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Developing Innovation

Innovation Management in IT Companies

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Preface

It can be said that corporate innovation and innovation culture are constantly in the focus of the business world and that many articles and books are published every year on this topic. I started this book a long time ago and then I put it aside for some time, because of the huge number of editions coming out. At that time I simply could not see the uniqueness that I could bring. Then I thought of writing about exactly what I do: corporate innovation in IT companies and the result is in front of you.

Every new initiative in my organisation was a bucket of new knowledge, every new idea was different and every innovator has its approach, so this journey of managing innovation is full of challenges, but it also needed to be prepared on constantly learning. In almost 15 years of dealing with this topic, I started new programmes, innovation processes and challenges, different rewards systems, but I was also faced with different environments in the three companies where I worked. Two companies were huge (>100,000 employees) and the third was medium-sized; but, like the first two, it was a multinational IT company. Times of growth and times of slow-down, acquisitions and sell-outs, all affect innovation; it is better to say that innovation is one of the first aspects that is affected. Leaders, as an important part of the ecosystem, played a big part during the time; some were eager to make changes, but some had the feeling that innovation is for someone else's company or business unit. Managing innovation is a fight in long stages where you must be prepared to start from the bottom at any time. It was similar to writing this book: only after I got some encouragement about the topic did I continue with research and writing.

There are few books on the topic of IT and innovation. IT is assumed to be innovative by default and is thought to be much more engaged in the topic than other industries. Hence, it is strange that there are a really small number of books that cover this topic.

This book should encourage managers in big companies to ignite innovation, startup owners to formalise it, and entrepreneurs to start their idea and build upon it. On the other side, developers should be inspired to change the status quo in their environment and students should be encouraged to do that in the future.

If I ignite a spark in readers or put thoughts in the minds of some people, my task is complete. I hope that some of you enter "the zone" as I did while writing this book, mostly in my backyard, on nice summer afternoons with my Jack Russell terrier by my chair.

I hope you will enjoy reading as much as I enjoyed researching and writing this book. In the end, I hope that the book will be useful and inspiring.

https://doi.org/10.1515/9783110654448-202

How to read this book

Each topic could be read by itself; if there are connections with other topics, I noted that in the text.

In the first part of the book, I'm writing about the initiation of the innovation process:

- IT and innovation – the state of innovation among software development companies and how product managers perceive it. What is the effect of having different shapes of people in innovation initiatives?
- Igniting the innovation process – an example of creating an innovation process from scratch by raising innovation culture, tailored to an IT company with a view to the innovation strategy of the organisation.

The next part is about the current state of the industry and looks at innovation inside IT companies:

- The fourth industrial revolution will change companies from the inside – very soon, we will feel the effect of processing big data, using AI, machine learning, virtual reality, IoT, biotechnology, 3D printing, automation, autonomous transport or the widespread use of robots. Technology changes future occupations and many of the current ones will be obsolete. In parallel, it also changes the relations inside companies, ways of recruiting, but also ways of managing and evaluating employees.
- Innovators inside companies – in the world of continuous changes and new trends, it is important to have on your team, department or organisation, people who think differently and who approach to problems differently. Often, it is difficult to recognise innovative persons, as they are shy and tend to hide their ideas for fear of being copied.
- Life in the agile world – agile is so widespread and used in most IT companies, how innovation can coexist with this methodology? Are agile and innovation contrary to one another? Customer focus and product innovation should be part of agile team thinking, but they are often neglected in fulfilling everyday tasks and finishing sprints.

Then I focus on the innovation process and its methods:

- Development cycle, agile process, innovation process – a fast and short development cycle need ideas that produce quick results. This is not easy, and sometimes not achievable, but could be adapted to reflect the needs of the future. Methods of design thinking, lean startup, design sprint and startup corporation and how these methods reflect the IT environment and agile.
- Reward programme and effects of rewarding – example of a reward programme and its effects on the number and quality of ideas and different approach

towards improvements and innovations with findings from my research using different reward programmes inside the same company.
- Brainstorming as an ideation tool? Could brainstorming lead to new ideas and how? It certainly has to be adapted.
- Life after brainstorming – brainstorming is certainly not dead as a method. How can it still be used for adapted innovation challenges in a special environment where the traditional brainstorming approach is simply not working?
- From ideation to realisation – there are a dozen challenges facing the innovation process implementation in a software development environment that must be pointed out, ranging from "space to experimenting" to "funding".

Next is the more psychological part – about the inner state of innovators and external effects that inspire or complicate ideation:
- Introverts as the majority? Introverts are the majority in IT companies; that means no brainstorming (only adapted method), no design thinking (they hate post-its) but a careful and adapted approach can bring results.
- Inspire developers – developers are creative every day, but how to inspire them to look beyond code and think more broadly about product perspectives for the future of the market/company and reach their full creative potential?
- Environmental effects – regional environment and innovation. How to put your company in a bubble (own ecosystem) and not let external events affect you and your climate? A look at the effects that work environment and open offices have on innovation and organisational culture.

Methods to achieve results and their examples:
- Innovation challenges – quick and simple idea generation inside organisations with the guide and example of how to set it up.
- Improvements in the development environment – improvements are part of the development process, but often they are forgotten and not recognised. However, they can trigger bigger ideas and ignite innovation culture, so they must be approached as a valuable part of innovation activities, especially in IT companies.

Thoughts on the future and advice for success:
- Life after agile – what is the next step in the evolution of companies? Will agile will be enough in the future transformation of work scenarios?
- Every engineer needs a businessman – the world as we know it may be run by businesspeople, but it is definitely shaped by engineers. In corporations engineers become managers, but what happens in startups, where there is no time or budget for such education? Startups are driven by their first success – their first product – but can they survive the fall of it and create new successes?

- Startups – led by the vision of the founders, but later, with growth they often have to reinvent themselves.
- Be original – how to achieve uniqueness. Insights into the effect of copycats and the case of the stolen idea.
- Mechanisms of success – other activities that should support innovation other than top-down or bottom-up challenges like corporate incubators, acquisitions, joint ventures, skunk works or open innovation.

Another step in the method that brings results, with reflection on "dark times" in companies. At the end, a look at closely linked discipline to innovation management – technology management:

- 7 innovation method – My method for setting up innovation activities in the organisation, from igniting an innovation programme to the tasks after initial successes, with special attention to the role of innovation manager.
- Do nothing in dark times – Is it okay to stop innovation activities in times when the company is going down? Should it be part of the company's redefinition?
- Technology management – What role should technology management have inside the company and how it can add value to innovation? The role of experts inside the organisation and the need for trend hunting.
- The effect – The effect that innovation activities should have on the software company.

Further resources and analysis can be found on the website www.7innovation.net where you can find further explanation of 7innovation method described in this book.

