

# Innovation management manual



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# Background on the INNOVATE project

In a world characterised by constant change, driven by rapid technological developments and global challenges, and the need for organisations to adapt to rapidly changing labour market conditions, innovation is a key competitive advantage and key to success.

To bridge this gap, the INNOVATE project and manual aims to match existing skills with the new needs of the global economy by providing a collection of best practices in innovation management and explaining their impact on today's workplaces. The manual draws on the guidelines and principles of the **ISO56000** standard to help organisations create and sustain economic growth and high-quality innovative products and aims to promote the acquisition of the necessary skills and methodologies to enable stakeholders to achieve their goals more effectively (Whitepaper, 2024). The INNOVATE project develops innovation management in these partner countries: Austria, Bulgaria, Cyprus, Finland, France, Poland and Sweden.

Many professionals and numerous educational and business institutions are still largely unaware of the strategic importance of innovation. VET providers have a crucial role to play in preparing a workforce that is not only skilled but also capable of adapting and innovating. Enterprises, including SMEs, contribute to economic activity and employment, but their growth and competitiveness potential is often hindered by a lack of innovation management practices (Whitepaper, 2024).

Innovation is not just about creating something new; it is about seizing the countless opportunities that lie ahead. In this manual, we have collected some key tools to help innovators find new solutions and ideas that can be used to manage innovation in their companies.

It is also important for small and medium-sized enterprises to invest in innovation and put it into practice. Companies should have a strategy and a plan for innovation, and their culture should support creativity. The innovation process is a good way to organise innovation in practice.

It is good to remember that innovation management is not only about the tools we use, but also about the mindset we adopt. When using methods such as Lean Startup, agile innovation, PDCA and Open Innovation, it is worth bearing in mind that innovation and **innovation management is also based on creativity**, adaptability and a constant effort to solve problems and create value for customers and the company.

Here we have compiled a set of methods and tools according to the innovation process. You can go through the process and find the tools that are right for you. You can start by testing one tool first and try it out in practice. If you get excited, you can try them all.

**We hope you find the manual useful.**

Innovate project team

# Definition of innovation and innovation management

What is innovation? According to ISO 56000, innovation is the creation or modification of an entity that either adds new value or shares existing value in a new way (ISO 2020). This concept emphasises that both novelty and the perception of value are subjective and dependent on the views of the organisation and its stakeholders. Thus, innovation can take different forms, such as products, services, processes, models or methods. In this context, innovation management plays a key role, as the role of innovation management is to align the various factors to ensure that innovative initiatives are aligned with the broader objectives of the organisation (Whitepaper 2024). McKinsey (2022) explains innovation as the systematic practice of developing and marketing breakthrough products and services for customer use.

At its simplest, the definition of innovation is doing something different. It can also be explained as a new idea, product, device or service (Oxford University Press, 2023). The widely used definition of innovation comes from the OECD and the so-called Oslo Manual; A new or improved product or process (or a combination of both) that differs significantly from an entity's previous products or processes and has been made available to potential users, product or has been adopted by the entity, process (OECD/Eurostat, 2018).

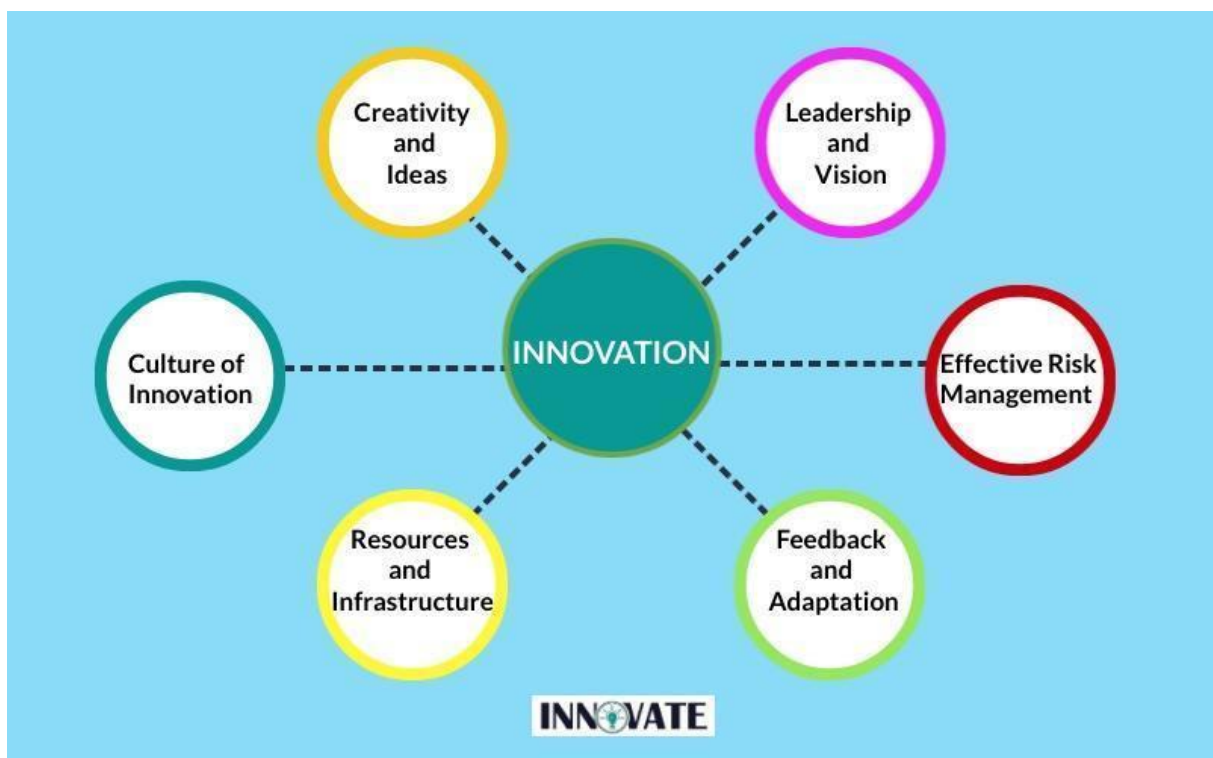


Figure 1. What can innovation be? Adapted from IdeaScale 2023.

Innovation means bringing new things into existence, usually to solve a problem. In business, it means inventing and creating new ideas and products or taking existing ideas and transforming them into something better. Innovation is the act of changing a process or product in a way that significantly increases its value or usefulness. There are many ways to innovate, but it usually involves creative thinking. Innovation takes place in both business and in society at large. (Indeed 2023).

## Innovation management

Based on the ISO 56000 vocabulary, innovation management can be defined as the process of managing and controlling the innovation aspects of an organisation (ISO, 2020). It involves developing an innovation vision, strategy, policies and objectives, and creating the organisational structures and processes needed to achieve these objectives, including comprehensive planning, providing support, managing activities, assessing performance and facilitating continuous improvement.

Because innovation management is such a broad and somewhat abstract topic, it has been conceptualised by dividing it into four key areas of culture, capability, strategy and structure. In practice, successful innovation requires that all four aspects are considered and work well together.

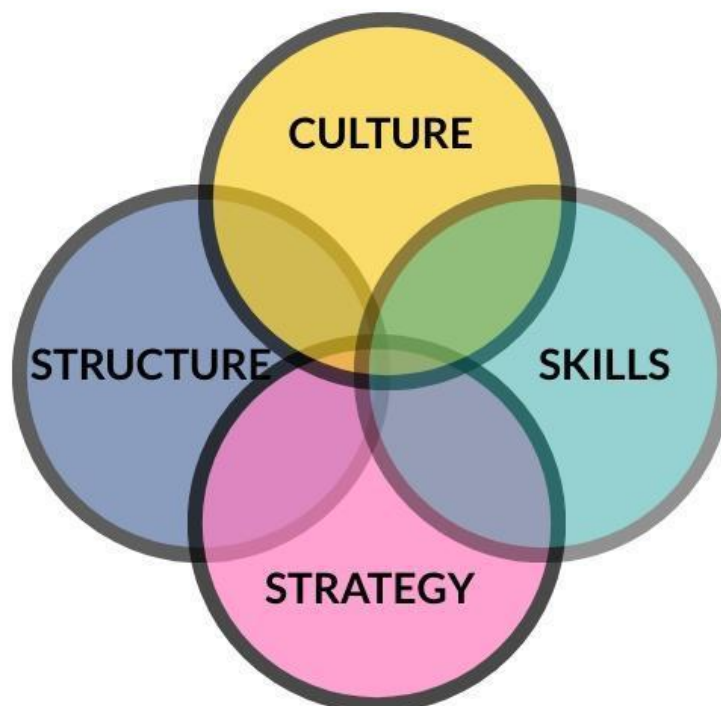


Figure 2: Four key areas of innovation management adapted from Viima 2023.

## Culture

Culture refers to an organisation's people-related capabilities and is considered one of the most important drivers of business innovation. An innovative corporate culture emphasises the need to always think of new ways to improve. It values speed, continuous learning and experimentation and considers failure to be just a normal part of the process of creating something new. Companies with an innovative culture recognise that innovation can come from anyone in the organisation - not just from the top. Such organisations provide sufficient freedom and freedom for the people working in the company and are led primarily by vision rather than a chain-of-command approach (Nieminen 2023).

## Skills

Capabilities refer to the resources an organisation has to create and manage innovation. These capabilities are also primarily people-related and include both the capabilities of individuals and teams working together. Organisational capabilities include knowledge capital, people's practical skills, tacit knowledge and unique insights. Other resources, such as financial capital, may also be needed to create innovations, as some money often needs to be invested to test and launch new ideas (Nieminen 2023).

## Strategy

The strategy is about achieving competitive advantage by delivering unique added value to customers, and innovation is just one way to achieve the strategic objectives. The strategy sets the direction for your innovation activities and structures your innovation work. To truly improve different aspects of your business and achieve your goals, your innovation strategy should be aligned with your overall business strategy (Nieminen 2023).

## Structure

The organisational structure consists of different teams, processes, communication channels and infrastructure. It is a system that outlines how specific activities are managed to achieve the goals of the organisation. The right structures enable organisations to operate and innovate more effectively by enabling the efficient use of these capabilities. The organisational structure also determines how information flows vertically and horizontally between different levels and teams in the organisation. The right channels of communication will make the pa-loading process smoother. When communication is not restricted and information flows in all directions, it ultimately has a positive impact on the internal functioning of the company (Nieminen 2023).



## Why innovate?

The ability to innovate is an important skill that humans can use for future business development. When applied effectively, innovation has many benefits. It can be the key to unlocking new opportunities and maintaining a competitive edge in your industry. Innovation can lead to higher customer satisfaction and increased revenue. It is also a way to differentiate oneself from competitors in the marketplace and reduce competition in one's own niche. Innovation can lead to increased productivity, as it encourages professionals when they see their ideas being implemented. It is the cornerstone of economic development in technology for both hardware and software (Indeed, 2023).

## The importance of innovation

Unforeseen challenges are inevitable in business. Innovation can help you stay ahead of the curve and grow your company in the process. Here are three reasons innovation is crucial for your business:

1. It allows adaptability: Innovation is necessary for companies to adapt and overcome the challenges of change.
2. It fosters growth: Stagnation can be extremely detrimental to your business. Achieving organisational and economic growth through innovation is key to staying afloat in today's highly competitive world.
3. It separates businesses from their competition: Most industries are populated with multiple competitors offering similar products or services. Innovation can distinguish your business from others (Boyles 2022).

Innovation is vital in the workplace because it gives companies an edge in penetrating markets faster and provides a better connection to developing markets, which can lead to bigger opportunities. Innovation can also help develop original concepts while giving the innovator a proactive, confident attitude to take risks and get things done. When a company has an innovative culture, it'll grow easily, even though the creative process isn't always simple. Tried-and-tested methods may be reliable, but trying out new things is a worthwhile experiment (Henderson 2021).

# Innovation Process

Innovation is a continuous process, and organisations should foster a culture of innovation. This includes gathering feedback, promoting learning from successes and failures, and constantly seeking new opportunities for innovation. Regular review and refinement of the innovation process itself is also essential to optimise the organisation's ability to innovate effectively.

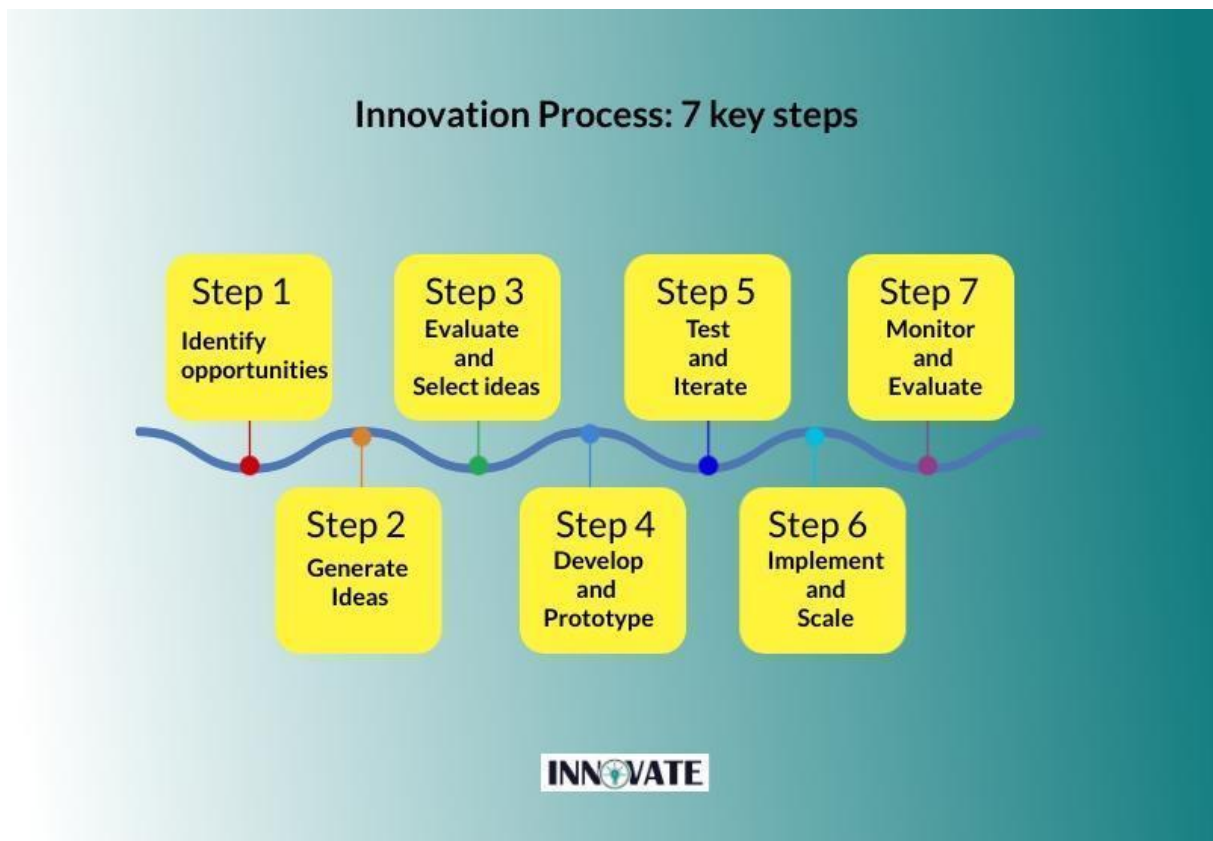


Figure 3. Seven main steps of the innovation process, adapted from IdeaScale 2023.

The innovation process usually involves several key steps that firms use to promote and implement innovation. Although approaches may vary, the general steps in the innovation process are listed below.

### Step 1. Identifying opportunities

The first step is to identify opportunities for innovation. This can be done through market research, customer insight, trend analysis or internal assessments. It is necessary to identify which opportunities will respond to the identification of needs.

### Step 2. Generating ideas

Once the opportunities have been identified, the next step is to generate ideas. This can be done through brainstorming sessions, idea competitions, customer feedback or a variety of collaborative activities. The aim is to generate many creative and innovative ideas that have the potential to respond to the opportunities identified.

