# Onwards to Innovation - Patterns for understanding innovation opportunities

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This paper discusses nine patterns for creative thinking and innovation. The patterns presented are about getting orientation in which field one wants to innovate as well as getting a deep understanding of this field. The patterns are part of a larger pattern language and define the starting point of many innovation processes. They provide guidance on understanding personal, team and organizational needs, setting and achieving goals, and several research techniques to get a deep understanding. These activities are needed to enter the ideation phase and should be followed before one starts with implementing and testing new ideas.

## 1. INTRODUCTION

In the past years I have written several patterns on creative thinking and patterns in innovation processes. Most of them focused on how to get ideas, judging the ideas and even implement them. The whole process can be supported by basic methods (such as mind maps or brainstorming), basic tools (such as sticky notes, thought triggers or templates) and basic habits (such as incubation, visual thinking and having fun). In this paper we will find some patterns that are often necessary before the innovation process starts at all. Before we try to find an innovation we need to have a clear understanding of what we want to achieve at all. That is why we need patterns for orientation. Once this orientations is gained, there is a need to deeply understand the problem domain to avoid superficial solutions that fall apart when are tested or used in the field.

This paper adds to a body of patterns on creative thinking from the same author published on past *PLoPs, including:

- Patterns for Creative Thinking  (PLoP 2012)
- Dream teams and the right place (EuroPLoP 2014)
- Patterns for Creative Thinking - Idea Generation  (EuroPLoP 2015)
- The Magic 5 of Innovation (PLoP 2015)
- 5 Habits, 5 Methods (VikingPLoP 2016)

ORIENTATION and DEEP UNDERSTANDING are the foundation for a successful innovation process. They are a starting point and need to be applied during the whole innovation process. The orientation can change over time, especially when new ideas pop up. When new paths and solutions are explored, a DEEP UNDERSTANDING of new fields or sub domains is needed.  Without an orientation and deep understanding, innovation takes place in the wrong areas. Or rather, no innovation takes place at all. You may generate new ideas. But an idea that does not matter or does not work is hardly innovative.

ORIENTATION FIRST is about doing the right things – things that matter to you. DEEP UNDERSTANDING is about doing them right. Doing them in a way that takes into account as much knowledge and data as you can get. The more you know, the better you can ideate and evaluate.

For this you can use patterns for systematic IDEATION to generate new ideas. Not every idea will be a winner. Basically, most new ideas are a COMBINATION of existing concepts, MODIFICATIONS of an existing concept, or REFRAMINGS of existing concepts (i.e. putting things into new uses). To let go of existing concepts and mind sets, we often need a kick into a new direction – that is a RANDOM IMPULSE. To find new forms, it can be helpful to let go of the old forms by focusing on their function. PROGRESSIVE ABSTRACTION does this over several levels (e.g. what is the function of a car, what is the function of traveling etc.).

These IDEATION methods will produce a lot of new ideas. But not every idea is great. And you can't implement all ideas anyway. So you need to select and prioritize them, some JUDGING is needed! Very often, an eloquent judgement requires deep understanding, and you may need to do additional OBSERVATION, ASKING, PARTICIPATING, and RESEARCH.

Identifying which ideas fall into the same category makes it easier to get an overview and select the right ones. By CLUSTERING the ideas, one can identify idea categories. When ideas compete, a group can do some VOTING on the ideas and derive PRIORITIES. It is also important to evaluate the value of an idea with different eyes – that's why you need a JURY: positive thinkers, skeptics, realists, makers etc.

Once you have found the most promising idea(s), you should not forget to make a final REALITY CHECK. Can you really do this? Do you want to do this?

The trouble is that most ideas never become a product that gets shipped. Whether it is the new killer app, a research paper, a new business, or personal fitness plan. Finding ideas is easy. Finding really good ideas is hard. Identifying the best ideas is a rare skill. Implementing these ideas is mastery.

IMAGINE THE FUTURE helps you to emotionally engage with your ideas. You have to develop a clear vision of how the world will look like once the ideas are implemented. What does it mean to you? It is about visualizing the outcomes. And then, JUST DO IT! THE JURY and REALITY CHECK give you the confidence that you are working on the right thing. When you IMAGINE THE FUTURE you feel excited. All you need to do is take the first step now! Innovators who seek for support in implementing their ideas and manage the change process should use the proven solutions from the Fearless Change patterns (Manns & Rising, 2015). They provide very good guidance to make ideas happen.