There are many quotations and references; there are maybe places where I missed adding some references. Please be aware that this is not done on purpose, as some of my notes date many years back. So if someone finds their own words somewhere, please take it as praise, not that I wanted to steal something.

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1 IT and Innovation

> Software innovation, like almost every other kind of innovation, requires the ability to collaborate and share ideas with other people, and to sit down and talk with customers and get their feedback and understand their needs. –Bill Gates

Information technology has had a high growth rate for years and there is a reason for that: a constant flow of innovations in technology, but also in business processes, as growing competition on the market has made innovation a must for every organisation.

On the other side, the top skills missing among job applicants[1] in the current world are problem solving, critical thinking, innovation and creativity.

In the ever-changing world of IT, it is challenging to create and maintain innovation activities. With more than ten years of experience working in three different companies as an innovation manager, I will try to give a fresh perspective on innovation management in the IT environment and show examples from companies all over the world. A software development environment provides many possibilities for innovation, but also puts some constraints on innovation processes that can be bypassed, bringing success to the company and innovators.

Using the agile process in the area of software development with its short cycles, it is a challenge to create and maintain an innovation culture. With this in mind, the following questions are raised:

> How to bring innovation challenges closer to developers and use their experience and vision to create new projects? How to set up fast and clear focus topics or customer challenges oriented toward new business ideas? On the other hand, how to inspire developers about incremental, often small but useful and money-saving, improvements?

As I mentioned, I've been working in innovation management for more than a decade. In that time, I was involved in creating an innovation programme using a new reward system that successfully increased innovation results. The next big topic was the creation of specially tailored innovation activities for a customer-oriented software company. Product innovation was also part of my efforts, but I will come back to all these topics later. Now, let's see what place innovation has in IT companies.

The environment in a software company is much different than in other industries and most tools and activities, which are common in other industries, must be either adapted or totally neglected.

Let's start with people. Software engineers, developers, coders, or however you call them, are a bit different from "ordinary" people. They are in deep in thought, don't like disturbing meetings and they often have short-term milestones which

1 This Is the Most In-Demand Skill of the Future, Ryan Jenkins, Inc. https://www.inc.com/ryan-jenkins/this-is-most-in-demand-skill-of-future.html?cid=sf01001.

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makes them people who haven't got too much time to think "outside of the box". Hence, the shape of every innovation initiative has to be carefully adapted to this special environment.

Processes are also a bit different than in other industries. Planning is done differently, and the time to deliver the new product is shorter as all process stages are shorter.

Deadlines in the agile world are focused on a short-term pace instead of a long-term time cycle in a waterfall system or in other industries. These make life easier, but can prevent innovation as shorter cycles could mean less or no time for ideas.

Sometimes it looks like we are working in a zero-defect culture where no errors are expected, as we are concentrated on new incremental improvements, but innovations need a different error-tolerant environment to allow for breakthrough ideas.

In addition, the export of software is done differently. When a customer buys the software, it is not necessary to ship it with trucks, trains, ships or planes. The customer just needs access to the latest release versions and the user rights to download it. There is no direct contact with the customer, no physical stores or warehouses, just websites and servers.

What is very positive in this industry is that here the most common thing is change, which is really important for innovation. Software engineers are used to changing direction, projects, tasks and technologies; hence establishing innovation ecosystem should not be a too hard a job. Software engineers must educate themselves and constantly be ready for change. So, the future where there will be no more workers but only creatives is ideally shaped for today's IT workers.

In a time when it's not so difficult to launch a product, but it's extremely difficult to achieve success with it, product managers are key figures in starting and maintaining innovation activities.

The product manager's view

Now, let's look at what is important to software product managers, here is an insight from a survey of 40 product managers in a software company (done with a colleague, Denis Faivre). They were asked to indicate how important (or not) they consider several tools and techniques related to innovation and product management, and whether they would do more (or less) of them.

From the answers shown in Figure 1.1,[2] we can see that the activities seen as most important are *input from the front line, customer interviews, customer workshops*

2 Denis Faivre, Tomislav Buljubašić: Systematic innovation: making innovation part of standard processes, The ISPIM Innovation Conference – Celebrating Innovation: 500 Years Since daVinci, Florence, Italy on 16–19 June 2019.