### Step 3. Evaluate and select ideas

After brainstorming, the next step is to evaluate and select the most promising ideas. This involves assessing the feasibility, viability and desirability of each idea. The aim is to identify ideas that are worth pursuing.

### Step 4. Development and prototype

Once the ideas have been selected, they can be further developed and prototyped. The selected ideas are transformed into concrete prototypes, mock-ups or MVPs (Minimum Viable Products). The aim is to test and validate the concepts, collect feedback and, if necessary, improve the ideas.

### Step 5. Testing and replication

At this stage, prototypes or MVPs are tested with users or in real-life situations. Customer feedback is collected, and concepts are iterated and refined. This iteration process helps to confirm assumptions, uncover potential areas for improvement, and improve innovation before moving on to the next phase.

### Step 6. Implementation and scaling up

Once an innovation has been tested and refined, it can be implemented and scaled up. At this stage, a detailed implementation plan is drawn up and the necessary steps are taken to bring the innovation to market or implement it within the organisation.

### Step 7. Monitoring and evaluation

Once implemented, it is important to monitor and evaluate the performance and impact of the innovation. This includes monitoring key indicators and performance indicators. Regular evaluation helps to identify areas for improvement, make necessary changes and gain experience for future innovation initiatives.

**Annex 2: ISO 56000 and the innovation process**, is an overview of the ISO 56000 series on Innovation Management together with contents in this ISO series that correlate to the steps of this Manual. In addition, this appendix includes Case Studies in the context of the ISO 56000 series and a description of the ISO/TS 56010:2023.

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# IDENTIFY OPPORTUNITIES Step 1

The first step is to identify opportunities for innovation. This can be done through market research, customer insight, trend analysis or internal assessments. It is necessary to identify which opportunities will respond to the identification of needs.

Why not use open innovation?



## Method description in nutshell

Open innovation is a collaborative approach to problem solving that harnesses the collective intelligence of a wide range of people. Open innovation proposals can include ideas around specific challenges or opportunities, suggestions from potential new businesses and partners, and feedback directly from customers (Itonics 2023).

This method promotes the collaborative exchange of ideas and expertise both inside and outside the open business frontier. The basic approach is quite democratic, as innovation is not confined to the walls of any business environment but can be sourced from anywhere. Thus, a business environment can greatly benefit from cooperation with different stakeholders, whether they are inside or outside the same industry. The method supports collaboration and knowledge sharing between different stakeholders and sectors, enabling organisations to increase their capacity to innovate and respond more effectively to challenges.

In today's fast-paced business world, innovation has become a key competitive advantage. Companies that can constantly innovate and adapt to changing market conditions are more likely to succeed and outperform their competitors. Open innovation allows companies to identify opportunities for innovation, differentiate themselves, create value and stay at the forefront of developments (Faster Capital).





Infographic of the method



Figure 4. Open innovation adapted from IdeaScale.

## Strengths and weaknesses of the method

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>● <b>Access to a broader pool of ideas and expertise:</b> Open innovation allows organisations to tap into external sources of innovation, such as customers, suppliers, research institutions, and startups. This provides access to a wider range of ideas, knowledge, and expertise that may not be available internally.</li> <li>● <b>Faster time-to-market:</b> By collaborating with external partners, organisations can accelerate their innovation processes. Open innovation enables faster development and commercialization of new products or services by leveraging external resources and capabilities.</li> <li>● <b>Differentiation from competitors:</b> open innovation allows companies to stand out in a competitive market by introducing new tools, technologies and techniques.</li> <li>● <b>Adaptability:</b> by being open to external ideas and technologies, open innovation gives companies the flexibility to adapt to market changes and new trends.</li> <li>● <b>Enhanced competitiveness:</b> Open innovation helps organisations stay competitive by leveraging external knowledge and capabilities. By accessing a diverse range of perspectives and expertise, companies can develop more innovative and competitive products or services.</li> <li>● <b>Sustainable competitive advantage:</b> Continuous innovation ensures long-term competitiveness, and the innovation cycle helps to maintain a competitive advantage in the marketplace and meet changing consumer needs and expectations.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Intellectual property (IP) concerns:</b> Sharing knowledge and collaborating with external partners can raise concerns about protecting intellectual property. It requires careful management of IP rights, contractual agreements, and trust-building mechanisms to ensure the appropriate protection of valuable assets.</li> <li>● A particular challenge is the <b>management and coordination</b> of the large number of proposals and applications. To be successful, open innovation initiatives need to be well organised.</li> <li>● <b>Establishing clear guidelines</b> and selection criteria can be a challenge, as can ensuring that the best proposals are selected and go forward for further development.</li> <li>● <b>Cultural and organisational barriers:</b> Adopting open innovation may require a cultural shift within an organisation. It may be challenging to overcome internal resistance to sharing information, collaborating with external partners, and embracing a more open and collaborative mindset.</li> <li>● Organisations need to manage a range of issues such as <b>trust and collaboration, cultural differences,</b> intellectual property rights, complexity management and resistance to change to realise the full potential of open innovation and achieve successful outcomes.</li> </ul>

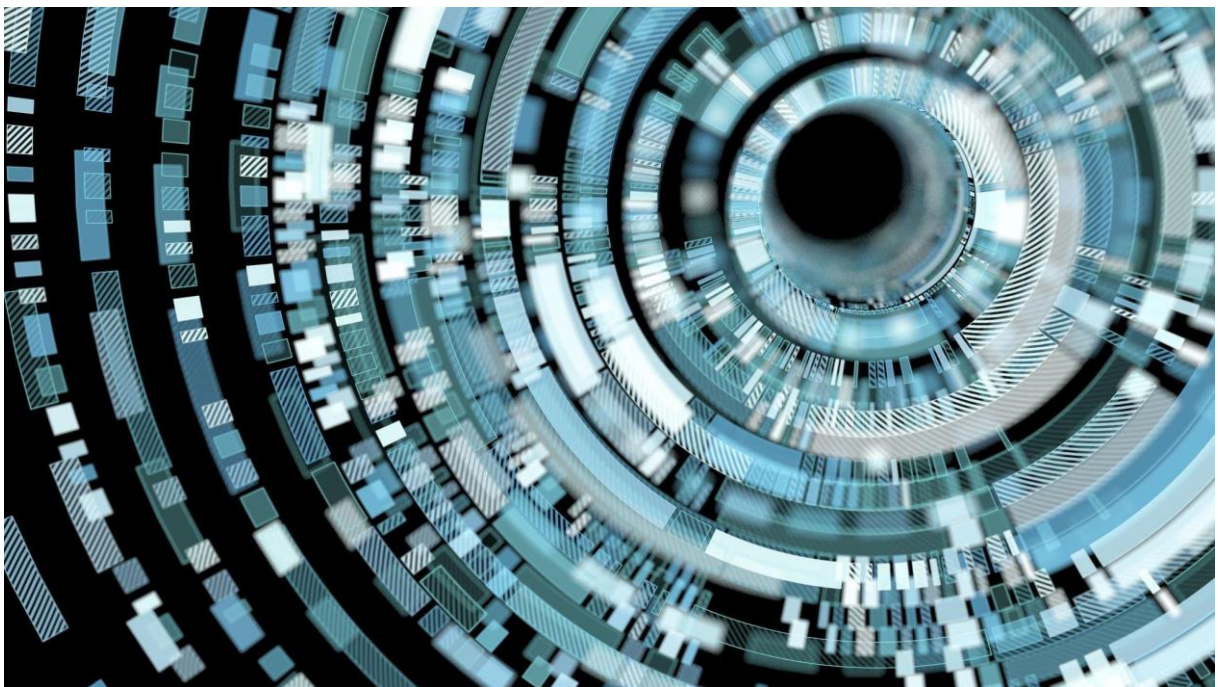


## How to use the method?

Open innovation in SMEs promotes commercialisation by combining internal strengths with external collaboration and outsourcing for competitive advantage (Henttonen and Lehtimäki 2017).

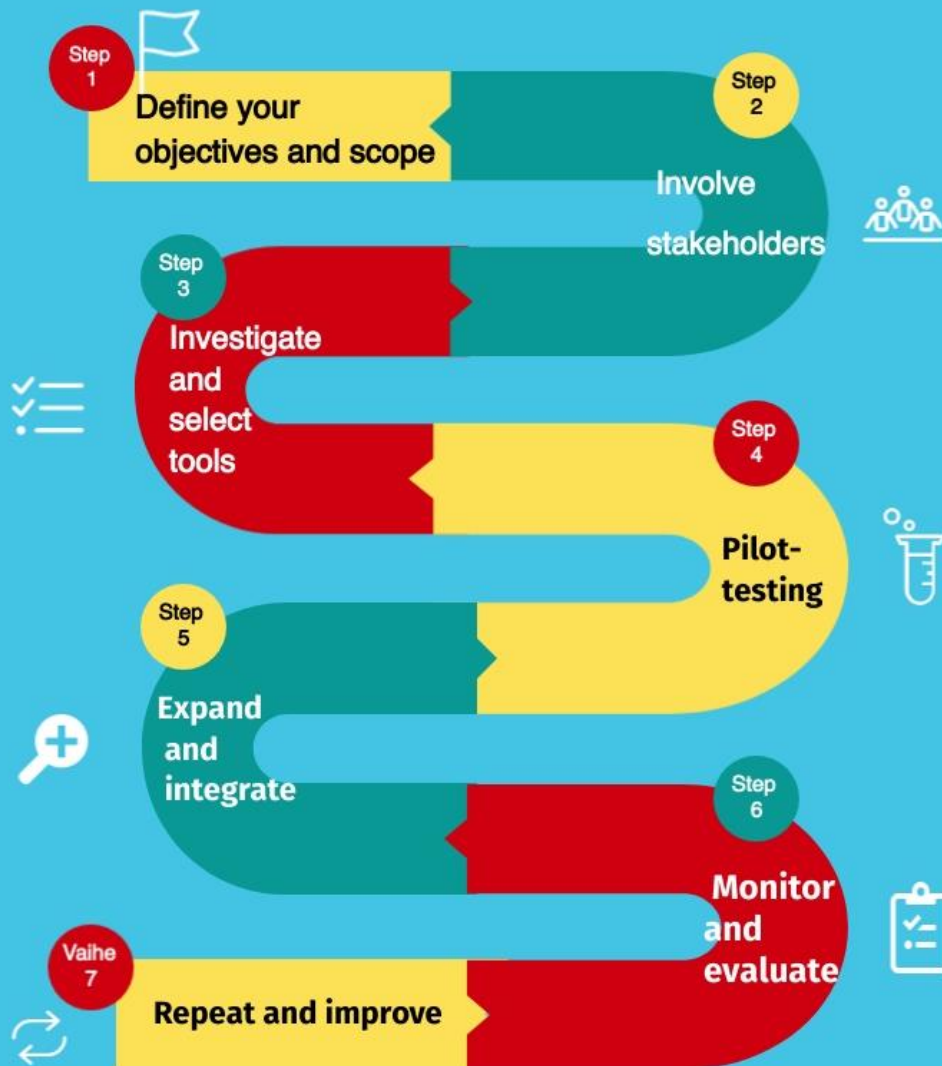
All good ideas do not always come from within your own company and not all ideas necessarily need to be developed further within your own company. For companies, this means that people must change the way they look at the company and its environment. Involving others in the development of new products and technologies can bring great added value. Collaboration can take place with other companies in industry, suppliers, universities and, of course, end-users. This method is crucial in this environment.

Ultimately, the business model, which describes how a firm creates value from innovation and which elements it obtains internally and which externally, largely determines how and when external knowledge is needed and used (Chesbrough, 2003).



# Roadmap

## Open innovation tools and techniques



INNOVATE

Figure 5. Roadmap for the use and exploitation of open innovation tools and techniques adapted from Itonics.

### **Step 1: Define the objectives and scope.**

Start by clearly defining the objectives you want to achieve through open innovation. Whether it's improving product offerings, streamlining internal processes or identifying new business models, a clear focus is essential.

### **Step 2: Involve stakeholders**

Once the objectives have been defined, involve key stakeholders such as employees, management and even customers if necessary. Make sure everyone understands the importance and benefits of open innovation and fosters a culture of collaborative problem solving.

### **Step 3: Explore and choose your tools**

There are many open innovation tools available to help you achieve your goals. For example, tools such as InnoCentive and IdeaScale offer platforms for crowdsourcing ideas. Other resources can include open-source software for collaborative projects or APIs (Application Programming Interfaces) that allow you to integrate external functionality into your products.

### **Step 4: Pilot testing**

Before you fully implement a new tool or technique, run a pilot test to assess its effectiveness. Use the data collected to make changes and optimise the process. For example, you could organise a small-scale competition of ideas in your department to test the crowdsourcing platform before introducing it company-wide.

### **Step 5: Expand and integrate**

Once you are satisfied with the results of the experiment, you can extend the innovation process to other areas of your business. Also integrate these tools into existing work processes so that they complement rather than disrupt existing activities.

### **Step 6: Monitor and evaluate**

Use analytics and key performance indicators (KPIs) to measure the impact of open innovation. Tools such as Google Analytics to track customer engagement or internal metrics to measure process efficiency can provide valuable insights.

### **Step 7: Repeat and improve**

Open innovation is an ongoing process. Use the data and feedback you collect to continuously improve your innovation efforts. Look for new tools, materials and techniques that can be integrated into your strategy to achieve success.

## Why use the method?

Open Innovation enables an organisation to be more effective in creating as well as capturing value. They help create value by leveraging many more ideas because of their inclusion of a variety of external concepts (Chesbrough 2007.)

In open innovation, organisations strategically use internal and external knowledge to leverage their business value and thus maintain a sustainable competitive advantage (Sá, Ferreira & Jayantilal 2023).

In other words, open innovation is related to the choice of business model and technology strategy. The distinction between open and closed is only a matter of definition and degree. Firms can decide which parts of knowledge can be made open and which parts remain subject to intellectual property rights (Bogers, Chesbrough, Heaton & Teece 2019).

## Tips to use the method

Success is only guaranteed if the firm is internally prepared and organised for open innovation.

Two important conclusions:

1) focusing exclusively on building innovation-driven relationships with external partners (i.e. adopting external innovation) is not sufficient to improve innovation capabilities and  
2) managers who intend to use external innovation should prepare the firm internally by developing an innovation strategy for both internal and external knowledge sharing processes if they want to improve innovation capabilities (Bagherzadeh, Markovic, Cheng & Vanhaverbeke 2020).

Outline a step-by-step plan for implementing open innovation. How will you solicit ideas from employees, customers, partners and other stakeholders? How will you evaluate ideas and manage the process? How does your team manage rejected proposals?

- Explain the objectives of implementing open innovation and how it helps to achieve business goals. Are you trying to enter new markets, improve your service or product offering, promote the search for new businesses from outside, reduce the risks and costs of existing innovations, or bring new perspectives and ideas to the business?
- Give details of how you intend to generate engagement. How will you reach out to external partners in a simple and secure way? How will you communicate and encourage engagement?
- Give examples of successful open innovation projects. Give a few examples that show what open innovation can do (Itonics 2023).

## Other methods and tools

**Environmental inventory.** Today, change is coming at businesses from more directions than ever before. As the market changes, the innovator maps the impact on the customer and uses the results to identify new customer opportunities. Therefore, the nature of these changes must be identified. You need to know how the economy, legislation, social and cultural changes, technology and foreign competition will affect your business. (Merrill 2015).

**Peripheral vision** is the ability to see objects and movements outside the direct field of vision, typically at the edge of the visual field "out of the corner of the eye". Developing strong peripheral vision is essential in business to remain agile, innovative and competitive. (Merrill 2015).

It allows you to ask the following questions:

- What are the previous blind spots?
- What other industries give us benchmarks?
- What other peers do we compare ourselves with?
- What are peripheral customers and competitors saying?
- What surprises could really hurt your business?
- What new technologies are changing the landscape in your industry?

**A focus group** is a guided small-group discussion tool that brings together like-minded people and asks them questions about, for example, specific services. The aim of an innovator is to understand the views, opinions, beliefs, ideas and attitudes towards a particular topic in a particular service context in order to guide future business decisions in that direction. (Haaga-Helia.)