## The Magic 5 of Innovation: Process, techniques, tools, habits, environments
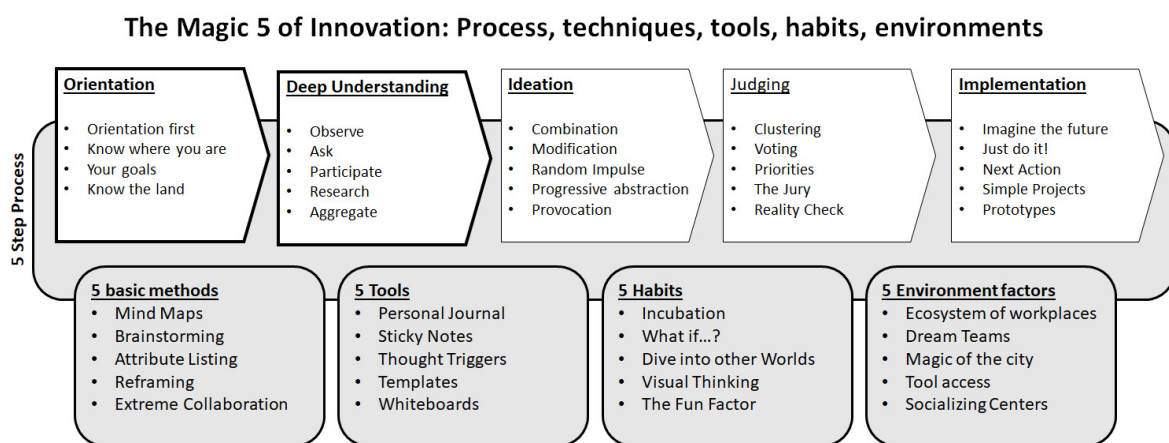


Fig. 1. Overview of patterns for creative thinking and innovation

## 2. ORIENTATION FIRST

### 2.1 Context

Are you ready? Ready for the next big thing? Or just a small innovation that makes life easier for so many people? Or improves the everyday work in your organization? So you are up for some innovation! But there are so many different areas where wicked and complex problems call for new and working solutions. And you can only handle so much.

### 2.2 Problem

When you don't focus on specific areas you can easily lose track and get lost in all the options for innovation.

### 2.3 Forces

Yes, you want to be the innovative person or team. But in which area do you want to make this big innovation happen? Considering all options is fine but it can consume all your time to actually start and JUST DO IT. Innovation can take place on so many levels and areas: product innovation, service innovation, business model innovation. Do you know which level you want to tackle? The process of innovation is fun but demanding. It will take a lot of energy. It is important that you are really into it. You need to have the commitment. You need to know where you are, where to start and where to go.

### 2.4 Solution

Therefore, take some time for orientation. Orientation is needed to run into the right direction.

Orientation doesn't mean that you know right away where to go and how to get there. If things were that easy there would be no need for innovation. Orientation is about to KNOW WHERE YOU ARE, setting YOUR GOALS and KNOWING THE LAND.

*First, consider YOUR GOALS.* There are many potential goals: saving money, making a product better, improving the quality. But these are only goals about improving a product or service. You also have your personal goals such as earning money, become famous, get more experience, have fun or just learn something new. Without knowing your goals as well as the goals of your social environment, your organization and your team it is impossible to find the direction in which you want to proceed. One way to spot interesting topics is to browse through magazine or trend cards (such as MethodKit).

*Then, understand the direction you will follow.* For this you have to KNOW WHERE YOU ARE. Direction is not only determined by the target. The starting point is as important. As on a map, if you want to go to a center and you start in the North, then you have to go South. But if you start in the South, you have to go North to reach the center. Likewise, an orientation has to take both points into account.

*Finally, KNOWING THE LAND enables you to successfully move forward along your chosen direction.* After making a conscious choice you can better focus and manage your resources. But usually you can't go straight ahead. There are obstacles to overcome, tricks to play. To find your way, you have to KNOW THE LAND.