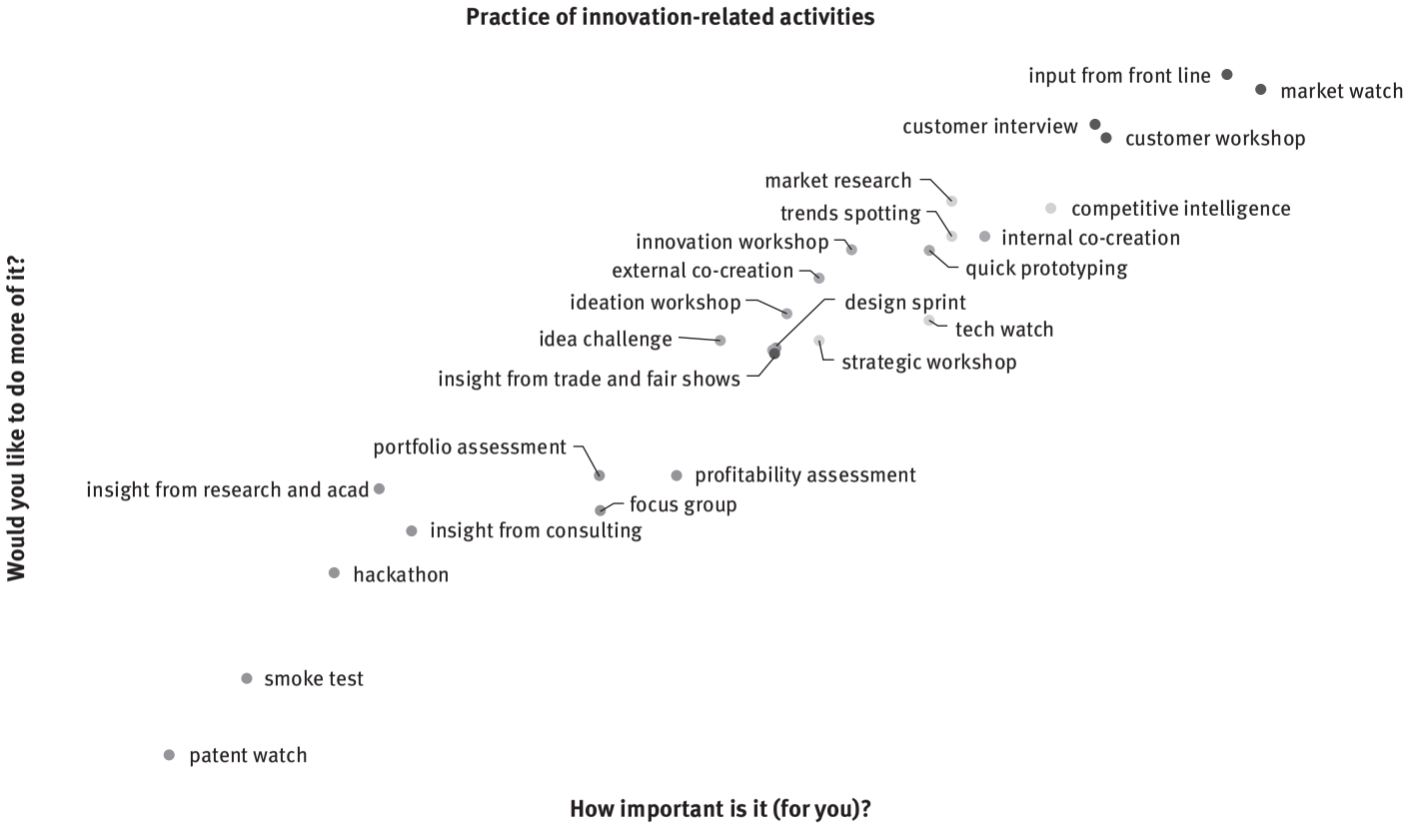

Figure 1.1: Practice of innovation-related activities.

and *market watch*. We classify these as the most important practices in **customer and market intimacy** group (black dots), in which we also include *insight from fairs and trade shows*. Together, these are insights that make a direct connection with customers and the market as fast feedback on the company's activities.

Next come *competitive intelligence, tech watch, market research, trend spotting* and *strategic workshops* in **strategic insights** group (green dots). These are insights that could be taken from externals, but also from internal experts or strategic groups.

Quick prototyping, innovation workshops, ideation workshops, idea challenges, internal co-creation, external co-creation and *design sprint* make up the **innovation management tools** group (grey dots). This group is connected with the usual activities of an innovation manager.

The next group is less popular: *profitability assessment, portfolio assessment, insights from research and academia, focus group, hackathon* and *insights from consulting*. This is connected to internal and external tasks and connections.

Finally, we find *a smoke test* and *patent watch*, with a very low score: these practices seem to be not important to product managers who filled the survey. It would be interesting to investigate whether this results from a lack of knowledge, interest, or effectiveness.

However, this survey shows that product managers gave most trust to:

1. customer and market insights and research
2. technology and strategic insights
3. innovation management specific activities
4. external connections and internal focus groups

All four groups are directly related to innovation activities and are part of them in a larger or smaller way; and all are important in setting up the innovation ecosystem in any IT company. Product managers can change their thoughts after successful practices in organisation, but they will surely always state that the most important practice is a connection to the customer and market – so, this should be the most important aspect of every innovation activity.

However, the most important asset in this industry is people; but can people be grouped by some kind of creative perspectives?

People: I, T or X?

I first heard for "T-shaped" people when reading Tom Kelley's book *The Ten Faces of Innovation*[3] where he described them as:

3 Tom Kelley: The Ten Faces of Innovation: Ideo's Strategies for Beating the Devil's Advocate and Driving Creativity Throughout Your Organization, Non Basic Stock Line (28 Nov. 2008).

> They enjoyed a breadth of knowledge in many fields, but they also have depth in at least one area of expertise.

"T-shaped" people have skills with depth in many areas; the vertical bar in the "T" refers to expert knowledge which a person has in his or her "main" area, while horizontal means the ability to be open to thinking in other disciplines and to be open to using that knowledge. "T-shaped" people are great fellow workers, they will collaborate, communicate. In the IT sector, these people are ideal, as they have in-depth knowledge of their main tasks, but also the ability to understand the needs of other areas.

On the other hand, "I-shaped" people are mainly skilled in depth only in one direction, like a developer with expertise in one programming language, which is needed for her job. These people also fit into the IT world, but they would need to educate themselves because of the challenges of the future. Such people are passing the usual scans of recruiting and hiring processes, but later they could find it hard to adapt to future challenges.

"X-shaped" persons have leadership skills as they have subject knowledge of their subject and credibility, but also the skills to lead and support teams. Great managerial candidates.

"Tree-shaped" people have deep knowledge and experience in many areas. They have knowledge in the core area, but also a background in other fields, which makes them the best problem solvers.

In an innovation or creative process, these skills take their place and could fit several roles. It could be quickly noted inside of innovation teams which people have the skills to collaborate, think differently, the ability to lead or connect the dots and solve problems. It is very important to know people, but wouldn't this be too late? Maybe this should be done when people are hired. Many companies take care of various skills during employment, but many don't, as they just hire developers with the one currently needed skill, which will solve their current needs. Many companies are in constant need of a group of developers, which should be hired "now" and they don't care too much about all the skills people have; they certainly don't detect them.

It is said that to have a high IQ without social skills is the same as having the super-fast computer without an internet connection.

Therefore, "T-shaped" people can look at the task from another point of view, and as they have skills from other areas, they can be inspired and flown into the challenges for topics that are not their main area, a very interesting characteristic for future innovation tasks.

How to transfer people from I to T?

Job rotations or trainings could widen the perspective of people, but they must voluntarily step out of their comfort zone. They can make this step, but they need to be interested in other topics, reading and communicating to broaden their horizons.

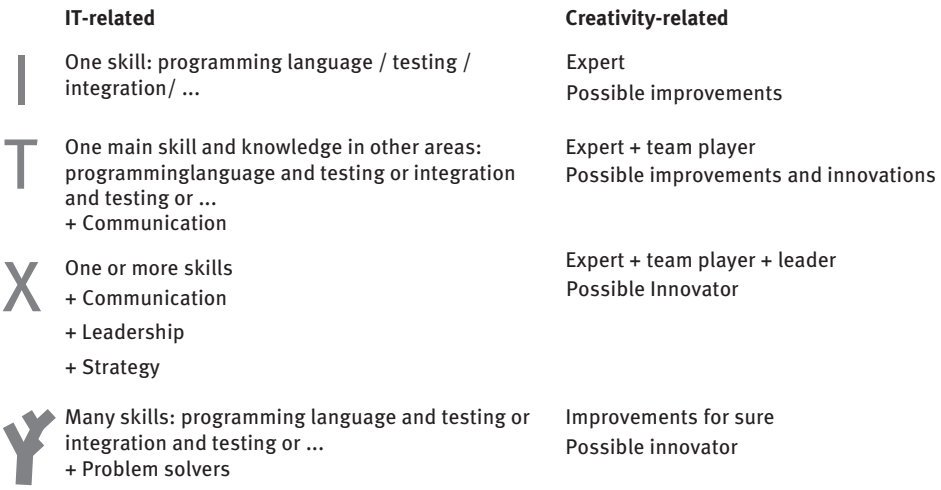

Figure 1.2: Different shapes of people according to IT-related skills and creativity-related skills.