For contents in the ISO 56000 series on Innovation Management correlating to this step of our Manual, see annex 2: ISO 56000 and the innovation process.





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# GENERATE IDEAS

## Step 2

Once the opportunities have been identified, the next step is to generate ideas. This can be done through brainstorming sessions, idea competitions, customer feedback or a variety of collaborative activities. The aim is to generate many creative and innovative ideas that have the potential to respond to the opportunities identified.

**Why not use the Innovation funnel?**



## Tool description in nutshell

**Innovation funnel** - It is a tool that assists businesses in managing new ideas. It helps streamline innovation and minimise risk by providing a process to prioritise, screen, select, eliminate, refine, and test proposed solutions.

Not all ideas pass through the funnel. The process of elimination is crucial, as discarding unviable ideas early saves time and money, allowing resources to focus on more promising innovations.

Conversely, an idea that successfully navigates all stages of the innovation funnel should emerge as a viable product or service. It will have been developed and tested with the right balance of structure and governance, without being hindered by cumbersome processes.

## Infographic of the tool

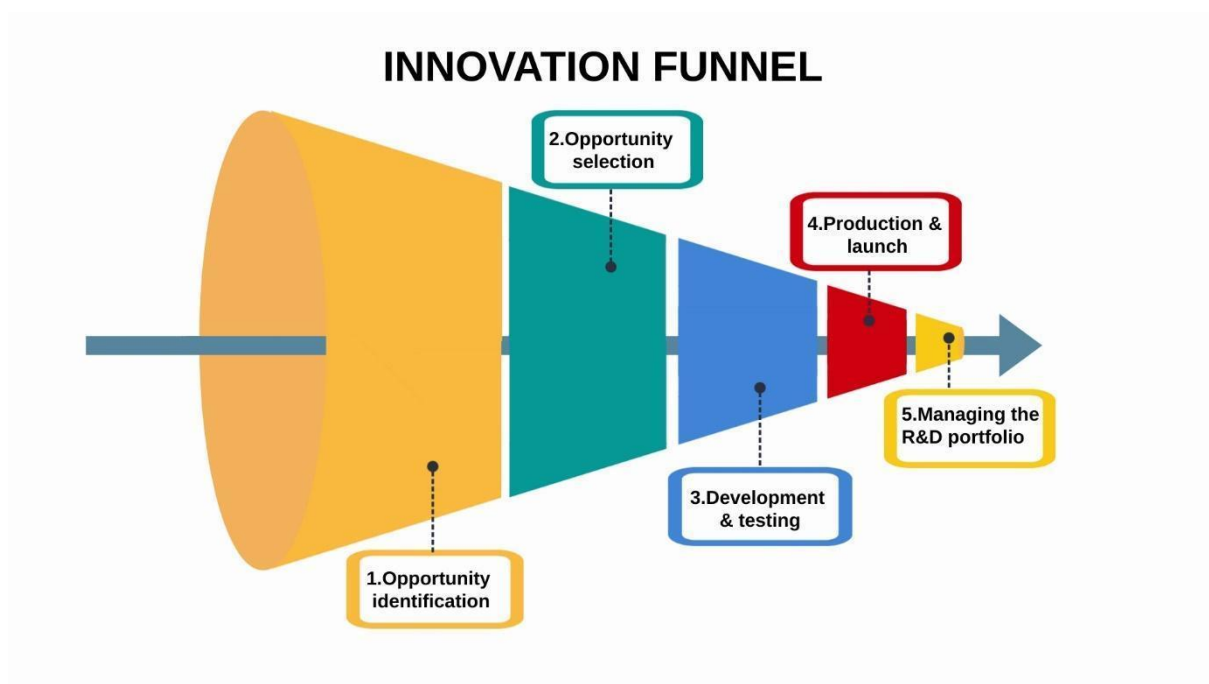


Figure 6: Innovation funnel adapted from Nulivo.



## Strengths and weaknesses of the tool

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>Generates competitive advantage for the business</li> <li>High quality idea development process</li> <li>Clear matrix and evaluation criteria</li> <li>Adaptable framework to different organisational sizes and industries</li> <li>Reduced uncertainty and early detection of failures</li> </ul>	<ul style="list-style-type: none"> <li>Time consuming process</li> <li>Risk of narrow focus and loss of valuable ideas</li> <li>Requires significant resources</li> <li>Lack of agility in dynamic markets/ uncertain situations</li> </ul>

### How to use the tool?

The model has 5 key stages. At each stage, the business decides whether to advance the innovation to the next level. These decision points are known as stage gates or decision gates. Ideally, some ideas will be eliminated at each stage, leaving only the best ideas at the end.

**Stage 1: Ideation - The Birthplace of Ideas** Every innovative concept begins with an idea. During the ideation phase, often facilitated by design thinking sessions or open innovation platforms, numerous new concepts emerge. Teams generate a continuous flow of ideas.

**Stage 2: Evaluation - Sifting Through the Potential** With so many ideas, it's crucial to evaluate them critically. During the evaluation stage, available data and specific criteria are used to assess each idea's potential impact and feasibility. The focus is on identifying the most actionable ideas rather than just the best ones.

Set your evaluation criteria in line with your business's mission, vision, and goals. Determine how you will measure the success of your innovations, then structure your evaluation framework accordingly.

**Stage 3: Prototyping - Bringing Thoughts to Life** Having a brilliant idea is one thing; seeing it in action is another. In the prototyping stage, promising ideas are transformed into tangible prototypes or trial service propositions. These prototypes represent new services or products with the potential to revolutionise an industry.

**Stage 4: Testing - The Crucible** To determine an idea's viability, it must be tested. Before fully committing, these ideas undergo rigorous testing. Feedback mechanisms such as focus groups and early-stage initiatives are invaluable, refining the concept for a full-scale launch.

**Stage 5: Implementation - The Final Frontier** Once tested and refined, the idea moves from being a proposal in the innovation portfolio to a fully-fledged product or service offering.

## Why use the tool?

The innovation funnel can be a powerful tool for managing the innovation process, but its success depends on how it is implemented and managed. By defining clear objectives, encouraging diverse participation, fostering a culture of innovation, and using agile processes, organisations can maximise the effectiveness of the funnel. The tool helps in narrowing down a wide array of ideas to the most feasible and valuable ones. It streamlines the innovation process, making it more efficient and manageable. The Innovation Funnel can also be scaled to fit the size and needs of any organisation, from startups to large enterprises. Additionally, leveraging technology, streamlining decision-making, and continuously monitoring progress will help ensure that the innovation funnel remains a dynamic and valuable component of the organisation's innovation strategy. Organisations need to balance the structured approach of the funnel with flexibility and openness to ensure that they capture and develop both incremental and breakthrough innovations.

## Tips to use the tool

1. **Define clear objectives and criteria before starting the process** - This helps guide the direction of idea generation and evaluation. Setting specific criteria should include factors such as feasibility, market potential, alignment with business goals, and innovation impact. Communicate the objectives and criteria to all participants. This transparency ensures everyone understands the expectations and evaluation process.
2. **Encourage diverse participation** - Encourage participation from employees across different departments and levels of the organisation.
3. **Utilise Technology and Tools** to make the process more interactive, visual and modern - Use technology and tools to streamline the innovation process, facilitate collaboration, and track progress. Implement virtual collaboration platforms to enable remote teams to participate effectively in the innovation process.
4. **Use agile methodology** - Implement agile methodologies, such as iterative development or rapid prototyping, to quickly test and refine ideas

**Innovation Funnel for idea management:** Use the Innovation Funnel to manage the flow of ideas, ensuring that only the best ideas are developed and implemented within the business model framework.

Using the Innovation Funnel together can provide a powerful framework for generating and refining business ideas.

## Other methods and tools

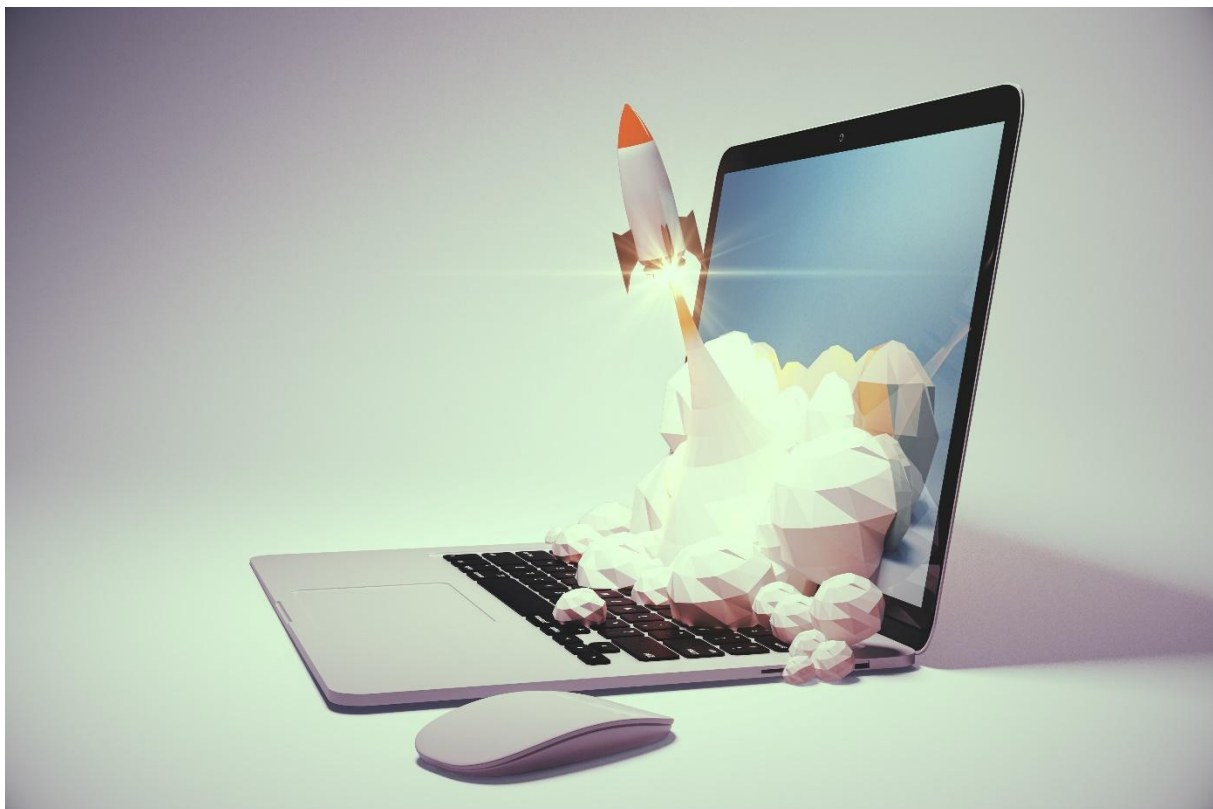
[Ayoa Free](#) is a great introduction to mind maps, a process that has been enhancing the way people think for decades. Ayoa's vibrant branches stimulate the brain to create mental shortcuts. Sort, highlight, analyse notes and identify more connections, all in a distinctly visual manner.

[MindMap](#) is another tool to help you create and share mind maps for free. Brainstorm, create presentations and document outlines with mind maps, and publish your ideas online and to social networks - check it out.

[Reverse brainstorming](#) is a creative problem-solving technique that involves thinking about a problem in reverse order through generating ideas on how to make the problem worse, instead of directly solving it. This approach is used to stimulate new ideas and perspectives that might not emerge during traditional brainstorming sessions. Check out [Miro's reverse brainstorming template](#) to help you apply this technique.

[Ideamap](#) is a tool that generates ideas through AI to make brainstorming more efficient. This innovative tool uses advanced algorithms to generate unique and inspiring ideas, sparking your imagination and helping you overcome creative blocks.

For contents in the ISO 56000 series on Innovation Management correlating to this step of our Manual, see annex 2: ISO 56000 and the innovation process.



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# EVALUATE AND SELECT IDEAS

## Step 3

After brainstorming, the next step is to evaluate and select the most promising ideas. This involves assessing the feasibility, viability and desirability of each idea. The aim is to identify ideas that are worth pursuing.

Why not use six thinking hats here to select the best ideas?



## Method description in nutshell

The Six Thinking Hats is a method created by Edward de Bono in 1985 to help people think more effectively. Method is used to amplify creative conversations, by making sure that a broad variety of viewpoints and thinking styles are represented. It involves looking at a problem or situation from six different perspectives, each represented by a different **hat**. The Six Thinking Hats technique is a great tool for brainstorming, solving problems, and making decisions on how to select the ideas (Airfocus.)

1. **White Hat:** This is the objective hat, which focuses on facts, logic and information. What do we know? What data is available?
2. **Red Hat:** This is the intuitive hat. It represents emotions, instinct and feelings. What are our gut reactions? How do we feel about this?
3. **Black Hat:** This is the cautious hat. Used to predict negative outcomes. Look at potential problems and risks. What could go wrong? What are the drawbacks?
4. **Yellow Hat:** This is the optimistic hat. Used to look for positive outcomes. It focuses on the positives and benefits. What are the advantages? Why is this a good idea?
5. **Green Hat:** This is the creative hat where ideas are abundant, and criticism is spare. It encourages creativity and new ideas. What are some alternative solutions? How can we think outside the box?
6. **Blue Hat:** This is the hat of control, used for management and organisation. It manages the thinking process. What is the next step? How should we organise our thinking?

By using these different hats, you can explore a problem from multiple angles, leading to more balanced and well-rounded decisions. It's a great tool for brainstorming, problem-solving, and making decisions about what ideas you can select in a structured way.

Infographic of the method

# The six thinking hats

- THE BLUE HAT**  
Manages the process  
Listens, directs attention, integrates, moves forward
- THE YELLOW HAT**  
Sunshine & positivity  
Optimism, possibilities, upsides, potential
- THE BLACK HAT**  
Caution & skepticism  
Dangers, threats, risks, drawbacks, worst-case scenarios
- THE WHITE HAT**  
Data, facts & information  
What we know and what we ought to find out.
- THE GREEN HAT**  
Creativity & surprise  
Alternatives, reframing, out-of-the-box-ideas, what-ifs
- THE RED HAT**  
Feelings, reactions +vibes  
How we feel: gut instincts, honest emotions, intuition

Figure 7. Six thinking hats adapted from BiteSize Learning.

## Strengths and weaknesses of the method

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>● Model promotes parallel thinking, where everyone shares their thoughts simultaneously instead of arguing.</li> <li>● Method is intuitive, easy to apply, and suitable for any industry and age group capable of analytical thinking. Formal training is recommended for deeper understanding.</li> <li>● Model formalises thinking types, ensuring balanced and constructive discussions.</li> <li>● Model provides a common language to include all major thinking styles.</li> <li>● Method is simple, formal, and neutral, making it an excellent tool for guiding conversations, shifting thinking modes, reducing conflict and meeting time, and effectively analysing issues and generating ideas.</li> <li>● Great tool to select ideas in co-creative process</li> </ul>	<ul style="list-style-type: none"> <li>● The effectiveness of the method is questionable due to unverified claims and insufficient scientific support.</li> <li>● Method is more effective for group brainstorming than individual problem-solving</li> <li>● Model can be misapplied in complex business discussions, potentially interfering with the dynamics despite its benefits for group activities focused on negotiation or idea generation.</li> <li>● Critics argue that the six hats method feels unnatural and confusing, potentially wasting time instead of saving it.</li> <li>● Method can lead to personality labelling</li> <li>● Misuse of method, such as assigning hats for the entire meeting, suggests unclear communication of the process. Critics argue more practical guidance is needed.</li> </ul>



## How to use the method?

A step-by-step guide on how to use it:

1. **Clarify the Goal:** Define the decision or problem you need to address.
2. **Assemble the Team:** Gather participants who will contribute to the discussion.
3. **Assign Hats:** Use the six different hats to guide thinking:
  - **White Hat:** Focus on facts and data. Focus on available data: Market trends, customer demographics, competitor analysis. Identify gaps in our knowledge and what additional information is needed
  - **Red Hat:** Express emotions and feelings. Express gut feelings, intuitions, and emotions about our ideas and market position. Encourage open sharing without judgement or need for justification.
  - **Black Hat:** Identify risks and potential problems. Critical assessment of barriers, risks, and potential problems in increasing market share. Discussion of worst-case scenarios and mitigation strategies
  - **Yellow Hat:** Highlight benefits and positive aspects. Optimistic viewpoints: potential benefits, best-case scenarios, and opportunities. Exploration of what could go right and potential rewards
  - **Green Hat:** Encourage creativity and new ideas. Creative brainstorming: new ideas, innovative strategies, and alternative approaches. Encourage out-of-the-box thinking and challenge existing assumptions
  - **Blue Hat:** Manage the process and ensure the rules are followed. Process control: summarise insights from each hat. Outline next steps and how to integrate the diverse perspectives into a cohesive strategy
4. **Follow Sequences:** Decide on the order in which hats will be used. This can vary depending on the situation.
5. **Facilitate Discussion:** The Blue Hat wearer (often the facilitator) guides the discussion, ensuring each hat is used effectively.
6. **Summarise and Decide:** After all hats have been used, summarise the insights and decide based on the balanced perspectives gathered.