### 2.5 Consequences

After considering different options you can now choose between different directions. Knowing the alternatives lets you choose the direction that fits best to your own interests, skills, and goals.

However, keep an open mind. Sometimes you have to re-orient as you follow a path. As you move towards your goal, new priorities, opportunities or unexpected show-stoppers may occur. Orientation is required at the beginning of a journey and in the process of moving on.

3.  KNOW WHERE YOU ARE

3.1   Context

Each journey starts somewhere. But where? When you are looking for the right direction in order to achieve YOUR GOALS, you have to know where you are.

3.2   Problem

Without being aware of your current situation, your current skills, opportunities, resources and assets, you can hardly judge what is important to you and which potentials you can use.

3.3   Forces

Your existing skill set determines what you can do, yet a lack of skills may also be an interesting challenge in achieving things. Short term, mid-term and long term consequences can be different. Some actions will have positive effects on your professional career but negative effects on your private live – and vice versa. Some actions are good (or bad) for both.

Friends - they can really help. But you can so easily hurt the ones you love when you put too much energy into your projects. False friends can also restrict your potential as they discourage you to explore new fields.

It's more likely that you will put a lot of energy into the things that you really like and feel interested in but you may not have discovered your true passion yet.

3.4   Solution

Therefore, know yourself, be yourself and become aware of where you are in your life. Check what has been achieved so far. Check what can be achieved in the future. Identify what is important to you.

*To know yourself, list all the things that are important to you:* family, hobbies, career, social matters,… What is more important to you: money, love, social achievements, friends? Do you want to balance these fields?

You may have an intuition about it but it really helps to write these things down. Indicate in which areas you are at the right position, and where you need actions to achieve more. To get a clear picture you should also identify YOUR GOALS. This may be an iterative process. When you know YOUR GOALS you can clearly see where you need to focus on. At the same time, the better you know yourself, the better you can realize your true own goals.

*Think about this:* In which fields are you an expert? Where do you want to be an expert? Do you want to build on your expertise or do you want to achieve more expertise? What are your interests? What are your skills? Which values are important to you? Should your next actions lead to an outstanding innovation? Or strengthen your expertise, your social network, or your reputation? Do you run a project for fun, to fulfill organizational requirements or advertise yourself to your next employer? Is money so self-fulfillment more important to you? Or both?

*Ask your friends what they think you are good at.* Team up with friends who share the same passion and see whether you can run projects together. Reflect on critical voices from your friends and family and take the comments as constructive input rather than show stoppers.

3.5   Consequences

You know what's important to you and that tells you where you should focus on. To not lose track, you should clearly set YOUR GOALS. You know your supporters but you may also realize that some of your friends are rather spoilers. This could put pressure on personal relationships. Being focused, being more yourself will make you happier. But it can also mean that you have to let go. Let go of old habits, old projects, old teams, sometimes even old friends.

KNOW WHERE YOU ARE helps to find different a direction. It's even more important to know yourself when you actually decide on one direction and start to implement ideas. Hence, this pattern is closely connected to KNOW YOURSELF (from *More Fearless Change Patterns* written by Manns & Rising, 2015). Both patterns, KNOW WHERE YOU ARE and KNOW YOURSELF, state in their solutions that self-reflection about personal interests, values and skills is important to innovate successfully. The main difference is the context, more precisely the timing. KNOW YOURSELF is about implementing or evangelizing new ideas. KNOW WHERE YOU ARE takes place at a time when you haven't found a direction at all – what is the field you want to progress in? Once you have found potential candidates for innovation – great ideas you want to implement – you have to check again whether you have the capabilities and whether it you are really into it – so once again, you have to KNOW YOURSELF.

## 4. YOUR GOALS

### 4.1 Context

When you KNOW WHERE YOU ARE it is time to think about where to go.

### 4.2 Problem

If you don't have a clear goal set, if you don't walk into a dedicated direction, there is a danger of getting lost in endless criss-cross. But there are so many directions to choose from.