Figure 1.2 shows how different shapes relate to IT and creativity. "I-shaped" people could be experts in their field, but they would probably generate only improvements from their working field. "T-shaped" people with expertise across several topics have more of a chance of generating innovations than "I-shaped" people, as they have a wider perspective and more diverse knowledge. They are also a nice addition to any innovation team. With their leadership skills, "X-shaped" people could be candidates for managing innovation teams and have grounds to become intrapreneurs. In the end, "tree-shaped" people have the ability to solve problems with their deep knowledge and experience; they could fit anywhere in innovation activities. They must be recognised and be a part of the innovators community.

2 Igniting the Innovation Process

> Innovation has nothing to do with how many R & D dollars you have. When Apple came up with the Mac, IBM was spending at least 100 times more on R & D. It's not about money. It's about the people you have, how you're led, and how much you get it. – Steve Jobs

Recently, I led a brainstorming session where 10 colleagues had 30 minutes to say one sentence about what innovation means in the company and to find a way to picture it. They coined the term "the fuel for the future" and proposed a picture of DeLorean, that famous automobile-based time travel vehicle from the film "Back to the Future" where the car is disappearing into the night. It was a simple task with a nice result: a team of software engineers made a smart definition of innovation activities and highlighted the future orientation of innovation.

In a recent study,[4] 85% of business professionals said innovation is very important in their environment, but 78% also said that their companies are focused on incremental changes. This is very common; executives are finding innovation as an important tool for the future success of companies, but it often remains only in words. Not enough effort is put into making innovation alive and then the whole process is turned only to improvements.

Igniting innovation is possible only in places where there exists knowledge about the past and future of the company, together with information about the people who make the company. Only by knowing the current state is it possible to make changes in the right direction.

Hierarchical systems embedded inside companies surely will not help with innovation, neither do examples of business units that are working as a small company without knowing or caring about other parts of their own organisation. Therefore, most companies need to start with changes to be prepared for innovation efforts.

As shown in the Figure 2.1, people, market and technology[5] are three things which are prerequisites for innovation.

- **People –** The right people are needed in an organisation, the ones that can adapt, learn and cope with future technologies.
- **Market –** Is there a market for new products, or must the company change the market or create a new one (there are cases when a very new market can be defined)?
- **Technology –** Do we handle the technology needed for new creations?

4 State of Innovation, CB Insights, https://www.cbinsights.com/research-state-of-innovation-report.

5 Tom and David Kelley: Creative Confidence: Unleashing the Creative Potential within Us All, HARPER COLLINS (21 May 2015).

https://doi.org/10.1515/9783110654448-002

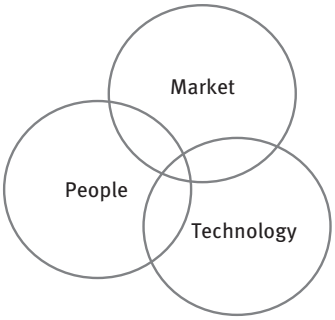

Figure 2.1: Innovation lies in the middle of the three circles.

The most common drivers of changes in the industry are new customer demands or behaviours, new technologies, new competitors and new competing products or services. Other less influential factors are economic factors, political factors and regulation.[6]

It is interesting to see what executives answered in one survey on what traits they wished leaders had more of to help their organisations navigate digital trends.[7] The most common answers were as follows:

- **Direction**: Providing vision and purpose (26%)
- **Innovation**: Creating the conditions for people to experiment (18%)
- **Execution**: Empowering people to think differently (13%)
- **Collaboration**: Getting people to collaborate across boundaries (12%)
- **Inspirational** leadership (10%)
- **Business judgment** (8%)
- **Building talent** (7%)
- **Influence** (1%)

It is easy to see that leaders are determined to include innovation efforts into their organisational practices.

Innovation culture

Innovation culture is an essential factor for good innovation results in any organisation. Building the innovation process, including the process of idea generation and innovation metrics, is nothing without a strong and active start of measures

6 sri innovation study 2019 https://www.sriexecutive.com/innovation/.

7 "Common Traits of the Best Digital Leaders" by Gerald C. Kane, MIT Sloan Management Review, July 2018 https://sloanreview.mit.edu/article/common-traits-of-the-best-digital-leaders/.

to establish an innovation culture, or in other words, an innovation climate in the organisation.

The biggest obstacle to innovation within a company is a climate or culture that does not support new ideas.

Innovative climate, innovative spirit or innovative culture – however you call it – is impossible without the support of the leadership in the company, which has to stand behind claims of innovation strategy, which should be implemented. The task of creating an innovative climate and culture in the organisation, which will encourage staff creativity and bring new innovations that will help the company, surely belongs to management. It is necessary to define the goals of innovation, both short-term and long-term, and then determine drivers for these goals (deciding on an innovation manager, innovation metrics) and an annual budget that will be available for the innovation programme. The budget should be available to reward ideas and to implement tools that will help with registration and processing of ideas. The new innovation strategy should be well advertised within the company, which is best achieved by pointing out examples of successful ideas when they occur. The scheme of incentives should be built in parallel. Everyone should know about the incentives after the application of an idea and the eventual success of the idea.

In the past, there was a time when idea proposals were collected in box for suggestions, etc. Today, this is often replaced in a way that proposals of ideas are easily submitted via a website (intranet) or a software ideation tool.

One of the most important factors is confidence in the organisation, because if employees do not believe in their company, they will not try to innovate. Also, let's state that a positive aspect that can affect the innovative climate may be a natural environment, like the arrangement of the workplace. Colour, light and space in the office certainly have an impact on creativity.

Let's define the key terms. Creativity is the ability and vision to do things in new or different ways, and the ability to create new ideas. The idea as a result of creativity must, however, have an economic value to be considered an innovation. Creativity at its exit has ideas, which may – but need not be – innovations. The first phase of raising the innovation climate, therefore, is raising the climate that will allow for creativity, and then defining the innovation process that will support the idea from the idea-generation phase to realisation. We can say that innovations depend on creativity, but creativity is only the beginning of the road that innovation must pass over in order to become a product. You may or may not have creativity in your business, but innovation will only appear if you have a defined innovation process.

When we understand that people are by nature innovative, but companies often are not, and hinder or stifle their creativity, we come to the challenge of enabling innovation, which is only possible by defining the obstacles that prevent it and creating conditions in which creativity can come alive. Individuals who have a proven ability to be innovative will find it difficult or impossible to be innovative if they are put in the organisation that does not foster creativity.