This method helps ensure that all aspects of a problem are considered, leading to more comprehensive and balanced decision-making.

## Why use the method?

The Six Thinking Hats technique is a great way to refresh your agile retrospectives, especially if your team is getting bored with the usual format. This method allows you to examine what went well and what didn't, but from different perspectives represented by each hat. The first time you use the Six Thinking Hats in a retrospective, it might take a bit longer than usual. However, you'll likely find that your team is much more engaged. This technique also helps uncover a broader range of insights to guide your next sprint (Airfocus.)

## Tips to use the method

As the facilitator, you have an important role to play in keeping things on track. A few important tips (Bitesize learning):

- **Communicate each hat's purpose clearly:** Ensure that all participants are familiar with the function and purpose of each hat. This understanding is crucial for the effective application of the technique.
- **Keep the process well-structured:** Follow a structured approach to the discussion, with a clear sequence for using each hat. This structure helps maintain focus and ensures that all aspects of the issue are considered.
- **Manage the time effectively:** Allocate a specific amount of time for each hat. This prevents overemphasis on one perspective and ensures a balanced approach. You can of course be flexible and let some hats have more time than others. Be suspicious of hats where 'nobody has anything to say' or 'it doesn't apply to this' – sit in the silence for a bit and try to draw out something.
- **Get everyone contributing:** Make sure everyone contributes under each hat. This avoids dominance by a few individuals and ensures diverse viewpoints are considered.
- **Keep people on-topic or on-hat, as the case may be:** Keep the thinking under each hat separate from the others. Don't let participants start veering into another hat's category until you've moved on. Remember a head can only wear one hat at a time!
- **Create a safe environment:** Especially for the Red Hat, create an atmosphere where participants feel comfortable expressing their emotions without fear of judgement.
- **Record and review contributions:** Document the key points raised under each hat. These notes are helpful for review and reference after the session. Use the Blue Hat to regularly summarise the discussion, especially when transitioning between hats. This helps in keeping track of the discussion and in maintaining a clear focus.

- **Use visual aids:** Consider using visual symbols, presentation slides, or even actual hats to reinforce the mode of thinking being used.
- **Use the underlying principles more broadly:** the key purpose of the Hats is to align everyone's thinking style in some important but otherwise easy-to-neglect way at the same time, and by communicating this ahead of time, providing a structure that provides reassurance to meeting participants. But you can apply this insight more broadly, not only by using all Six Hats in a formal process. For instance, it might be as simple as saying: "After I've shared with you some of the key details on X, I'd really just like to take a few minutes for everyone to openly share their immediate feelings on the matter, before we dig into the work required." Or perhaps: "After we've done our usual analysis of the issue, I want to hold the final twenty minutes for us to really dream up some really different approaches."

## Other methods and tools

Depending on the demands of a desirable outcome, its complexity and the time, budget availability, different prioritisation techniques can be equally suitable. Some alternative tools used to prioritise suggested features, are listed below and general guidance and description of each is referenced by (Savio, 2023; Altexsoft, 2019; Roadmunk, 2020)

Use tools like [SWOT analysis](#) to assess strengths, weaknesses, opportunities, and threats of the ideas. The final policy options are reflected in the company's vision, which includes not only a statement of intent but also an assessment of the necessary resources and a risk analysis. When successful, SWOT creates a competitive advantage for the company by helping it to identify future opportunities and manage future risks.

[The MoSCoW method](#) or MoSCoW analysis, is a popular prioritisation technique for managing requirements. The acronym MoSCoW represents four categories of initiatives: must-have, should-have, could-have, and won't-have, or will not have right now. You can try it also when selecting ideas.

For contents in the ISO 56000 series on Innovation Management correlating to this step of our Manual, see annex 2: ISO 56000 and the innovation process.

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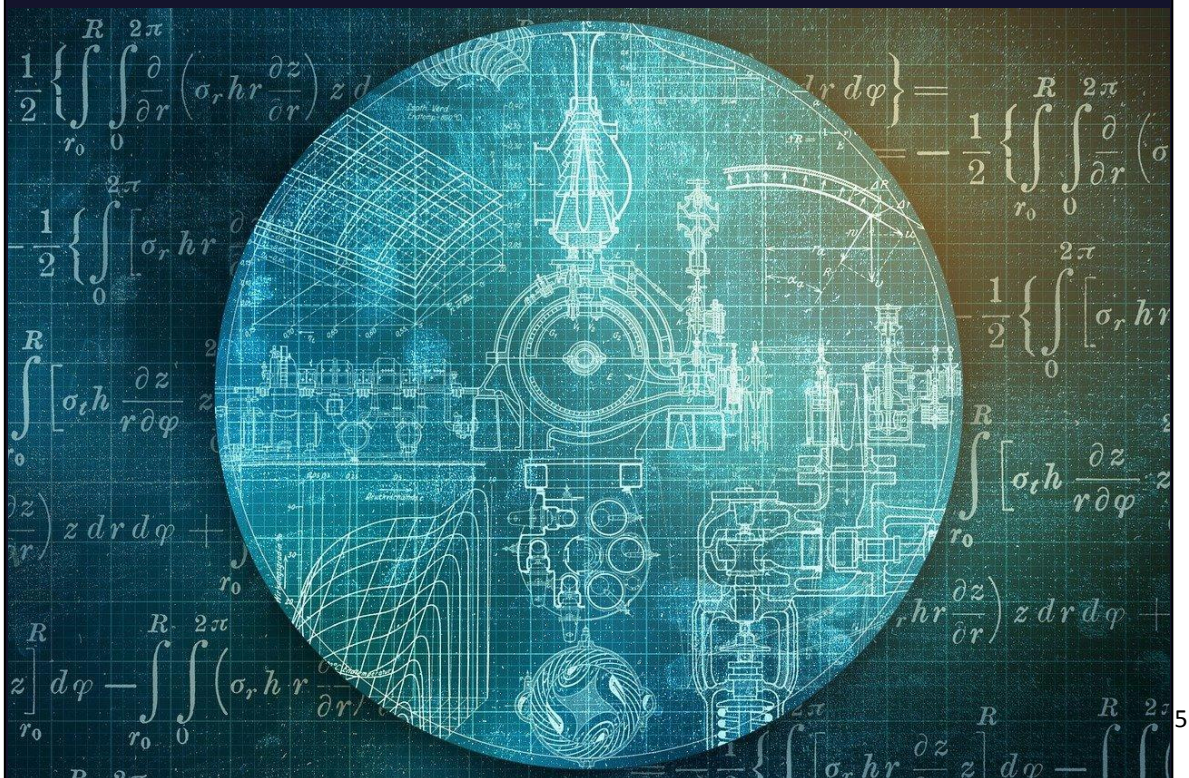
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# DEVELOP AND PROTOTYPE Step 4

Once the ideas have been selected, they can be further developed and prototyped. The selected ideas are transformed into concrete prototypes, mock-ups or MVPs (Minimum Viable Products). The aim is to test and validate the concepts, collect feedback and, if necessary, improve the ideas.

Why not use agile prototyping method here?



## Method description in nutshell

**Prototyping** is the process of quickly building a simplified version of a product to test ideas, validate concepts, and gather user feedback before full-scale development. It emphasises speed, iteration, and flexibility, allowing for rapid learning and refinement. The key is to create a model that focuses on core features, involves users early, and evolves based on feedback, helping to identify issues and guide future development efficiently.

Development and prototyping are key steps in turning ideas into real products, mock-ups or MVPs (Minimum Viable Products). This phase involves the creation of detailed plans, drawings and technical designs. It helps you identify potential problems at an early stage and ensure that the product or service meets customer needs and market requirements. In essence, it is the stage where abstract ideas become something concrete that you can test and evaluate.

Prototyping is an iterative process aimed at learning, testing, and improving. Success in prototyping hinges on speed, flexibility, user involvement, collaboration, and the ability to iterate rapidly based on feedback. A successful prototype provides clarity, mitigates risks, and leads to a better final product.

**Agile prototyping** is an approach to product development that integrates the principles of Agile methodology with the practice of prototyping. It involves creating early, rough versions of a product, called prototypes, in short, iterative cycles known as sprints. This process allows teams to quickly develop and test ideas, gather feedback from users and stakeholders, and make necessary adjustments before proceeding to more detailed development.



Infographic of the method

# AGILE

## Development & Prototyping

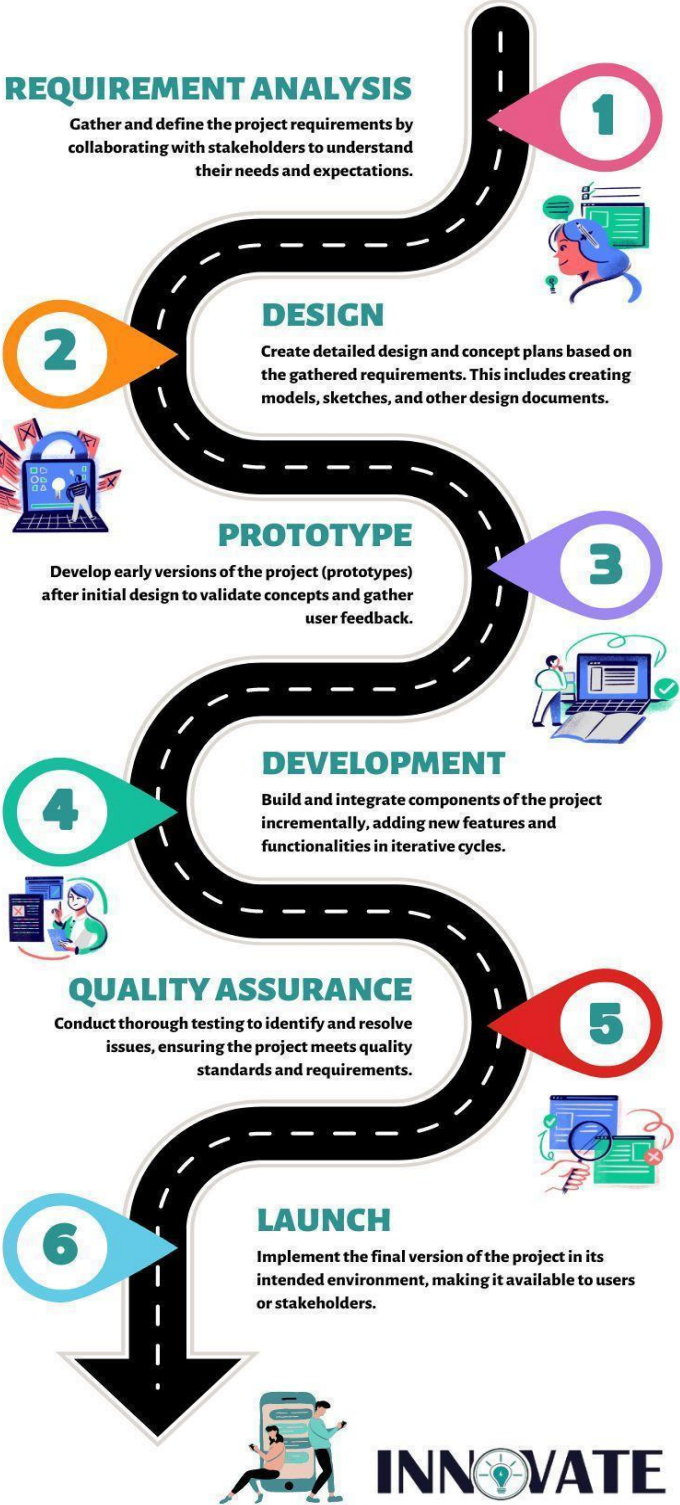


Figure 8. Agile development and prototyping

## Strengths and weaknesses of the method

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Flexibility and adaptability</li> <li>• Continual refinement and improvement</li> <li>• Higher quality outcomes</li> <li>• Enhanced collaboration and communication</li> <li>• Early identification and resolution of issues</li> <li>• Effective communication through prototyping</li> </ul>	<ul style="list-style-type: none"> <li>• Potential for scope creep</li> <li>• Requires disciplined project management</li> <li>• Not universally suitable</li> <li>• Challenging cultural shift</li> </ul>

### How to use the method?

Implementing agile development and prototyping requires a structured and flexible approach that focuses on iterative progress, collaboration, and continuous improvement. The first step is to clearly understand the project's goals and requirements. This means gathering input from all relevant stakeholders to create a detailed but adaptable product backlog. The product backlog, which is a prioritised list of features, enhancements, and bug fixes, serves as a dynamic roadmap for the team throughout the development process. Keeping the backlog well-defined and regularly updated is essential to ensure it aligns with stakeholder expectations and market demands.

To effectively implement agile development and prototyping, follow a structured but flexible approach that focuses on iterative progress, collaboration, and continuous improvement.



## 1. Understand requirements

- Start by gathering input from all relevant stakeholders to define the goals.
- Create a product backlog: a prioritised list of features, improvements, and bug fixes. This backlog acts as a dynamic roadmap guiding the team through development.
- Ensure the backlog is detailed but flexible and update it regularly to stay aligned with stakeholder expectations and market demands.

## 2. Plan and execute sprints to create prototypes

- Sprints are short, focused work cycles, usually 2-4 weeks where the team develops the prototypes and tasks from the backlog.
- In the sprint planning meeting, the team selects high-priority tasks from the backlog and sets a clear sprint goal. This ensures everyone understands what needs to be achieved.
- During the sprint, hold daily stand-up meetings (scrums) to communicate progress, address issues, and keep the team on track.

## 3. Integrate prototyping early

- Create early prototypes that capture key features and functionalities. This allows for user testing and feedback, which is crucial for validating ideas and identifying areas for improvement.
- Engage users and stakeholders in the prototyping process to ensure the product meets their needs and expectations.
- Use prototypes to spot technical challenges early, reducing the risk of costly fixes later.

## 4. Review and improve

- At the end of each sprint, hold a sprint review to show completed work to stakeholders and gather feedback. Update the product backlog based on this feedback.
- Conduct a sprint retrospective to reflect on the team's performance. Discuss what worked well, what needs improvement, and how to enhance workflow and collaboration in the next sprint.
- This ongoing cycle of feedback and improvement is key to Agile's success, fostering a culture of learning and adaptation.

You can use agile development and prototyping to create innovative products that align with user needs and adapt to changing requirements. Innovation is what agile is all about.

## Why use the method?

Agile development and prototyping are used because they increase flexibility, responsiveness, and collaboration throughout the project lifecycle. The agile methodology focuses on an iterative approach, where teams continually refine and improve the product based on ongoing feedback and changing requirements. This flexibility is essential in fast-moving environments where user needs and market conditions can shift quickly. By dividing the project into smaller, manageable iterations, or sprints, agile allows teams to deliver functional components incrementally. This approach helps ensure the project stays on track with stakeholder expectations and allows for early identification and resolution of issues, reducing the risk of major setbacks later.