### 4.3 Forces

You need to stay focused to achieve outstanding results. Once you focus on specific things in your life you will perceive more examples in related areas. If you focus on opportunities to make money such stories in the news or books will pop out and get your attention automatically. If you focus on signs of love you will see hearts everywhere. If you look for patterns of hard work you will see the construction site around the corner that wasn't in your mind yesterday.

Among the many options of what to do next, how can you identify the steps that lead you personally onwards? How can you justify to invest energy and resources on one project while running other projects on low performance? When is it OK to let go of an old project?

When you are working in a team – and that's always the case because family and friends are also your teams – then it is important that everyone is on the same page.

### 4.4 Solution

Therefore, identify your goals and state them clearly.

*Define the scope of your goals.* Do you set personal, family, team, or organizational goals?
Personal goals might be: achieving a degree, finding a new friend, stepping up the career ladder, becoming politically important etc. Team or workshop goals might be to solve a specific problem, increase sales, improve quality, find new products or features. When you run projects or design workshops in a team it is particularly important that you articulate the agreed upon goals for a session.

*Be precise with your goals.* You can define goals using SMART criteria (Doran, 1981):
• Specific – What is your goal about?
• Measurable –  What are indicators that you progress?
• Achievable – Can you achieve your goals?
   Action oriented – Can you define specific actions to achieve the goals?
• Realistic – Given your available resources and skills: is the goal realistic.
• Time – In which time frame do you want to achieve the goals?

While SMART goals are great on an operational level, they might be narrow on strategic level.

*Write down your goals.* It is important to make your goals binding by writing them down *by hand*. State the goals in positive terms. Use words that support a vision. It helps to IMAGINE THE FUTURE. You don't have to share your goals with others but it is important that you document the goals for yourself. It raises the level of awareness.

*Share some goals.* Decide which goals you keep secret and which ones you communicate to others. Sharing goals can be motivating and put positive social support on you. But it can also put social pressure on your and some private goals might be embarrassing. Hence, have a private document of your goals as well as some shared goals.

*Assess your progress.* Writing down goals is like a contract with yourself. You can check its fulfillment frequently. You may have to adapt the goals or your strategy to achieve the goals. Hence, the goals need to be flexible as well. You have to update and revise them when needed.

*Manage your goals.* Set priorities for your goals and define sub-goals. Maybe one of the sub-goals is your real goal? Focus on the goals that are really important to you.

### 4.5    Consequences

You have clarified your goals. This makes it easier to decide on which actions you should focus, where to put your efforts and time. Goals give direction. They lead you from where you are to the natural next steps. Even if you haven't figured out yet what the next step will be, you know the requirements. Without having a goal you won't recognize an opportunity to step further when you see it. Written goals are a contract with yourself. They can justify your decisions. They give you directions. But they don't tell you how to get there. To achieve your goals you should KNOW THE LAND and get a deep understanding of the domain.

### 5.    KNOW THE LAND

### 5.1    Context

Yes, you KNOW WHERE YOU ARE and even better where to go because you know YOUR GOALS. You are all excited and ready to start. Go, go! But wait... Once you have your orientation and direction on a high level (the big picture is clear) you have to get into the details. It's so easy to run into the right direction only to find one road blocked! To forget that there are different interests at play. That the actual problem is not so obvious!

### 5.2    Problem

If you run just straight to a goal you might get trapped because a road is blocked. Very often small detours and support from others are needed to achieve your goals. A superficial understanding of a domain often gives you the feeling that you see a clear picture. However, the devil is in the details. If you miss important details you cannot evaluate the consequences properly. You may also focus on the wrong things all together.

### 5.3    Forces

There are many obstacles on each path but it is possible to overcome them if you know how. You need to be aware of the obstacles. There are many opportunities, supporters, and resources that can help. You just have to know how to activate and leverage them.

One has to be sure to focus on the right needs, requirements and problems. For example, if you want to improve a process it is important to know which parts of the process really need optimization and which parts are critical.

Very often we observe or speculate about problems that we do not understand. We come to false conclusions. We derive the wrong solutions. We create products or services that do not fit to the needs of a customer. Or we have miscalculated the consequences. Or created a really great product that nobody wants.

To find a good solution that is innovative and new, and that fits to the context, you have to get a deep understanding of the current situation. Really understand what are the needs, the problems, the opportunities, the threads....