Innovation starts from the top of each company, which is expressed with the overall attitude of management towards innovation – innovation requires open support! The key is to create models that will describe the innovation process and support the generation of ideas in the company. In case of failure, there shouldn't be any kind of penalty, because it will kill the innovation spirit and ruin future prospects.

The biggest risk associated with innovation is not to innovate. If a company does not have innovation, it allows the competition to shape the future, and along with that, shape the market which will no longer be interested in old products. Because of this, we can say that sometimes the challenges of innovation are big, but the risk of non-innovating is much bigger.

It is easy to perceive that companies are always talking about innovation and that they love to fill their media releases with it. However, the same should be done within the organisation.

An innovative climate, or rather an innovative culture, can be achieved only if innovation is highly valued in the company. Innovation also must be a way of life and the spirit of innovation must be in all corners of the company.

People should have freedom for innovation and the task of creating an innovation climate lies precisely in creating a climate of freedom. You can't simply create a new process and tell people: be innovative!

Innovation does not occur with a single click, but needs inspiration, just like artwork.

It is difficult to know who among the innovators is just a dreamer and who is on the other hand, really focused on your market and on what your company needs – innovations for the end customer. Directors, therefore, have difficulties recognising true innovators who naturally need support in the realisation of their ideas. Big ideas do not always come as a bomb, but mostly as a series of small improvements and ideas that eventually grow to an innovative product, as a result of long-term work. This is only possible if the manager supports ideas that rely on one another with a common goal. Innovation is then drawn into the daily tasks of each employee.

Innovation climate doesn't equal innovation culture

A high level of innovation culture is naturally very good, but also a very important achievement to be proud of for any company. But the path to the right culture goes with the road called "innovation climate".

Tidd and Bessant, in *Managing Innovation*,[8] describe these two terms in the following way:

8 Joe Tidd, John R. Bessant: Managing Innovation: Integrating Technological, Market and Organizational Change, Wiley; 5 edition (July 10, 2013).

> Climate is defined as the recurring patterns of behaviour, attitudes and feelings that characterize life in the organization. [...] Culture refers to the deeper and more enduring values, norms and beliefs within the organization.

Innovation climate

The right ecosystem for innovation must be established inside the organisation; a few months are usually needed to set up the innovation process and build or buy the tools that will support it. The first step toward the right climate is the big support of management and the readiness to include innovation in the company's mission and strategy. The next steps include internal marketing, the dedication of resources and starting with idea management.

Internal marketing must be done using the step-by-step introduction of a new innovation programme or process, it must reach everyone and everyone must know that ideas could come from each part of the company and from each employee. Methods for doing this could be intranet, posters, e-mails, newsletters, management letters or similar.

Idea management needs a process and a tool. The process must be built carefully and in keeping with the style of the organisation's history and environment. The tool should be simple and easy-to-use, but capable of extracting some statistics and upgradable for the next challenge after the initial setting up of the system.

Innovation culture

Innovation culture needs more time; it needs to get to everyone in the company and everyone has to be aware of innovation. But, when do we know that we have established an innovation culture? Of course, it could be measured by the number of ideas, the quality of ideas and the number of innovators, but true innovation culture must be felt.

Everyone can feel when the right wheels are turning, when ideas are coming in and they are smoothly processed or softly rejected. If people start to speak about ideas, then an innovation engine is in motion.

Shortly, the climate will shape the environment, but the culture will put it into life. Here are some answers to the question of how to establish a climate of innovation:

- Fear must be removed from any organisation that wants to have a climate of innovation; no fear of submitting ideas must be allowed. In addition, there should be no fear of an idea being dropped, as every idea is welcome. Nothing bad can happen to any innovator, nobody will laugh at ideas and nobody will comment on ideas after rejection if it isn't necessary.
- Errors are possible and normal in the innovation process. This must be known to anyone who participates in an innovation programme.
- Raise brainstorming workshops to a higher level, preparing it and adapting it for special cases and environments.

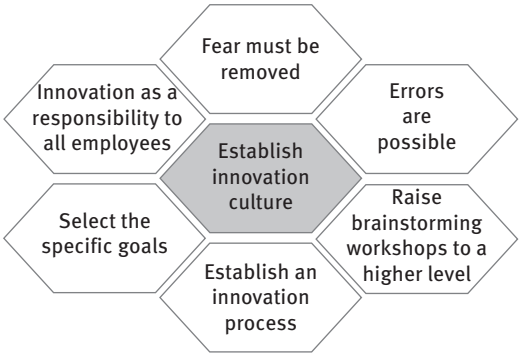

Figure 2.2: Prerequisites for establishing an innovation culture.

- Establish an innovation process, if possible, supported by corresponding software tools that are aligned with the company's targets.
- New employees can be a source of innovation and should be included in the process using awareness workshops and later including them in initiatives.
- Set up innovation as a responsibility of all employees, instead of the commonly held view that innovation is a task for only a few people. The company should be open to everyone suggesting ideas.
- Select the specific goals that you want to achieve with innovations, but be careful that these goals will not fetter the initiative.

Inside the organisation, there must be an individual or team of people who are active in promoting, supporting and driving innovations. We can call them innovation managers, chief innovation officers, person responsible for innovation or similar.

The primary roles of local "heroes" or "idea champions" in the organisation

1. must be well-known within the organisation as innovative persons and open to all questions and suggestions
2. constantly manage and improve the innovation system
3. ensure that everyone knows the process of creating ideas – how to apply the idea?
4. care for the ideas that stay longer in the innovation system without estimation
5. know about each submission of an idea
6. manage innovation metrics: the number of reported ideas, the number of realised ideas and creating new innovation metrics if necessary

Other roles, such as connecting entrepreneurs inside and outside the organisation with the idea creator, can be – but are not always – part of the innovation system and can be driven by another person.

Now I will give my example of creating an innovation programme from scratch, tailored to an IT company.

Innovation programme

Before starting a new innovation programme in the company, the state of the innovation climate was not satisfactory. It can be said that the number of submitted ideas per year, and the number of successful ideas, were not of acceptable value despite the fact that the company had an innovation process in place.

The first task was to build up a new innovation portal that had all the information about submitting ideas and about the innovation process. Next, it was fully translated into the local language, even the legal text about patents was translated – the things colleagues understand the least.

An award programme was created and promoted with intranet news, posters and articles on an innovation portal. The idea was to give monetary awards to the 10 best idea submitters with the most successful ideas in one year.

The award budget was approved at the start of the fiscal year and awards were announced on the innovation portal. The current position of every innovator in the award programme was listed in a table and placed on the award programme intranet site.