Prototyping is a key part of agile development, offering a tangible way to represent ideas early in the project. This helps improve communication and understanding among stakeholders. Prototypes let teams test concepts, validate assumptions, and gather user feedback before investing heavily in full-scale development. This iterative prototyping process encourages experimentation and learning, allowing teams to explore innovative solutions and make informed decisions. By visualising and interacting with early versions of the product, stakeholders can provide valuable feedback, ensuring the final product closely aligns with user needs and expectations.

## Tips to use the method

To implement agile development and prototyping effectively, create a collaborative team environment with regular meetings and sprint planning sessions. These ensure transparency, alignment, and quick issue resolution. Open communication and active participation from all team members and stakeholders help identify potential problems early and keep everyone on the same page.

Keep the product backlog updated and prioritised to reflect current needs. During sprint planning, set realistic goals and adjust plans based on feedback to stay focused and aligned with stakeholder expectations. Tools like Kanban boards or Jira can help manage tasks and track progress.

Prototyping should be done early and iteratively to test ideas, gather user feedback, and refine the product. Engage stakeholders in the process to ensure the final product meets user needs.

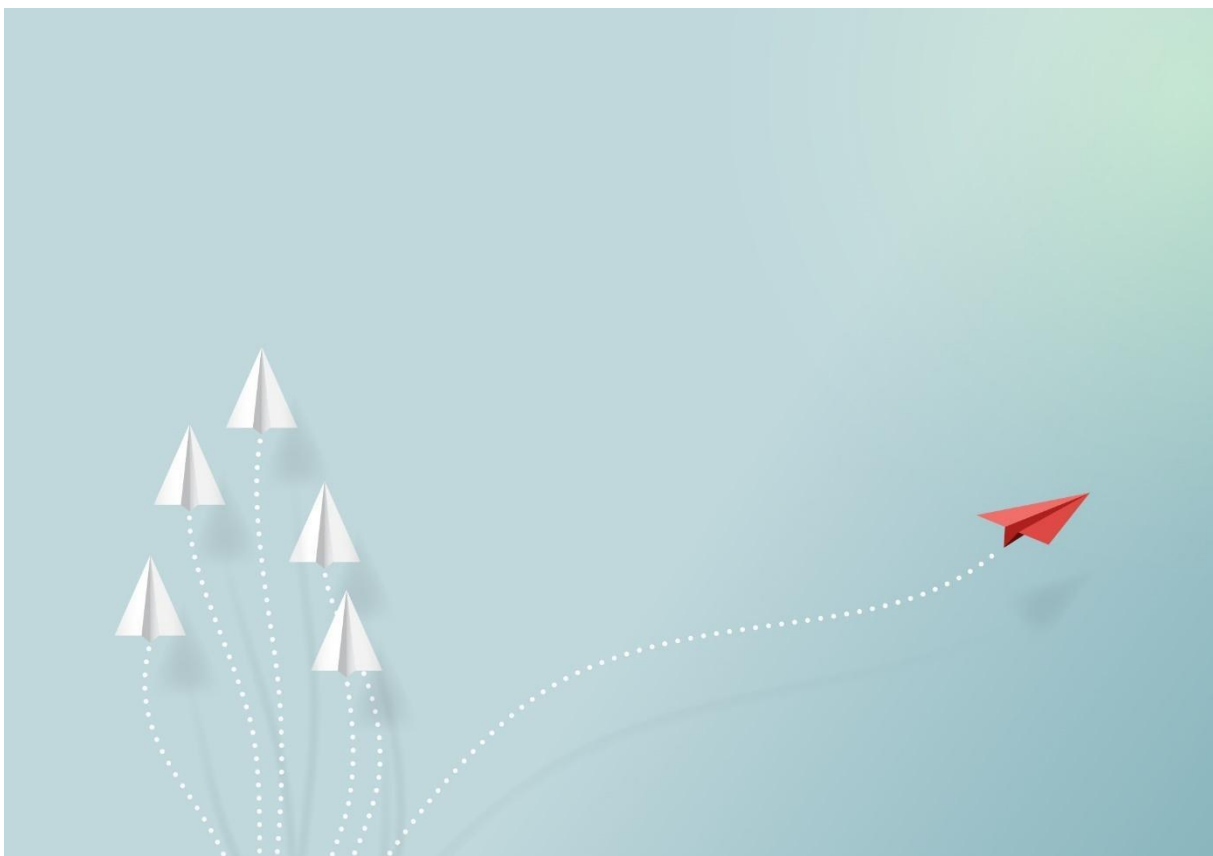
## Other methods and tools

**Atlassian** is a software company that offers a suite of tools designed to help teams collaborate, manage projects, and develop software. Their tools are widely used in various industries, especially in tech. Some of the key products include Jira (for project management), Confluence (for documentation and collaboration), and Bitbucket (for Git repository management). Atlassian tools integrate well with each other and with other popular tools like Slack, GitHub, and Figma, providing a cohesive environment for managing complex projects.

**Appgyver** is a no-code platform for building web and mobile applications. It's particularly useful for prototyping and developing functional app prototypes without needing to write code. The platform offers a free plan with access to all core features, making it ideal for early-stage development and testing.

**Mogups** is a web-based design tool that allows users to create wireframes, mockups, diagrams, and prototypes. It's a great tool for visualising ideas and testing layouts and interactions before development. Mogups offers a free plan with essential features for creating and sharing simple prototypes.

For contents in the ISO 56000 series on Innovation Management correlating to this step of our Manual, see annex 2: ISO 56000 and the innovation process.



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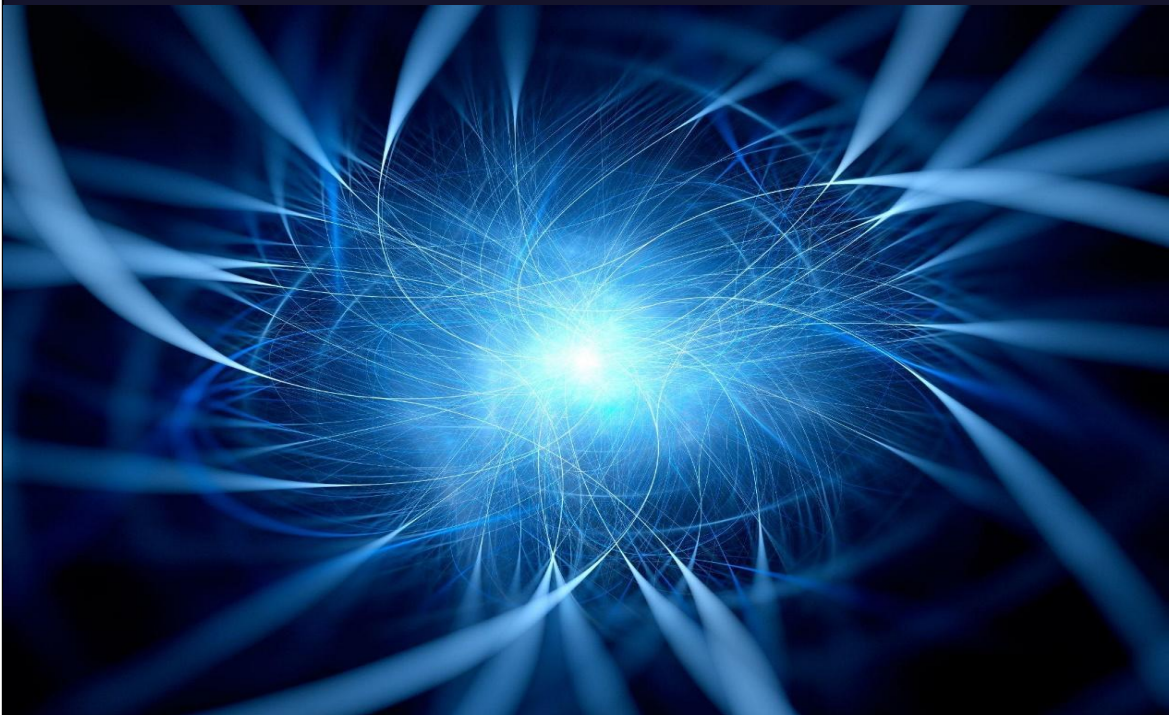
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# TEST AND ITERATE

## Step 5

At this stage, prototypes or MVPs are tested with users or in real-life situations. Customer feedback is collected, and concepts are iterated and refined. This iteration process helps to confirm assumptions, uncover potential areas for improvement, and improve innovation before moving on to the next phase.

**Why not learn about Lean start-up and MVPs?**



## Method description in nutshell

Minimum Viable Product (MVP):

**Definition:** MVP is a basic version of a product or service that includes only its core features. It is designed to test the idea and gather feedback from early adopters with minimal development effort.

**Purpose:** The primary goal of MVP is to validate assumptions and hypotheses about the product's value proposition and market demand. By releasing an MVP, entrepreneurs can quickly learn whether their product solves a real problem for customers (bwl-lexikon, 2024).

Minimum viable products (MVPs) are key to the Lean Startup method, enabling quick validated learning. They are the fastest way to navigate the Build-Measure-Learn feedback loop, which is vital for startup and SME growth. This loop involves building a product, testing it, measuring its success and failures, and using the data to guide further development (Oberlo, 2021).

The Lean Startup methodology:

**Definition:** Created by Eric Ries, the Lean Startup approach helps businesses quickly test and improve their products. Instead of asking if you can build a product, ask if you should build it and if it can become a successful business.

There are three principles for the Lean Startup Methodology:

- **Build-Measure-Learn:** This principle emphasises rapid iteration through a structured feedback loop. It starts with building a Minimum Viable Product (MVP) that contains essential features. Next, the product's performance is measured by gathering data and user feedback. Based on this feedback, adjustments and improvements are made to enhance the product iteratively.
- **Validated Learning:** Instead of relying on assumptions, Lean Startup advocates for validated learning through real-world experimentation. By testing hypotheses and gathering empirical data from customers, teams can gain insights into what works and what doesn't. This approach helps mitigate risks and ensures that product development efforts are grounded in validated customer needs and preferences.
- **Customer Development:** Central to Lean Startup is continuous engagement with customers throughout the product development lifecycle. This involves actively seeking feedback, understanding customer problems and needs, and adapting the product accordingly. By integrating customer feedback into decision-making processes, startups can align their product offerings more closely with market demand and increase their chances of success (The Lean Startup, 2024)



Infographic of the method

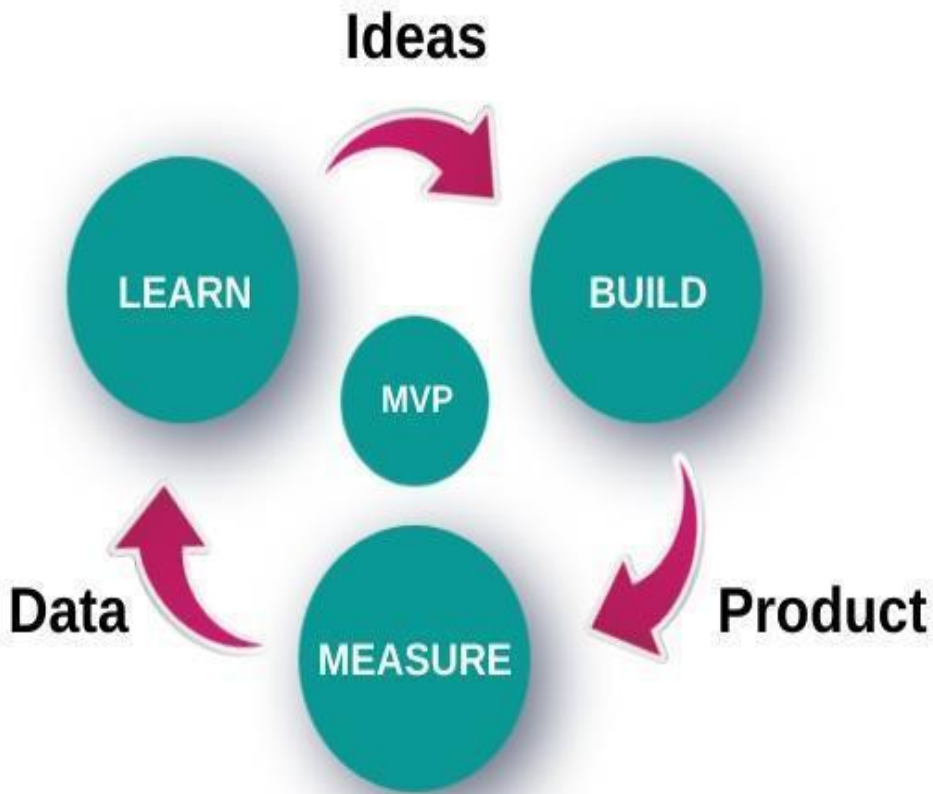


Figure 9: Minimum viable products (MVPs) are key to the Lean Startup method adapted by Oberlo.

## Strengths and weaknesses of the method

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>● <b>Rapid Iteration and testing:</b> Lean Startup promotes a cycle of Build-Measure-Learn, allowing teams to quickly iterate and improve their product based on real user feedback. This accelerates the development process and reduces time to market.</li> <li>● <b>Customer-Centric:</b> The methodology emphasises validated learning through continuous customer engagement. By focusing on understanding and meeting customer needs, startups can develop products that have a higher chance of success in the market.</li> <li>● <b>Risk Reduction:</b> By testing hypotheses and validating assumptions early with MVPs, Lean Startup helps mitigate risks associated with product development. This reduces the likelihood of investing resources in products or features that may not meet customer expectations.</li> <li>● <b>Innovation:</b> Lean Startup encourages innovation by fostering a culture of experimentation and learning from failures. It promotes creativity and flexibility in adapting to changing market conditions and customer feedback.</li> <li>● <b>Cost-Effective:</b> Developing MVPs with minimal features reduces initial investment and allows startups to allocate resources more efficiently. This approach helps in testing ideas without committing significant resources upfront</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Overemphasis on MVPs:</b> Focusing only on MVPs can risk delivering products that are too basic or lack essential features, potentially disappointing early adopters.</li> <li>● <b>Execution challenges:</b> Implementing Lean Startup requires disciplined execution and a high degree of flexibility. It can be challenging for teams to maintain focus on iterative improvements while managing day-to-day operational demands.</li> <li>● <b>Market Timing:</b> Rapid iteration can be advantageous, but it also requires startups to accurately assess market timing and customer readiness. Premature scaling or late adaptation to market changes can impact product success.</li> <li>● <b>Resource limitations:</b> Lean startup may not be appropriate for all types of products or industries, especially those requiring significant upfront investment in research and development or complex regulatory compliance.</li> <li>● <b>Learning curve:</b> Adopting Lean Startup requires a shift in organisational culture and mindset towards experimentation and learning from failure. It may take time for teams to fully embrace and effectively implement these principles (daswissen, 2023).</li> </ul>

## How to use the method?

### 1. Define Your Vision and Goals:

- Clearly articulate your vision for the product or service and establish measurable goals. Define what success looks like in terms of customer adoption, revenue targets, or other relevant metrics.

### 2. Identify Assumptions and Hypotheses:

- List out the key assumptions underlying your business idea. Formulate hypotheses around these assumptions, specifying what you believe to be true about your target market, customer needs, and solution viability.

### 3. Build a Minimum Viable Product (MVP):

- Develop a basic version of your product that includes core features essential to solving the problem or meeting customer needs. The MVP should be sufficient to gather meaningful feedback from early adopters.

### 4. Measure and Gather Data:

- Implement metrics and analytics to measure the performance of your MVP. Track user engagement, retention rates, conversion metrics, and any other relevant data points. Use analytics tools and user feedback to gather qualitative insights.

### 5. Test and Iterate:

- Analyse the data collected from your MVP to validate or invalidate your hypotheses. Identify what is working well and what needs improvement based on user feedback and data-driven insights.
- Iterate on your product by making incremental improvements or pivoting to adjust your strategy based on validated learning. Continuously update and refine your product to better meet customer needs and improve market fit.

### 6. Customer Development and Feedback:

- Engage actively with your target customers throughout the process. Solicit feedback through surveys, interviews, user testing sessions, and observational studies. Use this feedback to refine your product roadmap and prioritise feature development.