## 5.4 Solution

Therefore, get a better idea of your environment. This is not about your personal situation but learning and studying how external factors can help or block your own potentials.

How to move within this unknown landscape can sometimes be better understood by knowing stories about the landscape: what are typical actions, behaviors etc. in the landscape? On your way to the goal, there are many more people involved – stakeholders who have their own interests. Some may support you, others may block you. Knowing and collaborating with the stakeholders is key.

*OBSERVE what others are doing.* Collect user stories, read case studies and learn about the best practices of the field. OBSERVE what happens in the field: how do people act (act actually, not just what they think), what are the processes, what are common pitfalls? Observing is great because you see what people would not tell you (it doesn't matter whether it's because they don't want to or can't). However, observing does not lead to full understanding. Of course you can speculate about why people act in certain ways or why things are the way they are. But hey, why not just ASK them?

*To ASK will give you deeper insights,* even if you do not get full answers. ASK experts, customers, organizations, friends, researchers, and all important stakeholders. Identify the important stakeholders and account for their requirements. The repertoire how to ASK is huge, including quantitative methods such as surveys as well as qualitative methods such as interviews. But if you really want to get the feeling for a situation, you also have to PARTICIPATE.

*PARTICIPATE and you will feel the pain and pleasures alike.* Ethnographic methods are all about participating. Observing, asking and participating all help to get a better understanding – yet they are quite time consuming and expensive.

*RESEARCH of other people is a good starting point to re-use existing knowledge.* That's why you should read journals and publications, scan databases, patents, and statistics. It's not as good as doing your own research but it's certainly broader. All these different approaches have their strengths and weaknesses. It's important that you combine them.

*AGGREGATE the results to a complete picture.* Aggregating the results will help you to identify clusters, relations, contradictions and gaps (that is, areas where your understanding is superficial rather than deep).

## 5.5 Consequences

Innovation and creative thinking processes require a deep understanding. In "The Art of Innovation," Tom Kelley and Jonathan Littmann (2001 ) write, "Innovation Begins With an Eye". Immersion is required to incubate good ideas and get to the Eureka moment (Kounios & Beeman, 2015).

Knowing the Land gives the big picture. It is an important tool for general planning in projects, and in your life. Strength, weaknesses, opportunities, and threads can show up in a SWOT analysis. Knowing the Land can strengthen your motivation to reach your goals. It also shows which skills, partnerships, tools, and other resources are needed. Getting a better understanding of the environment can also lead to revising your decisions. You can still decide whether it's the right path to go.

Know the Land refers to the phases of understanding, observation and taking a point of view in the design thinking process (Plattner, Weinel & Weinberg, 2009). Knowing the context, the right people and getting insights is central in design (Kumar, 2013).

As you learn more about the world, you are changing your own position (you progress) and you may change your goals. So, you should keep track of your ORIENTATION. Deeply understanding the field/the landscape will help you to identify areas where you need to innovate. Where are opportunities? Where are the biggest problems? Sometimes, the solutions are obvious, and can be derived by pure reasoning. Sometimes, others have found good solutions – and if you are lucky shared them as a pattern. Sometimes, well, there really is no solution yet. And this is where you need to get new and creative ideas. Without those ideas you cannot reach your goals! (Or you cannot reach them conveniently).

## 6. OBSERVE

### 6.1 Context

You want to know what is rotten, what fails, what works and what can be improved. Of course you can ASK people what is good and bad. But that only gives you information about these things that have already been identified.

### 6.2 Problem

The real problems and opportunities are often hidden and people are not aware at all about what is going wrong or right.

### 6.3 Forces

Many things are taken for granted. People do not reflect about whether things are perfect or imperfect as long as they are good enough. But very often good enough isn't good at all because people do not recognize a waste of energy and resources, the unfairness to others if they are not affected directly, or they overlook consequences of the future. Likewise people are ignorant to opportunities because they are so involved (and often exhausted) with their daily routines.

Habits rule our life. Yet they are hard to express for individuals because we are no longer aware of habits (that is the very nature of habits). But without being aware of the habits we cannot identify those that are misleading and need to get fixed (or can be improved).

