour is not allowed.
5. *Challenge and support* – the facilitator should support engagement, commitment and interaction among the participants. A facilitator has the privilege to direct the process in the most promising direction by changing the "rules of the game". Pose challenging questions if the participants are reluctant to step outside their comfort zone, for example by challenge their problem solving skills; *What if you cannot use this material?* Asking why five times is a common method to challenge rigid thinking.
6. *Surprise the participants* – a creative workshop is not an ordinary meeting, create a fun, inspiring and permissive atmosphere. Prepare some crazy methods for the longer workshops. We have designed a method called engineering charades that evokes lots of laughter, but any other existing teambuilding games can be used. In our workshops, power point presentations are forbidden so the participants (and the facilitator) have to tell stories, do quick presentations, sketches etcetera instead.
7. *Improve your facilitation* – always reflect on your performance, if you are two facilitators debrief and provide feedback to each other. Always ask your participants for feedback, on everything that concerns the workshop. We apply an *"I like…/I wish…"* feedback method (pioneered at Standford University, CA, USA on which we have gained knowledge about by being there), each participant should write down what they liked (i.e. what was good) and what they wish (i.e. what can be improved). Good facilitation is the interplay between training and reflection.

As a final remark, we would like to stress that creative workshops and the now-wow-how framework are complements to traditional product development. The intention is not to replace product development, rather support the input to such a process. Also, all industrial situations cannot be solved with a radical innovation approach. Though, it can be argued that innovation management often focus more on risks than on investigating promising ideas, giving them at least a short and quick try is often worth while.

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