## 7. Scale and Growth:

- Once you have validated your product-market fit and refined your solution based on customer feedback, gradually scale your operations and marketing efforts. Expand your customer base while continuing to monitor and respond to market dynamics.

## 8. Iterative Process:

- Lean Startup is a continuous, iterative process. Repeat the build-measure-learn cycle to adapt to changing market conditions, technological advances and evolving customer preferences. Embrace a culture of experimentation and learn from both successes and failures (Oberlo, 2021)

## Why use the method?

**Risk Mitigation:** By focusing on developing a Minimum Viable Product (MVP) and validating assumptions early through customer feedback, Lean Startup reduces the risk of investing time and resources into ideas that may not resonate with the market. This approach helps startups and businesses avoid costly failures by testing hypotheses before committing to full-scale development.

**Speed to Market:** The iterative Build-Measure-Learn cycle enables rapid iteration and adaptation. Startups can quickly develop and launch MVPs to gather real-world data and insights, allowing them to refine their products efficiently and respond promptly to changing market conditions.

**Innovation and Flexibility:** The methodology fosters a culture of experimentation and learning from failures. It encourages teams to explore different solutions and pivot based on validated learning, promoting innovation and adaptability within the organisation.

**Cost Efficiency:** By focusing on building lean MVPs with minimal features, Lean Startup conserves resources and optimises development costs. Startups can validate business ideas with minimal investment, ensuring efficient resource allocation in the early stages of growth.

**Continuous Improvement:** Lean Startup advocates for continuous learning and improvement. Through iterative cycles of testing and refinement, businesses can evolve their products iteratively based on actionable insights and customer feedback, staying competitive and relevant in dynamic markets.

**Adaptability and Resilience:** By embracing a mindset of agility and responsiveness, Lean Startup equips businesses to navigate uncertainties and capitalise on emerging opportunities. This adaptability is crucial in today's rapidly changing business landscape (Digitalocean, 2024; The Lean Startup, 2024).

## Tips to use the method

Develop a truly minimal viable product (MVP). When creating your MVP, resist the temptation to add unnecessary features. The goal is to build the simplest version of your product that initiates the learning process. The focus is on validating assumptions with minimal effort and cost.

Measure meaningful metrics. Establish relevant indicators that genuinely reflect user engagement and satisfaction. Utilise analytics tools to monitor how users interact with your MVP and prioritise actionable metrics that drive product development decisions.

Establish a feedback loop. Actively encourage user feedback and streamline the process for customers to share their insights. Regularly review and incorporate this feedback into iterative product improvements. Remember, customer feedback serves as a critical resource that fuels continuous learning in the Lean Startup methodology.

Embrace failure as a learning opportunity. View setbacks not as obstacles but as chances to deepen your understanding of the market and refine your strategy. Foster a company culture where failures are openly discussed, encouraging innovation and removing the fear of experimentation.

Cultivate a culture of agility and continuous learning. Create an organisational environment that values adaptability, learning, and the willingness to adjust course when necessary. Encourage team members to embrace Lean principles and commit to ongoing improvement.

Implement innovation accounting. In the early stages of a startup, use innovation accounting to evaluate progress when traditional metrics like revenue and profits are minimal. Define and track metrics such as user engagement levels, feature usage patterns, and cohort analysis to gauge progress towards a scalable business model.

Know when to pivot. Establish clear criteria for determining whether to persist with your current strategy or pivot based on data-driven insights from user interviews and engagement metrics. Avoid relying solely on intuition, prioritising evidence-based decisions in your startup's development journey (digitalocean, 2024)

## Other methods and tools

**Learning loop**, continuous collection and analysis of user feedback help refine and improve the product iteratively. This process involves engaging with users regularly to ensure the innovation meets their needs and expectations. For more info of how you can set it up check learning loop link above.

**A/B Test tool** allows you to compare two versions of a product or feature to see which performs better. It's useful for making data-driven decisions and refining ideas based on user responses. Example like free to use version is Mida.

For contents in the ISO 56000 series on Innovation Management correlating to this step of our Manual, see annex 2: ISO 56000 and the innovation process.

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# IMPLEMENT AND SCALE

## Step 6

Once an innovation has been tested and refined, it can be implemented and scaled up. At this stage, a detailed implementation plan is drawn up and the necessary steps are taken to bring the innovation to market or implement it within the organisation.

You can use here the PDCA-quality cycle to plan and implement by Deming.



## Method description in nutshell

Implementing and scaling innovations involves careful planning, testing, and iteration. Success comes from validating ideas early, engaging stakeholders, integrating smoothly into operations, and developing repeatable processes. Scaling requires focusing on sustainability, adaptability, and continuous monitoring, ensuring that quality is maintained as you expand the innovation's reach.

An implementation plan for innovation is a structured, step-by-step process that moves an idea from concept to reality. It involves defining objectives, building cross-functional teams, prototyping and testing, piloting the innovation, scaling, and monitoring performance. The key is to remain flexible, manage risks, and continually improve as the innovation becomes part of standard operations.

Implementation is about converting an innovative idea into a working solution, integrating it into operations, and ensuring its viability through testing and iteration. Scaling involves replicating success across larger markets, regions, or departments, while maintaining quality, securing resources, and adapting to local needs. Both phases require careful planning, continuous improvement, and close monitoring to ensure the innovation delivers maximum impact and sustained value over time.

Bringing innovations to market requires a well-coordinated go-to-market strategy that encompasses market research, product positioning, team alignment, and a detailed launch plan. Success hinges on effectively communicating the innovation's value to the target audience, building strong sales and marketing efforts, and scaling the product while staying responsive to market feedback. Continuous monitoring and iteration will ensure the innovation meets customer needs and achieves sustained growth.

The Deming Cycle, the PDCA Cycle, is a four-step iterative process for continuous improvement in business planning and innovation processes. Developed by W. Edwards Deming, it provides a structured approach to problem-solving, innovations and quality management.

The PDCA Cycle consists of four stages:

1. **Plan:** Identify an opportunity for improvement and plan for change. Define objectives and plan for your innovation to access markets.
2. **Do:** Implement the change on a small scale. Go to the market with your innovation.
3. **Check:** Use data to analyse the results of the change and determine whether it made a difference. Collect information of your innovation success.
4. **Act:** If the change was successful, implement it on a larger scale and continuously assess your results. If the change does not work, begin the cycle again.

This method ensures that changes are tested and evaluated thoroughly before full implementation.

## Infographic of the method

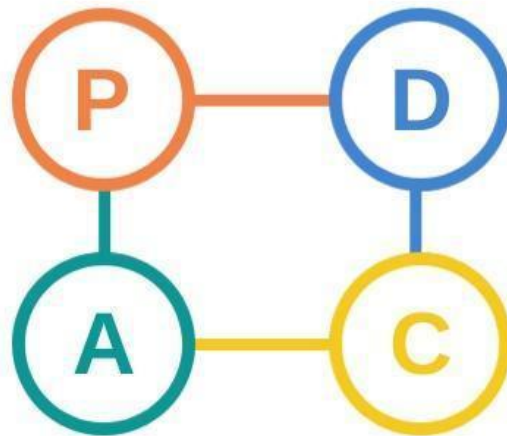


Figure 10. PDCA - Deming Cycle adapted by Deming

### PLAN

What are the objectives of your innovation plan to go to market? Which areas need improvement?

How can you address the issue concerning efficiency?

### DO

Select an innovation pilot area to implement your strategy.

Test your plan without disrupting the regular workforce.

### ACT

Implement your plan on a larger scale, make improvements.

If the strategy does not yield results, start the cycle all over again.

### CHECK

Review the results of the pilot implementation, did the changes you made yield results? Were they expected? Are they satisfying?

## Strengths and weaknesses of the method

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• Iterative improvement: Encourages continuous, incremental improvements.</li> <li>• Data-driven: Focuses on using data to verify effectiveness of changes.</li> <li>• Risk mitigation: Small-scale testing helps to mitigate risks before full implementation.</li> <li>• Flexibility: Can be applied to various types of processes and industries.</li> </ul>	<ul style="list-style-type: none"> <li>• Time-Consuming: The iterative process can be time-consuming.</li> <li>• Requires discipline: Success depends on rigorous adherence to the process.</li> <li>• May be overlooked: In fast-paced environments, steps may be rushed or skipped.</li> </ul>

## How to use the method?

### PLAN:

- Identify the problem or opportunity.
- Gather relevant data and define the problem clearly.
- Set measurable objectives and define success criteria.
- Develop a go-to-Market strategy or plan

**Target Audience:** Define your target audience with demographic, behavioural, and psychographic profiles. Segment the market to tailor your messaging to different customer groups.

**Pricing Strategy:** Develop a pricing strategy that reflects the value of the innovation, the competitive landscape, and customer willingness to pay. Consider whether to use freemium models, subscription pricing, or value-based pricing.

**Distribution Channels:** Decide on the distribution channels that will reach your target customers most effectively. Options include direct sales, online platforms, retail partnerships, or distributors.

**Marketing Channels:** Choose marketing channels such as social media, email, content marketing, influencer partnerships, or paid advertising to promote the innovation.

## DO:

- Implement the planned strategy and go to market.
- Collect data on the implementation process.

## CHECK:

- Analyse the collected data to evaluate the effect of the change.
- Compare the results against the objectives and success criteria set in the planning phase.
- Identify any deviations from expected outcomes and understand why they occurred.

The check phase is crucial as it involves the evaluation of the implementation. Here are the key activities in this phase:

### Data Collection

Gather data on the performance and outcomes of the changes implemented in the Do phase.

Ensure the data is accurate, relevant, and sufficient to make informed evaluations.

### Analysis

Compare the actual results against the expected outcomes defined in the Plan phase.

Use statistical tools and techniques to analyse the data for trends, variances, and anomalies.

### Assessment

Determine whether the changes have led to improvements or if there are unintended consequences.

Identify factors that contributed to the success or failure of the change.

### Feedback

Provide feedback to the team based on the analysis.

Document lessons learned to inform future cycles.

### Decision-Making

Based on the findings, decide whether to adopt the change, modify it, or abandon it.

Ensure decisions are data-driven and objective.

## ACT:

- If the change was successful, implement it on a larger scale and continuously monitor results.
- If the change was not successful, refine the plan based on the lessons learned and repeat the cycle.

## Why use the method?

1. **Improves Quality:** The Deming Cycle helps you make real, measurable improvements. By testing changes on a small scale first, it reduces the risk of failure and enhances the quality of results.
2. **Better decisions:** It emphasises data analysis during the check phase. This means decisions are based on actual data rather than guesswork, ensuring that changes are effective and relevant.
3. **Structured Approach:** The cycle follows four clear steps—Plan, Do, Check, Act. This structured method helps manage changes systematically and ensures each step is carefully executed.
4. **Ongoing Learning:** Each cycle is a chance to learn from past actions. This continuous learning process helps your business adapt, improve, and stay resilient to changes.

Using the Deming Cycle, SME can refine their innovation processes, minimise risks, and achieve long-term success through effective planning and change management.

The Deming Cycle is highly valued for its ability to improve the quality of innovations by ensuring that changes lead to real, measurable improvements. Through its iterative process, the PDCA model systematically tests changes on a small scale before full implementation, thereby reducing the risk of widespread failure and enhancing the overall quality of outcomes.

One of the core strengths of the Deming Cycle is its emphasis on informed decision-making. The Check phase, which focuses on data analysis, plays a crucial role in this. By continuously analysing the data collected during the Do phase, organisations can make decisions based on evidence rather than intuition or guesswork. This data-driven approach helps in accurately assessing the impact of changes and in making necessary adjustments.

The systematic approach provided by the Deming Cycle is another significant advantage. By breaking down the process into clear, manageable steps—Plan, Do, Check, and Act—it offers a structured method for addressing problems and opportunities. This structure not only simplifies the process of implementing changes but also ensures that each step is carefully considered and executed. By continuously refining processes and incorporating feedback, organisations can achieve sustained improvements and long-term success.



## Tips to use the method

- Develop a go-to-Market strategy or plan and scale up.
- Engage stakeholders, involve relevant stakeholders in all phases for better insights and buy-in.
- Use clear metrics, define clear, measurable success criteria during the planning phase.
- Document everything, maintain detailed records at each stage for transparency and future reference.
- Be patient, allow sufficient time for each phase to ensure thorough analysis and accurate results.
- Review regularly, regularly revisit and revise the PDCA cycle based on new data and insights.

## Other methods and tools

[Monday.com](#) is a flexible tool for managing projects and teamwork. It features a visual and customizable interface where you can create and track tasks, projects, and workflows using boards, timelines, and Gantt charts. It integrates with many other tools, helping to centralise work and improve team communication. With automation, reporting, and resource management features, Monday.com is suitable for various industries and team sizes. There's a free version for up to 2 users, offering basic features for small teams or individuals to try out.

[Asana](#) helps teams organise, track, and manage their work with a user-friendly interface. It offers customizable project views like lists, boards, and calendars. Users can create tasks, assign them, set deadlines, and track progress. Asana supports project milestones, dependencies, and integrates with other tools to streamline workflows. It's great for improving productivity and keeping projects on track. The free version is ideal for individuals and small teams to manage tasks effectively.

[Qmarkets](#) is a provider of innovation management software solutions designed to help organisations harness the collective intelligence of their employees, customers, and stakeholders. The platform enables businesses to manage the entire innovation process, from idea generation and collaboration to evaluation, selection, and implementation. Qmarkets offers a customizable, scalable solution that can be tailored to various industries and use cases, such as crowdsourcing, continuous improvement, open innovation, and trend management. With a user-friendly interface and advanced features like AI-driven idea evaluation, real-time analytics, and integration with other enterprise tools, Qmarkets empowers organisations to foster a culture of innovation, drive business growth, and stay ahead in competitive markets. [Qmarkets - Enterprise Innovation Management Software](#) is a tool to check out.

For contents in the ISO 56000 series on Innovation Management correlating to this step of our Manual, see annex 2: ISO 56000 and the innovation process.

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# MONITOR AND EVALUATE

# Step 7

Once implemented, it is important to monitor and evaluate the performance and impact of the innovation. This includes monitoring key indicators and performance indicators. Regular evaluation helps to identify areas for improvement, make necessary changes and gain experience for future innovation initiatives.

**Why not monitor and evaluate using the Ishikawa diagram?**



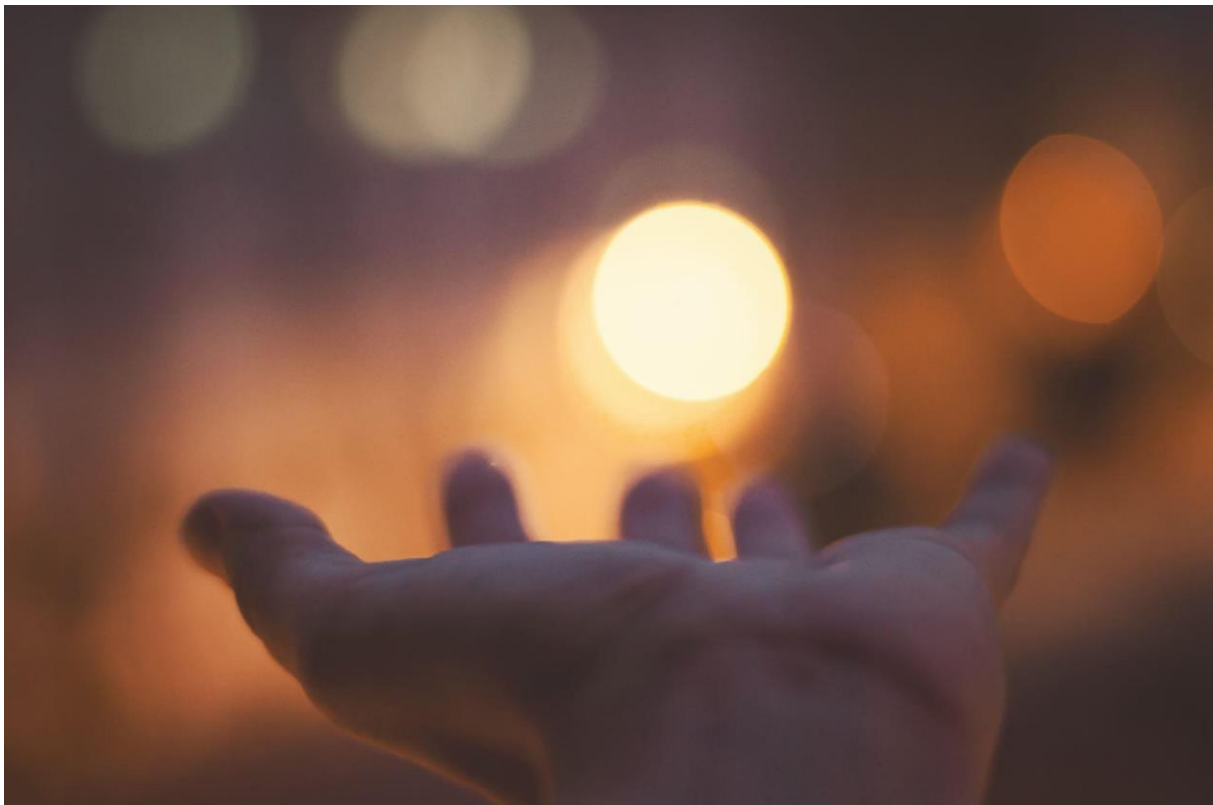
## Tool description in nutshell

Monitoring the process of implementing innovation means systematically collecting, analysing and interpreting data on the course of individual processes that make up our innovation. The purpose of monitoring is to obtain up-to-date information on the status of innovation implementation, identify potential problems or failures and take corrective actions.