People have difficulties to express their implicit knowledge. They also tend to forget details. Can you remember exactly everything you did today after brushing your teeth? (Did you really remember how you put on your right sock and how you found it somewhere?) Very often opportunities for innovation only show up in a larger context. One has to see not only singular individual actions but rather a chain of causal actions between several stakeholders and tools.

### 6.4 Solution

Therefore, observe what people are actually doing. Go into the field and look for patterns. See where people are struggling. See where people are happy. See where people exceed their usual behavior.

*Document your observed data according to scientific standards.* Document under which circumstances you observed the field. Did you interfere with the observed individuals? Did you observe the full process or only parts of it? Did you observe a justified sample? You can observe systematically by placing yourself at a good location to see what's going on. That's what bird watchers do. Or neighbors who watch others when they try to get their car into a parking lot (or do other things).

*You can observe casually whenever you are at places of interest.* When you are sitting in a train you can observe how people spend their time, how they communicate, which media they prefer. How do they handle their luggage? Observe people at work and think about whether it makes sense or not what you see.
When you research a specific group of people you may use cameras to capture all the details and review the materials several times. Make sure that you got the permission to record the people.

## 6.5 Consequences

Observation provides full exposure to what's actually going on. You may learn more things about other people and their processes as they do/know. However, there is a danger to misinterpret some actions. For example, you may wonder why a specific task is done so slowly. But there might be a good reason for it (for example, faster processing might harm materials). Once you have observed interesting details, you should try to ASK the experts whether they can explain the behavior.

Observation requires you to interpret the observed or measured data. There is a danger that you mix up cause and effect. You may also misinterpret superficial symptoms for the real problem or motivation. To understand what you see, you should ASK the people involved, and backup your observation with existing RESEARCH results and theoretical frameworks.

## 7. ASK

## 7.1 Context

You want to understand the urgent problems of a domain. You may have observed some interesting facts but you don't really understand them.

## 7.2 Problem

You could make up your own plausible explanations but they are probably not sufficient because you have a lack of expertise.

## 7.3 Forces

People usually have a good understanding of what they are doing. People like to talk about their experiences. People know best about what they are feeling, what they like and dislike. Many people have observed problems in their domain. They are also proud to talk about what works.

## 7.4 Solution

Therefore, ask people about their experiences and opinions. You can use qualitative methods such as interviews or focus groups as well as quantitative methods such as surveys. You can also ask in informal conversations, or ask people when you OBSERVE interesting behavior.

People often have different views on matters and therefore it is often important to ask more than one person. Interviews and focus groups are good to explore a domain. They help you to identify categories, rules and opinions. Once you become aware of the main topics you want to dig deeper and get data about how strongly people agree or disagree with certain statements. That's when surveys are useful. Surveys require you to have already a good understanding of the field because you have to phrase meaningful questions.

There is a lot of literature available on both quantitative and qualitative research methods (Creswell, 2014; Flick, 2014; King & Horrocks, 2014). It is important that the interview guidelines and questionnaires are well-crafted. Because you want to learn as much as possible rather than suggesting answers that only confirm your expectation. You are looking for the unexpected information. It is also important to understand that questions are a true source of mining information. Have a look at the paper you are currently reading. There is a lot implicit information and meta-information about it. Can you guess where and when it was written? You could ask the author about it. Does this information matter?

It is important that the stakeholders of a domain are asked about their expertise, experience, feelings and opinions. Because they really know! Well, at least more than you do.

*Decide: Quantitative or qualitative?* Decide whether quantitative interviews or quantitative surveys are more appropriate. If you want to explore a field, that is you don't know all the categories and concepts yet, a

qualitative interview is better. If you know already about the important categories but want to learn how they are distributed, a quantitative survey is better. Very often, you can start with a qualitative research and confirm your findings with a quantitative survey.

*Design your questions.* Defining good questions is very important. Because you will only get the answers you ask for. Consider a hot cup of coffee. There is a lot of implicit information in that cup. Maybe you ask: what is the temperature? A good question. But maybe you ask: what is the acid level of the coffee? Another good question – but less obvious. The information is there, you just have to ask the right question and then find out how to measure the information. If you ask people it is important that your questions do not influence the other person. They should be open and not suggest specific answers.