Types of ideas

The three main pillars of innovation power inside the company were improvements, innovations and patents. They were simply defined:

Improvements are incremental ideas that generate savings in existing products or processes.

Innovations are new business ideas that can make a new profit. After submission, innovations were sent to experts from the corresponding sector, who make an analysis about their possible realisation based on the customer situation and state of the market.

Inventions were handled centrally in the company with the help of the country's patent office.

Results

Already after the first year of the award programme, we were fortunate to register a strong success. The number of filed and the number of successful ideas has grown seven times. Workshops in all locations and strongly informing employees about innovation activities, together with publishing success stories, made for quick results. Figure 2.3 shows that the number of submitted ideas grew in years 1 and 2

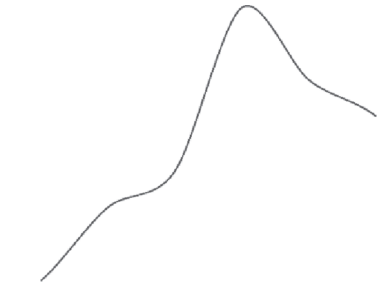

Figure 2.3: Number of submitted ideas.

(the first 2 years of the new innovation programme), but it is more significant to see growth in the number of successful ideas in Figure 2.4.

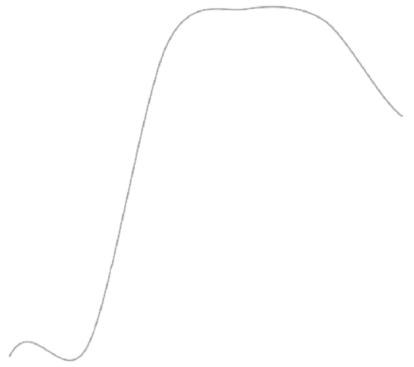

Figure 2.4: Number of successful ideas.

On the first chart it is easy to see the rapid growth in the year when the bonus programme was introduced (Year 1).

This growth was achieved by actively promoting improvements, innovations and patents. Improvement proposals were handled by the superiors of the submitters, and the superiors were notified in time when proposals had to be written by an idea submitter. A short discussion was usually enough to understand the proposal and decide about its future. A quick guide on how to evaluate improvements was available on the intranet and many superiors participated in a short training about it. This brought quick results.

Innovations were promoted in such a way that business ideas should have a strong relationship with a current business or with a current customer. The closer

the submitter was to the customer, the bigger the opportunity to have a successful innovation.

The best innovators were recognised inside the company and were awarded in the bonus programme award ceremony, where they also briefly presented their ideas in front of management and other innovators. Abstracts of ideas were published on the intranet and in the award programme brochure.

This way of informing employees about successful ideas and continually publishing innovation news strongly influenced the establishment of an innovation climate. Other crucial factors are workshops held in all locations, where the innovation process and award programme were introduced, followed by brainstorming (idea generation) sessions.

Commitment from executives was the main driver in the innovation programme. We always had a strong commitment from the head of the company to the innovation programme and this was shown through the award ceremonies that were hosted by the CEO. These measures inspired known innovators inside the company, but also new ones, to submit their ideas to the innovation programme.

The award programme was alive for five consecutive years and the results showed that the innovation climate established in the first years was built on a strong foundation that also guaranteed a high number of ideas in the future. Later, when the innovation culture reached the desired level, there were new challenges. One was to make the innovation process faster and another to bring technology trends closer to submitters.

An innovative organisation not only has different processes, innovation measures, or leadership; it's the innovation culture that makes the difference.

Establishing and maintaining a high level of innovation culture should be the goal of each organisation that wants to call itself innovative.

Innovation ecosystem

Figure 2.5 describes six drivers of change in every ecosystem. Establishing an innovation culture is followed by innovation initiatives like innovation awareness workshops that evangelise this topic. Idea generation workshops should ignite ideation and calls for ideas act as the driver that should spark ideation across the whole company. The process must be supported and communicated through intranet or other means of internal communication inside the organisation. It is essential that the idea process is transparent and done in short cycles, but I will come back to this later. The same applies to rewarding innovation which will also have a special chapter later in this book.

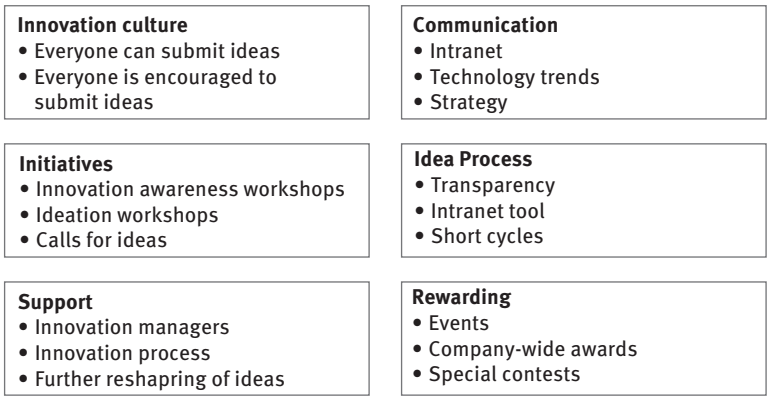

Figure 2.5: First phase of building an innovation ecosystem.

Important factors for the success of the innovation process

Let's take a look at the most important factors for the success of the innovation process:

- set the end-to-end process
- simple submitting of ideas
- fast and transparent idea evaluation
- "gently" reject the idea
- "killed" ideas are later often reviewed because of possible new business opportunities
- the innovation process is measurable
- ideas are welcomed in the organisation
- innovators become "celebrities" and their success is propagated

Now, let's focus on software development companies. How many of these seven statements can really be done in their environments?

The first four statements are no problem at all. But the fifth? Is there a budget to look back to old ideas? Do we have time in this fast-changing business to look back at them? Often there is not, but this should be a task for the innovation manager who must regularly search his database of ideas and sometimes include old ideas to new challenges, or requests coming from the market or sales.

Measurable innovation process? Be careful what to measure and how to set targets.

The last statement is questionable in this environment. Do innovators want to become "celebrities"? We will come back to this question in the chapter "Introverts as the Majority".

Start

An innovation programme may be started with small, brief initiatives that will provide time to learn about the process and how it will best fit the company. It can start with minimal resources, and then scale up by learning about adoption in a company's own environment. If some new ideas are funded along the way and don't make it, only part of the resources should be spent. Sometimes the most critical thing is to kill the idea at the right time before it grows up without any prospects of a future. As the initiative will transform the environment, be ready for critiques, but also be ready to support evangelists of the initiative.

Corporate strategy

The times when big companies are not aware of possible disruptions are behind us. So companies certainly know that they need to innovate, but the question is how to set up an innovation ecosystem with connection to corporate strategy?