Evaluation, on the other hand, is an objective assessment of the process of implementing an innovative project, according to specific research criteria e.g. effectiveness, efficiency, usefulness, relevance, sustainability, economy, etc. Evaluation should provide reliable and useful information that will enable management decisions to be made.

The Ishikawa diagram - cause and effect plot - is a method of identifying the causes of failures. The Ishikawa chart, the fishbone chart due to its characteristic appearance, allows you to recognize the causes of actual or potential failures of various types of projects, including those of an innovative nature. This diagram is universal and can be used for both large organisations and SMEs, you just need to correctly define its individual elements.

The Ishikawa diagram consists of a main arrow: Effect and a category of causes (5M+E). It can be used in various fields. The structure of the chart consists in adding detailed causes and sub causes. The chart helps you analyse the problem and take corrective action.



# Infographic of the tool

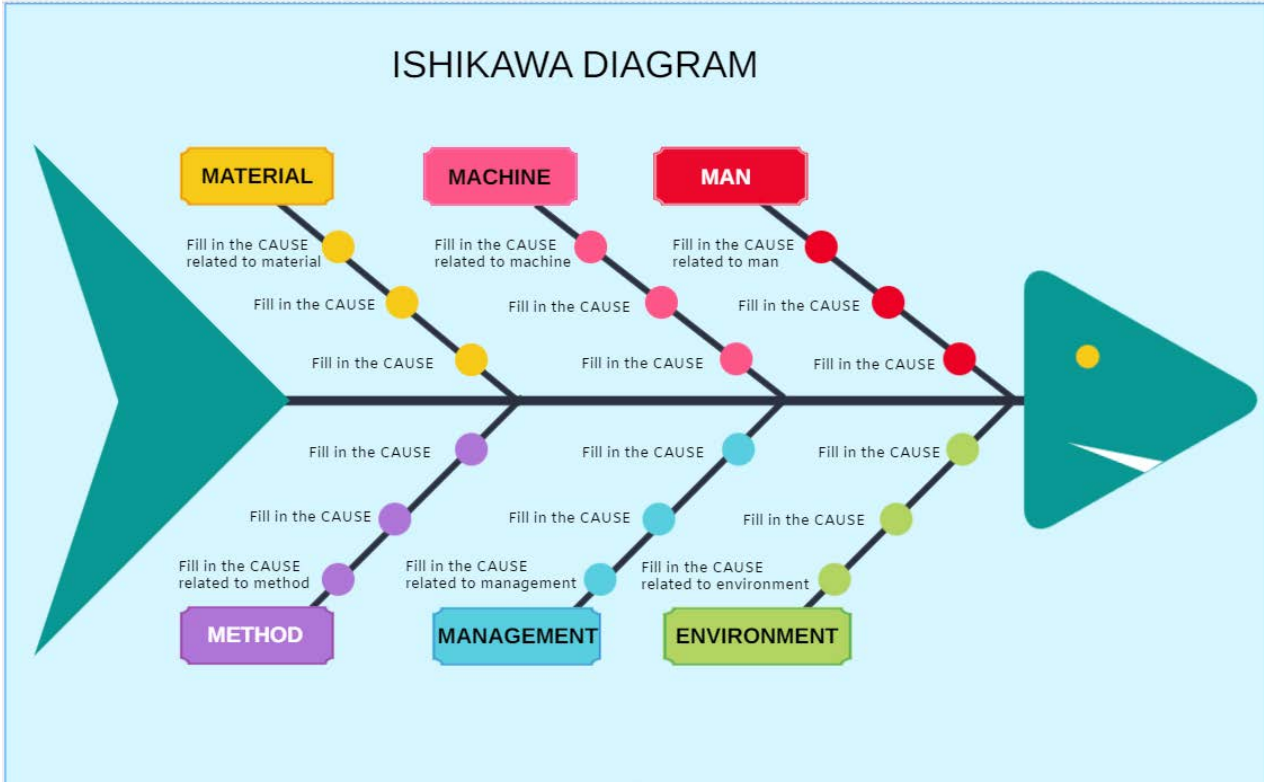


Figure 11. The Ishikawa diagram - cause and effect plot adapted by Górný.

## Strengths and weaknesses of the tool

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> <li>• It helps to identify more easily the causes of problems and weaknesses in innovation processes.</li> <li>• It can be used in team meetings and brainstorming.</li> <li>• Improve communication with the team.</li> <li>• It can be used to develop an innovation strategy or change management for the organisation.</li> <li>• It can be used in a variety of projects and in organisations of all sizes (including SMEs).</li> <li>• It is simple to do and clear.</li> </ul>	<ul style="list-style-type: none"> <li>• This requires total commitment and sincerity from team members.</li> <li>• There is a risk of focusing too much on the wrong areas and overlooking crucial areas.</li> <li>• Preparations can be time-consuming - it can take time to get to the bottom of a situation.</li> <li>• In more complex problems, there may be a lack of analysis of cause and effect.</li> </ul>

## How to use the tool?

The graph consists of arrows with descriptions, connected in such a way that the main arrow indicates the effect, i.e. the description of the failure that is being investigated. Its shape resembles a fishbone, where:

- Fish head means problem to solve
- Fish spine are groups of causes that can affect the appearance of the problem
- Specify the specific causes belonging to a given group of causes

Individual categories of causes are usually selected from a set, according to the 5M+E concept:

- Man - including qualifications, job satisfaction, habits or seniority,
- Machine - including modernity, efficiency, precision, durability, safety and working conditions,
- Material - containing input raw materials, substitutes, semi-finished products,
- Method - containing procedures, instructions, scope of responsibilities, standards, know-how and technology,
- Management - including the organisational structure, organisation of work,
- Environment - containing elements of the work environment

You can also use other categories e.g., procedures, equipment, materials, information, people depending on the field in which the chart is used. Each category of causes is expanded with further specific reasons. If necessary, sub-causes are also included. The expansion of the graph ends when the phenomenon is fully identified.

A properly drawn Ishikawa chart can be used to create a numerical system for classifying defects and failures. You can specify the number of characters in the code depending on the level of detail you want.

The code can be three characters long: The first is the category of causes, the second is the cause and the third denotes a sub cause (Wawak, Kuszczak, 2020).

To use a cause-and-effect diagram to solve a problem, the following steps must be completed:

- 1. Problem identification** - analysis of the issue under consideration aimed at defining the problem. This problem is chosen, m.in others, using brainstorming, Pareto analysis, and quality cost analysis. The analysis target is written at the end of the arrow.
- 2. Determination of the main groups of causes** - determination of the main categories of causes that affect the defined problem. I use the 5M+E concept or develop my own groups of causes.



3. **Specification of causes** – searching for causes and subclauses for each identified group.
4. **Analysis of results** - subjecting the diagram to a detailed analysis aimed at identifying a small number of causes (from 2 to 4) that have the greatest impact on the final effect. Formulation of conclusions containing a description of corrective actions. For this purpose, it is possible to expose the developed diagram to the public. In this way, each participant can express their opinion or propose their own solution.

## Why use the tool?

The Ishikawa diagram is a universal analysis tool that is used in various branches of business. Thanks to it, you will minimise the risk of costs and losses within process including innovative processes, and if you apply preventive measures - you will eliminate errors and increase the efficiency and profits of the organisation from implementing innovations in your organisation.

The Ishikawa diagram is worth using because its most important features are:

- simplicity and high efficiency
- structured information transfer
- accuracy of the analysis
- comprehensive approach to the issue under consideration
- data hierarchy
- clarity and communicativeness of the record
- emphasis on localization and elimination of the causes of the problem (Gołaś, Mazur, 2010).

Drawing up a chart should be the effort of many employees of the organisation, because the causes of failures usually have their sources in various fields of activity. Therefore, the team should consist of people with extensive specialist knowledge, who additionally have the will to disclose the causes of defects, including those caused by themselves. It is very useful to use heuristic methods during the construction of the diagram (Wawak, 2011). In smaller organisations, including SMEs, the use of a diagram may be easier.

## Other methods and tools

**Individual in-depth interviews (IDI)** are a qualitative research technique where participants are interviewed to understand their opinions on a specific topic. These interviews are conducted based on a pre-prepared script. IDI interviews can be conducted face-to-face or online (e.g., using MS Teams, Zoom, or Google Meet). Often, the interviews are recorded for later transcription. It is important to carefully select the interviewees and remember that the results of IDIs cannot be generalised, as they only reflect the personal opinions of individual participants.

**Questionnaire research** is a quantitative or quantitative-qualitative research method (depending on the research questions), where respondents provide anonymous answers to a survey. Questionnaire research helps to gather respondents' opinions on a particular topic (e.g., user experiences with an innovative product) and to identify the subject of the study based on specific criteria. When starting a questionnaire survey, it is important to define the research sample and the method of reaching respondents.

**Google Analytics** is a free analytics tool used to collect, measure, and analyse website traffic. It allows the creation of reports that guide decision-making to improve website efficiency and achieve the company's business goals. Google Analytics answers questions such as: which customers are the most valuable, what is the traffic on the website, and which marketing campaigns are the most effective.

For contents in the ISO 56000 series on Innovation Management correlating to this step of our Manual, see annex 2: ISO 56000 and the innovation process.



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We have collected here some tools for helping you create more and better ideas, selecting them, prototyping and creating systematic innovation processes.

Innovation is not just about creating something new; it is about seizing the countless opportunities that lie ahead. In this manual, we have collected some key tools to help innovators find new solutions and ideas that can be used to manage innovation in their companies.

It is worth remembering that the range of tools, materials and techniques is constantly changing. So, stay open to new opportunities for improvement and be ready to adapt. The best innovation tools depend on the specific needs, goals and objectives of your business.

We hope you test some of the methods and tools, enjoy development, and find the manual useful. Please check also the index, there is one more tool to delight you. We wish you happy innovation!

Innovate project team



# Annex 1: Kano Analysis

## Tool description in nutshell

Kano Analysis is a tool that enables businesses and organisations to develop and upgrade innovations, business products and services based on stakeholder preferences. The Kano Analysis model follows the Customer Delight vs. Implementation Investment approach. This enables decision makers to develop innovative ideas by depicting how other interested members of the organisation, i.e., clients, feel about certain products or features within a business product or model.

The Kano analysis helps you understand how different features of your innovation, product or service affect customer satisfaction. By understanding and applying the Kano Model, you can better prioritise features that will keep your customers happy and engaged.

When innovating, you can use Kano analysis to prioritise features that will enhance customer satisfaction and differentiate your product. By identifying which features will truly excite customers and which are simply expected, you can focus on innovations that add the most value and avoid unnecessary or counterproductive developments.

## Infographic of the tool

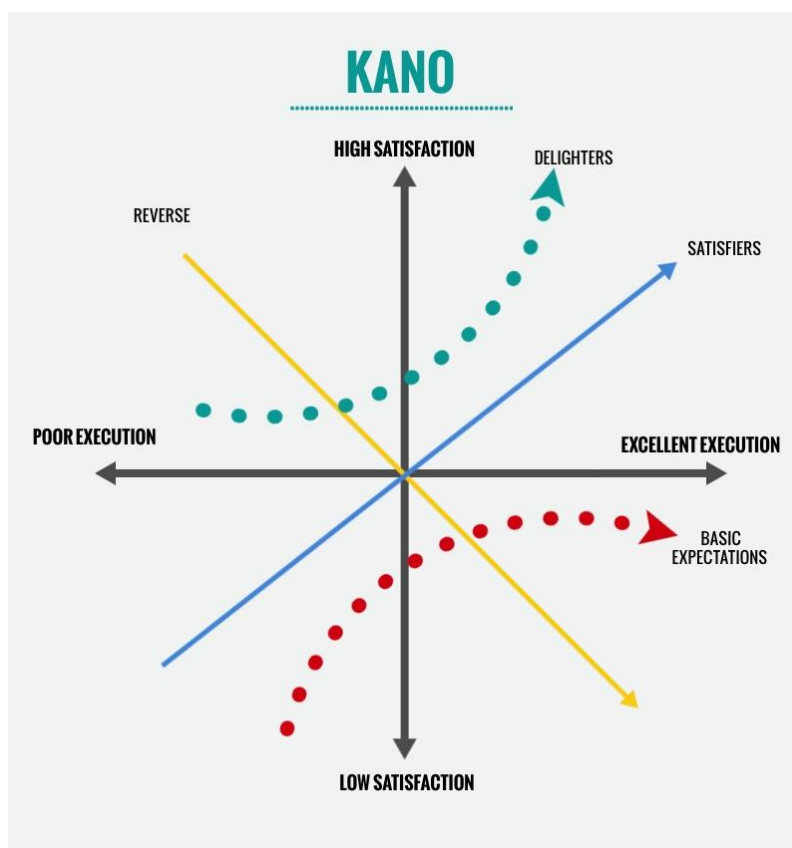


Figure 12. Kano analysis adapted from ScienceDirect (2021).

## Strengths and weaknesses of the tool

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>Effectively identify the preferred needs of users for your product / service / idea</li> <li>Prioritise among questioned factors based on preferred level of importance and characterization</li> <li>Exclude undesired / unnecessary features (save costs)</li> <li>Can be used on non-existing features when examining the likelihood of deploying them too</li> <li>Once completed, a general pattern of user preference can be perceived</li> <li>Group similar features and priorities together</li> <li>Increasing user satisfaction</li> </ul>	<ul style="list-style-type: none"> <li>Before designing the questionnaire, an indicative survey of all possible activities should be carried out to include the necessary elements that are likely to be preferred by users.</li> <li>Questionnaire questions can pose risk of error as they are repeated for each feature apart from few words</li> <li>Error possibility, if not careful attention, also exists when evaluating the right allocation of functional and dysfunctional features</li> <li>Analysis is obtained quantitatively as preferred choices and importance are fixed values without providing further the opportunity to justify user selected preference.</li> <li>Results are only valid at a specific study, as preferences tend to shift with time and accustomed inclusion of features</li> </ul>

## How to use the method?

To use the Kano analysis tool, you'll need the following components:

- A list of product/service features to be examined.
- A survey or questionnaire for participants to fill out.
  - Ask participants about their preferences regarding the functionality or lack thereof of each feature.
  - Include a scale (Likert scale) for participants to rate the importance of each feature.
- A five-point matrix to illustrate the preferred functionality of each feature.

- A two-scale graph to show the preferred allocation of each feature.

### Why use the method?

Kano analysis is very useful for product teams that want to answer these key questions:

- How can we measure customer satisfaction?
- What features can we create to increase customer satisfaction?
- Do our current features cause high customer satisfaction?
- How can we enhance our features so that customer satisfaction is at the optimal level ('delight customers')?