*Find a good sample.* Which persons do you want to ask? Don't pick random people. Think about which persons are representative. Do you want to ask only people of one homogeneous group? Or do you want to have a diverse group? Do you want to ask extreme users, average users or lame users? Can you easily find people that are willing to participate? Be aware that the quality of the answers depends on the sample of people you ask. If you ask only students of psychology (which is often done to learn more about how the mind works), you cannot always assume that the answers also apply to all other groups of people.

*Evaluate responsibly.* Make sure you fulfill scientific standards when you evaluate your questions. Do not interpret facts into the data that cannot be justified. If you evaluate statistically, make sure to document the error levels. If you evaluate qualitatively, make sure that you document your methods and analysis framework.

*Draw conclusions.* Now that you have asked responsibly and got interesting answers, you can think about their meanings for your goals. Do the answers indicate specific needs? Do they reveal gaps? Do they show priorities? AGGREGATE the answers along with other findings.


## 7.5   Consequences

You get first hand judgements and opinions from stakeholders, customers, and other actors. You learn about the deeper (inner) motivations and views of the people you ask.  You also get a feeling which attitudes, customs and functions are common. You learn which categories exist, which categories are typical and which one are outliers.

However, asking people will not give you all the information. First, to get the right answers you need to ask the right questions. But what are the right questions if you are not that familiar with a domain yet? Second, people may not always provide honest answers. They may consciously or unconsciously put things into a brighter or darker light. They may exaggerate or confuse data. They may have misunderstood the question. Third, people have more implicit than explicit knowledge. That is a person knows more than she can put into words. That's why you also need to OBSERVE the field. To get the real feeling you may also PARTICIPATE in the daily life and work routines.


## 8.   PARTICIPATE

### 8.1   Context

Now you have already learned about the field. You have talked to the experts. You have observed what's going on.


### 8.2   Problem

But how does it feel? There is no way to get the feeling about the pleasures and pains of a domain by just seeing and hearing about it.

### 8.3 Forces

Real insight comes from feelings. Implicit knowledge is embodied in the activities and actions of the domain. You can only fully access this implicit knowledge by performing these activities.

### 8.4 Solution

Therefore, participate in the domain. For a limited period of time participate in the activities of the field.

*Participating in real activities* is one of the most important tools for the design agency IDEO (Kelley & Littman; Brown, 2009). True enough, you interfere with the field and this might lead to some noise in the data. However, you get access to a much deeper understanding.

*Use ethnographic research methods.* Ethnographic methods focus on a few cases (or a single case). They explore real phenomena from within rather than testing pre-formulted hypotheses. They take place in the field, they are holistic and explicitly involve a subjective view as it involves interpretations of other people's values and their community functions.

*First identify a representative group that you can join.* Prepare yourself by learning about the values and customs beforehand - if possible. Observe and participate. Write down interesting observations. Ask people in conversations why they are doing something and what is bothering them. If the group agrees to it, take pictures or videos to document typical activities and functions. As you participate you can also integrate other research methods. You can ASK colleagues or team players when you participate. Of course you can also OBSERVE much more from the inside.

### 8.5 Consequences

Very often the best inventions are made by people who can use these inventions themselves. That is because they really understand what is needed in their lives. Once you participate you will understand what matters. You get access to implicit rules that are hard (or impossible) to observe and that nobody ever mentions them no matter how much you ASK.

But participation is very time consuming. Moreover, as a novice you will face other challenges than experts. This is both good and bad, you just have to be aware of this fact. Also, over time you may transform your activities into habits and you may have yourself some difficulties to express your implicit knowledge. That's why it is important to make notes about your feelings and new observations, maybe in a PERSONAL JOURNEY.

Participation may also be dangerous. For, example you should not participate in rock climbing if you are not experienced. Participation can change the regular behavior of others. It could even disturb others. For example, if you take part in a production activity, you may slow down the process. Make sure, that you compensate for the annoyance. For example, you could highlight the benefits, make friends or just invite the group to a cup of coffee. This also makes it easier to ASK informally about interesting observations.

## 9. RESEARCH

### 9.1 Context

You do not have enough time to ASK all the questions, OBSERVE what's going on or even PARTICIPATE. Or you have done all this but still need some more information. Or you just don't know where to start.