According to the article, "The Customer Connection: The Global Innovation 1000", by Barry Jaruzelski and Kevin Dehoff,[9] which includes data from 1,000 companies worldwide that are leaders in R&D, companies can be classified into three innovation categories according to **corporate strategy and understanding of the customer**:

1. **Need seekers** – invent the first product on the market (breakthrough product). Collecting information about customers and analysing their desires during the design of new products. They use existing technology, without developing new inventions.
2. **Market readers** – respond to what customers are buying – carefully watching the market – making careful entries with incremental changes.
3. **Technology drivers** – turn to internal research through technological capacities using breakthrough innovations and incremental changes. They observe and map emerging technologies and analyse trends.

A simplified look at the strategy could point to two different approaches:

A **play-to-win** strategy when companies take new projects to the market, aiming at open parts of the market using new technologies and new business directions.

A **play-not-to-lose** strategy when companies are focused on projects that will maintain the company's current position by following direct competition, and

9 The Customer Connection: The Global Innovation 1000 by Barry Jaruzelski and Kevin Dehoff – Resilience Report, strategy+business, Booz/Allen/Hamilton 12/10/2007.

without investigating new technologies or markets. The only advice to such companies is: *incremental innovation could kill you!*

A large company can't be a startup, with its products, processes, established sales streams and business models, but it can generate new growth by introducing new techniques like lean startup, mentioned later in the chapter "Development Cycle, Agile process, Innovation Process".

On the other hand, large companies – with their processes and structure that secure costs and improve products – are good at incremental ideas, but can't achieve breakthrough innovation[10] which is the target of so many strategies or corporate visions of the future.

It is important to have a company business strategy and innovation strategy in symbiosis. Some companies create innovation programmes, but they are not clear what to do with them or what should be the outcome of the programmes. When company strategy is not aligned with innovation strategy, innovation will not have much of a chance. An example is acquisitions and product strategy – a part of corporate strategy that is closely related to innovation strategy. Further, disruption of the core business must be an option for a company that would like to be innovative.

Future technologies that are just coming on the radar must be known and organisations must be ready to implement them when the time comes. Education and planning of resources for future hardware needs are all concerned with technology trends. Because of that, technology management should be considered part of a company-wide initiative together with innovation management.

Siemens, a global powerhouse focusing on the areas of electrification, automation and digitalisation has a clearly defined and easily understood innovation strategy:

> To be pioneers of our time and to work on innovations that matter: that is what we strive toward. Innovation means ideas with tangible benefits for all stakeholders. At Siemens, we draw on both internal and external expertise to develop solutions that set industry benchmarks. Applying a systematic innovation strategy is what continues to propel our businesses into the future.

Siemens also clearly states that everyone in the company can contribute their ideas:

> We invite every Siemens employee to remain open to new ideas; to learn to recognize the changes that are important for our customers and our own future; and to have the courage to implement the necessary changes without any ifs, ands or buts.
>
> – Siemens Innovation Strategy Website[11]

The company must define its vision, strategy and innovation strategy to know where it is heading. In other words, before you start driving, be sure you know where you want to go.

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10 Tony Davila, Marc J. Epstein: Innovation Paradox Why Good Businesses Kill Breakthroughs and How They Can Change, Berrett-Koehler Publishers; 1 edition (June 30, 2014).

11 https://new.siemens.com/global/en/company/innovation/innovation-strategy.html.

I have been part of some strategy meetings that didn't produce any novelties. The reason was that company strategy was a blur and there was a lack of communication between stakeholders. The main assumption – connection with the market – was lacking, as market professionals were isolated with no connection with innovation activities. Also, a clear statement on how to proceed concerning product and market development was missing. Without everybody working toward a common goal and without a clear company strategy, innovation activities can be convicted to death before they even get started.

How much time and effort to spend on innovation activities? Let's take the example of Coca-Cola's marketing strategy where they invest 70% on the established and successful programme; 20% on new or emerging trends; and 10% on new non-tested ideas.[12]

Google has used 70-20-10 rule[13] for more than a decade. This rule teaches us that everyone in the company should spend:

- 70% of the time on the core business
- 20% of the time on projects related to current business
- 10% of the time on new businesses

These principles should set up new opportunities and strengthen product innovation efforts.

Some companies are dedicating time for innovation by their employees, as in widely-known examples like "Thinking Fridays" at IBM, or 15% of the time for ideas at 3M, or 20% of the time at Google.

An interesting example of a different approach towards company culture comes from Amazon, where company executives don't create PowerPoint presentations, but six-page essays to be read at the beginning of each meeting.[14]

Smaller vs. bigger companies

Strategy, the ability to change and innovation attitude change with the size of the company. Startups and smaller companies invest in their development and innovation as a need to stay alive on the market, but bigger companies more often turn to

12 Cris Beswick, Derek Bishop and Jo Geraghty: Building a Culture of Innovation, Kogan Page; 1 edition (3 Dec. 2015).

13 https://www.huffingtonpost.co.uk/danny-whatmough/bringing-702010-innovatio_b_1753246.html.

14 Aine Cain (Business Insider): At Amazon, Jeff Bezos has strict instructions for crafting the perfect memo – and he said it should take days to write.

https://www.businessinsider.com/amazon-ceo-jeff-bezos-memo-advice-2018-4.

incremental ideas which are safer and which will create new value for their existing products.

Do small companies risk more? They are focused on product innovation and can more quickly pivot and realise new products than large companies can. On the other hand, larger companies can allow themselves to invest in more risky attempts at radical innovation, but they must build an ecosystem with a climate that will allow such attempts and avoid the usual traps like time-consuming processes or the ability to allocate needed resources from current products.

Edison's questions

Let's take a look at the example from one of the greatest innovators and inventors in history, Thomas Edison. In the book, *Innovate like Edison*,[15] authors Michael J. Gelb and Sarah Miller Caldicott describe the way in which Edison started his innovation efforts by asking himself the following questions: Which needs do people have that we can satisfy?

- What trend or trends are currently available?
- Which needs do they present?
- What are currents gaps in the market?
- How can I affect the ones I know of, in this category of industry, so that it makes sense for my lab and my brand?
- How can I test the usability of my idea?

Direct questions, asked more than a century ago, but still relevant and useful.

Types of companies according to technology adoption

When we put companies on a graph like the one below, where companies are compared according to technology adoption, it is easy to group them. It can be said that every company can quickly and easily put itself off on the curve.

First movers are all companies that invest in research, new inventions and breakthrough innovations. There are not many companies of this kind in any sector. They are leaders and they make trends. What is important is that these companies are able to make inventions.

15 Michael J. Gelb, Sarah Miller Caldicott: Innovate Like Edison: The Five-Step System for Breakthrough Business Success Plume; Reprint edition (October 28, 2008).