### 9.2 Problem

Doing all the research yourself is time consuming and you need something you can build on, a starting point...

### 9.3 Forces

Others have bothered with similar questions before. You don't want to find out what others have already found out before. You don't want to reinvent the wheel. Building on the findings of many others will help to draw a broader picture. Very often other people have already done the RESEARCH for you. You don't have to research again what others have found out already.

### 9.4 Solution

Therefore, read journals and publications, scan databases, patents, and statistics. Use Google Scholar to get a first overview of research papers. Also query the databases of established publishers in your domain. Use ResearchGate to identify key researchers and see what they have published. What have their co-authors published? Scan the reference lists of research papers and look for further publications.

Yes, this sounds so trivial. And yet…people often forget that there is so much out there. Query the web and Wikipedia always is a first step. But do not rely on the first 10 Google hits only! Find out who the authorities in the field are and learn what they have to say about the domain and what their research is about. Also try to find contradicting results or at least multiple perspectives on a topic. Don't believe everything you read! Be a critical mind and use the existing literature as a starting point for your own investigations.

### 9.5 Consequences

You can build on the knowledge of others rather than starting from scratch
It's not as good as doing your own research but it's certainly broader. It gives you a starting point. And it lets you explore areas where data is still missing. The gaps can be filled by doing your own research, e.g. OBSERVE phenomena, ASK questions, and PARTICIPATE in real situations.

## 10. AGGREGATION

### 10.1 Context

YOU KNOW THE LAND and you have found out a lot. You have collected a lot of data by observing, asking, participating and research. All these different approaches have their strengths and weaknesses. Together they can lead to deep understanding.

### 10.2 Problem

Isolated data does not draw the complete picture.

### 10.3 Forces

Some observation only make sense after you have asked what they mean. Some observations can only be made when you participate. Participation leads to new questions. Research leads to new questions. Given answers can be reinterpreted once you participated in a process. It's important that you combine all the results to a complete picture.

### 10.4 Solution

Therefore, aggregate the results of several research methods and draw the big picture. Aggregating the results will help you to identify clusters, relations, contradictions and gaps (that is, areas where your understanding is superficial rather than deep).

You can collect all the data in a Wiki (or other hyperlink system) to quickly access linked results. You can install large walls (interactive walls even) to collect all the data and rearrange the information.

Online spaces, and communication tools such as Slack or MatterMost aggregate results over time.

Make integrating visualizations, such as mind map, diagrams and visual landscapes. Cluster information. Share your aggregations with others and let them comment on your order. Share with colleagues and people who have contributed to the data collection. Mapping and clustering are essential processes to get the big picture (Kumar, 2013). Examples are customer journey maps, large poster walls, matrices, Venn diagrams.

Templates, such as the Business Model Canvas, can support the structuring. Very often you will find your own categories and links between information.

## 10.5  Consequences

Aggregated data draws the big pictures. You can see connections and correlations. You get a holistic understanding.

However, the details are hidden under the aggregated information. Make sure, you can easily zoom in and out to different levels of detail. Once stable categories and clusters emerge, your open mind starts to narrow. New facts and data are tried to be put into one of the existing buckets. Actual differences are ignored (assimilation). Every now and then, you should question your own system of aggregation and maybe restructure it entirely.

## 11.  CONCLUSIONS

The patterns presented in this paper are the foundation for generating and implementing new ideas. They do not automatically produce new ideas. Rather, they are ingredients for the ideation process and for a successful implementation. Very often, new ideas emerge on their own, once a deep understanding is achieved and motivation is high because the direction chosen fits to one's own personal interests.

The patterns in this paper sometimes are rather abstract. That is because many elements of the solution are well known to many readers or the details can be found elsewhere. The important contribution of capturing the solutions as patterns is to focus on the context, the problem and the forces. For example, important to understand why orientation, goal setting, and exploration of the land is so important. It is also important to have an overview of the different ways of getting deeper understanding of the field. Hence, the solutions are reminders or pointers to knowledge that already exists. The context, problems, forces and consequences often integrate new views on the known solutions.

ACKNOWLEDGEMENTS

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