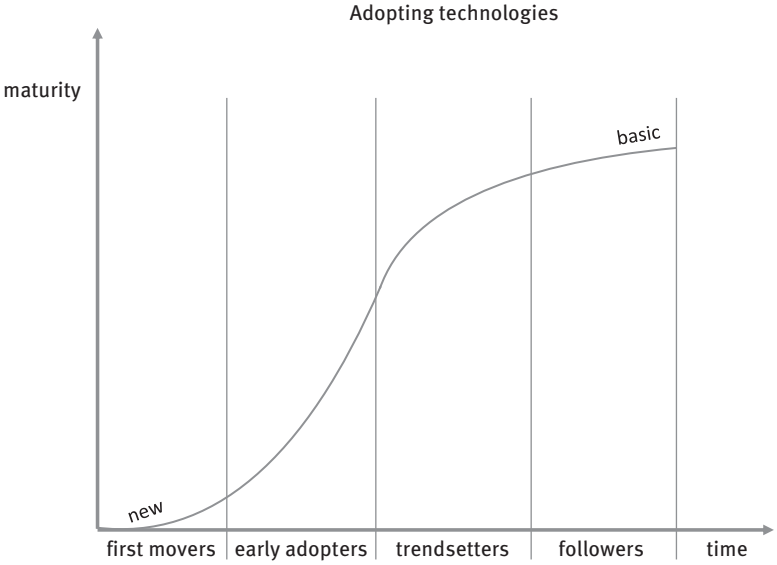

Figure 2.6: Companies compared by how they adopt technologies over time.

The number of companies is growing as we are going up on the curve. Most software companies are early adopters or trendsetters. These companies are still strong in innovation, as they have to keep up with the best.

Followers – at the end of the line – must do something to change their place or they will not be in charge of their own future.

Startups could be first movers and leaders in the new niche, but after some time their product will become part of standard technology and then (or, preferably, earlier) they have to reinvent/pivot/transform the company to be able to change the product or to place new product(s) on the market. If not, their numbers will begin to drop and the company will be in trouble.

High performers (first movers and early adopters) are five times more likely [16] to build a culture of innovation across every business function than low performers (followers).

The case of successful trendsetters

But what about when your company is a trendsetter or a follower and has no innovation activities, but still has remarkable results and is growing? Should it be changed? Should innovation be introduced if the company is doing really well without it?

16 State of Innovation, CB Insights, https://www.cbinsights.com/research-state-of-innovation-report.

There are many companies that only react to customer wishes and market trends (also with respect to technology). They have positive results and are growing, but still don't have any kind of innovation process. They feel that the new features they are bringing to market are not innovative as they are the product of customer wishes. They certainly know that they are followers and their life is easier under the umbrella that they made for themselves.

But what if the innovation process is introduced? There are certainly many potential ideas in these organisations, but they are just not recognised. In addition, innovators in such companies don't feel comfortable and often quit, as they can't fulfil their inner call for the realisation of ideas. This can be changed by introducing a shaped innovation process, which will recognise every idea, starting with incremental ideas and improvements. This could be the start of company-wide change, which must be triggered from the top. Also, this will open up a new perspective as some colleagues will feel recognised, but also managers will see that they can enrich their products with extra strength coming from the inside. A transparent and short process should make things easy for idea submitters, but also anyone managing ideas. A way to introduce bigger changes in such an environment are calls for ideas described in the chapter "Innovation Challenges", which should establish the way that new ideas could come from the inside.

It is a big challenge for a company living in an agile process environment to make a way for new thoughts and inputs into the current process of user stories and sprints. Surely, the current agile process also needs evolution, which should add internal ideas to its short cycle. The question for such companies is: what could happen with the status quo? Is it dangerous for the prosperity of the company to disturb it?

Nevertheless, the change can positively reshape the company, which will then have loyal employees or a new group of innovators which wasn't recognised before.

Maybe this will not reinvent the company in a way that it becomes an early adopter (or trendsetter), but the positive effect of innovation will set a way for new ideas which could trigger such change.

Scanning

Before starting to think about an innovation initiative, the company must be scanned for its ability to implement any programmes. Interviews, surveys or meetings with human resources, strategy, product management, sales and the CEO will surely help in scanning the current state of the company. HR and strategy should be the nearest persons in the company to innovation managers and the CEO should certainly support this.

To scan the company it is necessary to ask the following questions:

- How is innovation aligned with strategy?

- Is there a project that should expand the current portfolio? Are they an exception or common thing?
- Does management support innovation initiatives? With resources?
- Are there rewards or a kind of incentive system?
- Improvements are tracked? Processes are constantly improved across the organisation?
- Are most people coached for innovation?
- Is innovation considered an important pillar of the organisation and supported by management?
- Are we able to take people from projects and add them to innovation projects in the future?

Toxic atmosphere

In toxic environments, the mindset is often determined by innovation-killing objections (not invented here, why change this, can we do it . . .). In such an environment, people just do their work and don't care too much about it, or they don't want to hear of any activities above their work duties. Here, it is necessary to connect employees with the company and its vision. Scanning the organisational culture will uncover root problems, which must be removed to make innovation attempts possible and avoid "suicidal missions". Every employee should feel important with tasks, which contribute to the company's vision. Providing the right information, and giving everyone access to it, will be a step in the right direction as people with a wider vision and understanding of the strategy will be a step closer towards bringing everyone in line to achieve the company's mission. After raising the level of the organisational climate, innovation activities will have a chance and could be started. Still, there will always be some teams where the atmosphere is not the best.

There are also toxic persons who voice their negativity loudly so the atmosphere spreads to the surrounding environment. Individuals from such teams can still make their mark on innovation activities, if activities are accessible and promoted to everyone. Hence, from time to time company-wide challenges should be initiated to include everyone who wishes to participate.

Now, let's get back to raising innovation culture with an example of developing innovation awareness through innovation-friendly behaviours.

Example: Worldline – WIN awards

An example of a reward programme from Worldline – a multinational provider of transaction services with more than 10,000 employees.

The **WIN Awards** are Worldline's yearly innovation celebration contest. All company employees are invited to submit projects to which they contributed and which were implemented or significantly advanced during the previous year. A strong focus on the innovative character of the project is required. Projects are classified in four categories: client project, asset creation, transformation and small yet smart. After a quality check, submitted projects are presented to be voted on by all employees and the projects receiving the most votes are kept as finalists. Finally, an international jury designates one winner in each category by. The WIN Awards not only contribute to communication of Worldline's innovation achievements (over the years, nearly 1,000 projects were on-boarded), but also have a strong pedagogic role by stimulating thinking about what innovation is, how to characterize it and how to champion it.