By focusing on these questions and addressing customer needs, product teams can identify what it takes for their product to enter, remain, and excel in a target market (Goldstein 2024).

Kano analysis is a useful method to help you generate new ideas and prioritise results. It is based on users who are likely to already have opinions about what works best for them in using an idea. Regardless of your organisation's objectives and target groups, the Kano method works just as effectively because the implementation steps remain constant. In addition, the ability to prioritise the selected features and match them effectively with user satisfaction is crucial for the optimal allocation of resources. Overall, this results in a simplified and visually clear decision-making process.

The summary of why Kano analysis is a powerful tool is that it can be done on a regular basis to test which features change in importance, remain as attractive or even change in importance based on updated user preferences.

### Tips to use the method

- Create a clear questionnaire, aligning with the guidelines listed above and make sure that there is distinct separation between functional and dysfunctional features.
- Use different colour allocation between question separations (functional, dysfunctional), preference characterization (e.g. Must-Be, Attractive etc.) and when comparing with the 5-scale, single-point matrix

### Other methods and tools

**RICE:** mnemonic acronym representing the four components of a treatment regimen that was once advised for soft tissue injuries: rest, ice, compression, and elevation. It was regarded as a first-aid measure rather than a cure, with the primary goal of managing inflammation.



**Value vs Complexity / Effort:** decision-making tool used in project management and business analysis to prioritise tasks, projects, or features based on their potential value and the effort required to implement them.

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# Annex 2: ISO 56000 and the innovation process

This annex provides an overview of the ISO 56000 Series on Innovation Management and interlinks the seven key steps of an Innovation Process from the INNOVATE Innovation Management Manual with contents from this ISO Series that correlate to those steps. In addition, Case Studies in the context of the ISO 56000 series and a description of the ISO/TS 56010:2023 are provided at the end of this annex.

## ISO 56000 Series on Innovation Management

The ISO 56000 Series of International Standards offers organisations guidelines and processes designed to help them maximize the success of their innovation projects (ISO 2019). An overview of the ISO 56000 series is presented in the table below:

ISO	Title
<a href="#">ISO 56000:2020</a>	Innovation management — Fundamentals and vocabulary
<a href="#">ISO 56001</a> (under publication)	Innovation management system — Requirements
<a href="#">ISO 56002:2019</a>	Innovation management — Innovation management system — Guidance
<a href="#">ISO 56003:2019</a>	Innovation management — Tools and methods for innovation partnership — Guidance
<a href="#">ISO/TR 56004:2019</a>	Innovation Management Assessment — Guidance
<a href="#">ISO 56005:2020</a>	Innovation management — Tools and methods for intellectual property management — Guidance
<a href="#">ISO 56006:2021</a>	Innovation management — Tools and methods for strategic intelligence management — Guidance
<a href="#">ISO 56007:2023</a>	Innovation management — Tools and methods for managing opportunities and ideas — Guidance
<a href="#">ISO 56008:2024</a>	Innovation management — Tools and methods for innovation operation measurements — Guidance
<a href="#">ISO/TS 56010:2023</a>	Innovation management — Illustrative examples of ISO 56000

## Interconnections of the ISO 56000 series with the 7 key steps of an Innovation Process

### IDENTIFY OPPORTUNITIES

#### Step 1

The ISO 56002 “provides comprehensive guidance for the establishment, implementation, maintenance, and continual improvement of an innovation management system.” (ISO/DIS 56001 2023). It lists inputs an organisation should consider to identify opportunities, explains how it should proceed, provides tools and methods, and also possible outputs as a result of these activities (ISO 56002 2019). In addition, the ISO 56005 provides in the context of “identify opportunities” guidelines, inputs, and outputs for “intellectual property management” (ISO 56005 2020).

The ISO 56006 describes “strategic intelligence management” consisting of guidelines on “the strategic intelligence process”, data collection, analysis, and communication providing a basis for decision-making (ISO 56006 2021).

The ISO 56007 deals among others with “finding opportunities and ideas” and these contents correlate to a combination of Identify Opportunities and the following step Generate Ideas of the INNOVATE Innovation Management Manual (ISO 56007 2023). For a more detailed description, see Step 2 Generate Ideas.

The ISO 56008 on “Tools and methods for innovation operation measurements” provides contents to identify opportunities in “Measurements for establishing innovation operations” and “Innovation processes measurements”. “Measurements for establishing innovation operations” provides guidance on measurements to understand internal and external context of an organisation, ensuring alignment of innovation with business objectives, leadership, culture, and planning, while identifying opportunities for value creation and redistribution. “Innovation processes measurements” provides guidance on measurements that support opportunity identification, concept validation, solution development and deployment, enabling evidence-based decision-making, problem detection, and the progression of innovation processes. (ISO 56008 2024)

### GENERATE IDEAS

#### Step 2

The ISO 56002 explains how an organisation should proceed to generate ideas or “create concepts” based on “identified and defined opportunities” as well as lists possible outputs (ISO 56002 2019). In addition, the ISO 56005 provides in this context guidelines, inputs, and outputs for “intellectual property management” (ISO 56005 2020).

As mentioned above, the ISO 56007 deals among others with “finding opportunities and ideas” and these contents correlate to a combination of Identify Opportunities and Generate Ideas. It includes “Opportunity and idea inspiration focus areas” that give an answer to the question “Where to look for opportunities and ideas?”, instructions where and how to source opportunities and ideas as well as methods for sourcing opportunities and ideas. It also offers methods to identify opportunities and generate ideas as well as a list of inspiration for opportunities and ideas:

- Customer/User-focused
- Market-focused
- Product/problem-focused

- Impact-focused ideas
- Future-focused ideas
- Business-focused ideas
- Technology-focused ideas

Each inspiration has a short description with a list of examples (ISO 56007 2023).

## EVALUATE AND SELECT IDEAS

### Step 2

The ISO 56002 explains how an organisation should proceed to “validate concepts” based on “created concepts”, which corresponds to the step Evaluate and Select Ideas, and also lists possible outputs (ISO 56002 2019). In addition, the ISO 56005 provides in this context guidelines, inputs, and outputs for “intellectual property management” (ISO 56005 2020).

The ISO 56007, as mentioned above, deals with “finding opportunities and ideas” and Evaluate and Select Ideas is a final corresponding step in this context, in which the ISO 56007 lists exploration activities in order to “scope (...) opportunities and ideas for concept creation” (ISO 56007 2023).

## DEVELOP AND PROTOTYPE

### Step 4

The ISO 56002 explains how an organisation should proceed to “develop solutions” based on “validated concepts”, which corresponds to the step Develop and Prototype, and also lists possible outputs (ISO 56002 2019). In addition, the ISO 56005 provides in this context guidelines, inputs, and outputs for “intellectual property management” (ISO 56005 2020).

## TEST AND ITERATE

### Step 5

The ISO 56002 explains how an organisation should proceed to “deploy solutions” based on “developed solutions” and lists possible outputs. This corresponds to the step Test and Iterate and the following step Implement and Scale. In the context of Test and Iterate, the ISO 56002 suggests monitoring of feedback and lists the improvement of solutions as one of the outputs from deploying solutions (ISO 56002 2019).

The ISO 56007 includes a description what testing of an innovation process is as well as reasons to test, timing of testing, and responsibilities in this context. Furthermore, it describes the process of testing and lists testing methods and options (ISO 56007 2023).

## IMPLEMENT AND SCALE

### Step 6

As mentioned above, the ISO 56002 explains how an organisation should proceed to “deploy solutions”. In the context of Implement and Scale, it explains how an organisation should implement

the “developed solution” (ISO 56002 2019). In addition, the ISO 56005 provides in this context guidelines, inputs, and outputs for “intellectual property management” (ISO 56005 2020).

The ISO 56008 focuses on implementing measurements for the management of “innovation operations” and “provides examples of innovation operation measurements, indicators and metrics”. In “Fundamentals of innovation operation measurements” it offers guidance on the role, processes, and leadership involved in innovation measurement, including what and how to measure, and among others the essentials of data gathering and analysis as well as corrective actions. Furthermore, “Innovation initiative measurements” provide guidance on measurements for reduction of uncertainties, detection of issues, risks management, and corrective actions for progress and achievement of intended outcomes. In its annexes, the ISO 56008 provides comprehensive examples of essential questions, indicators, and metrics relevant to measuring different aspects of innovation operations. (ISO 56008 2024)

Both the ISO/DIS 56001 (2023), which is under publication at the time of writing the INNOVATE Innovation Management Manual, and the ISO 56002 (2019) include the Deming cycle or “Plan-Do-Check-Act cycle” and their subsequent sections correlate to the single stages of this cycle. As mentioned above, the ISO 56002 “provides comprehensive guidance for the establishment, implementation, maintenance, and continual improvement of an innovation management system.” Whereas the ISO 56001 “specifies requirements for establishing, implementing, maintaining, and improving an innovation management system” (ISO/DIS 56001 2023).

## MONITOR AND EVALUATE

### Step 7

The ISO 56002 provides guidelines on “Performance evaluation” consisting of “Monitoring, measurement, analysis, and evaluation”, “Internal audit”, and “Management review”. Firstly, it explains how an organisation should proceed to monitor and measure. In this context, it lists quantitative and qualitative “innovation performance indicators”, dividing them in three groups: “input-related indicators”, “throughput-related indicators”, “output-related indicators” and explains the application of those indicators. Furthermore, it explains how an organisation should proceed to “analyse and evaluate the innovation performance and the effectiveness and efficiency of the innovation management system” and lists what can be evaluated based on these results. Secondly, it suggests “internal audits” to review “the innovation management system” and explains how such audits can be conducted. Thirdly, it suggest a “management review” of “the organization's innovation management system” and lists inputs and outputs of the management review. Finally, the ISO 56002 also provides guidelines on improvement of opportunities. It defines “actions and changes” and explains how to implement and communicate them. It defines also deviations and provides suggestions how to proceed if they occur (ISO 56002 2019).

The ISO/TR 56004 points out the benefits and outcomes of an “Innovation Management Assessment (IMA)”, describes different “IMA” approaches, provides guidelines on the implementation of an “IMA” and on the processing of its results. The results can lead to an improvement of the “Innovation Management” of the organisation, of the “IMA” itself, or the organisation. In the annexes of the ISO/TR 56004 “key principles behind a good IMA” and examples for the presentation of results from an “IMA” are provided (ISO/TR 56004 2019).

The ISO 56008 provides contents to monitor and evaluate in “Innovation portfolio measurements” and in “Assessing and improving innovation operation measurements”. “Innovation portfolio measurements” provides guidance on measurements to assess, manage, and make decisions concerning the innovation portfolio or portfolios of an organisation. “Assessing and improving innovation operation measurements” offers guidance on refining measurement frameworks to align with changes in the organisation, its external context, innovation objectives, activities, or when current measurements are inadequate (ISO 56008 2024).

## CASE STUDIES

In order to showcase practical examples of innovation management, below are three case studies on the ISO 56000 series as well as a description of the ISO 56010 that includes fictional case studies.

### **Importance of, and how to increase, the relevancy and impact of a terminology standard: Case of ISO 56000 innovation Management -Fundamentals and Vocabulary:2020**

The paper “Importance of, and how to increase, the relevancy and impact of a terminology standard: Case of ISO 56000 innovation Management -Fundamentals and Vocabulary:2020” explores the evolution of ISO standards from their initial focus on the simplification and standardization of industrial manufacturing processes to their current role in addressing a broader range of challenges, including technological and social progress, industrial competitiveness, and consumer protection. ISO standards now cover a diverse array of areas, such as consumer products, emerging technologies, services, and economic operators’ behavior (de Bigault de Casanove et al. 2021).

The paper specifically highlights the efforts of the International Organization for Standardization (ISO) and its Technical Committee on innovation management (ISO TC 279), which has extended beyond traditional standard development. By collaborating with global institutions such as the OECD, (WIPO)/WTO, and UNIDO, ISO TC 279 has worked to establish a shared understanding of innovation (ibid. 2021).

The ISO 56000 series, with ISO 56000:2020 as a central component, aims to foster innovation across processes, products, and services. The paper emphasizes that innovation reaches beyond research and development to have an impact on various sectors and organizations worldwide. Additionally, it details strategies for engaging experts and promoting these standards, reflecting the collaborative nature of standard-setting, which involves multiple organizations working together to enhance the effectiveness and relevance of ISO standards (ibid. 2021).

### **The Impact of ISO 56000 Standard on Managerial Practices towards Sustainable Development -A Prospective Study on an Algerian International Port Company -**

The case study titled “The Impact of ISO 56000 Standard on Managerial Practices towards Sustainable Development” assesses the innovation capacity of the Algerian International Port Company, the leading port in Algeria, by exploring the potential impact of adopting the ISO 56000 standard on its managerial practices. The study aims to determine whether the ISO 56000 can enhance “the performance of managerial practices in the frame of sustainable development within the port company”, particularly in the context of improvement of skills, communication and participation of staff. It follows the hypothesis “Obtaining the ISO 56000 standard has a positive impact on managerial practices in Algerian Port Company” (Rezak et al. 2022).

The study concluded that the ISO 56000 standard requires employee involvement at all levels in the framework of quality administration, with upper management tasked with improving communication and processes. Additionally, the ISO 56000 innovation management concepts, for instance realization of value, leadership, and culture, create strong workplace connections and significantly enhance managerial practices. Since the ISO standards are designed to be easily integrated into other management system standards, in particular ISO 9001, the introduction of ISO 56000 is also required for a sustainable culture of innovation. The benefits of the integration of the ISO 56000 standard can be confirmed to the Port of Djen Djen. Given the port's existing certifications, integrating ISO 56000 is expected to be flawless (ibid. 2022).

### **Building a Healthy Innovation Program with ISO 56002 at the Ministry of Health Ontario**

The case study on the introduction of an “Innovation Program with ISO 56002 at the Ministry of Health Ontario” focuses on creating more effective and resilient programs and pipelines for innovation. It highlights the importance of establishing strong metrics and standards, and discusses how the ISO 56002 guidance could help organizations to be more successful and to achieve greater alignment within the organisation. It focuses on implementing the ISO 56002 within the public sector, emphasizing the need for a consistent, enterprise-wide approach to innovation management. It aims to evaluate the impact of digital health solutions throughout the innovation lifecycle and establish an ongoing process for intake, assessment, and scaling. The objective is to make innovation a standard practice rather than a rare occurrence driven by chance. It points out that, similar to many traditional and highly regulated sectors, the public sector tends to be cautious regarding risk. The ISO 56000 series offers a methodical framework for managing innovation, which helps to reduce concerns about unmanaged risks. Innovation management should be implemented by developing the organisation’s experience as well as by allocation of funding and infrastructure for innovation, i.e. an innovation management platform may enhance the management of an innovation management program. An internal assessment of the alignment with principles and processes of the ISO 56002 will allow a better understanding of the current status of the innovation management system at ministerial level and enable focus area identification (Innovation Leader 2023).

The implementation of innovation management provides several benefits to enable key priorities: innovation management may promote fair access to health services and improve the quality of care, the productivity of human resources, and the experience both of the provider and patient. Other beneficial outcomes include the Ministry Ideas Campaign conducted in 2022-23, utilizing an Innovation Management platform. The campaign enhanced the engagement of employees while offering valuable learning, development, and networking opportunities for staff. It also generated new initiatives designed to tackle relevant challenges and created a library of ideas for addressing future innovation challenges and similar funding opportunities. Furthermore, innovation projects enabled earlier interventions, timelier access to care, cost and time savings, inclusive access to screening, guarantee appropriate care, and improved access to specialty expertise (ibid. 2023).

### **ISO/TS 56010 Innovation management — Illustrative examples of ISO 56000**

The ISO 56010 provides fictive examples for an illustration of the concepts behind the ISO 56000. The target audience of this guidance are parties interested in innovation management, but not yet completely familiar with the concepts and definitions of the ISO 56000 series. The guidance should enable to understand, communicate, disseminate, and adapt innovation management standards. It provides four fictional case studies each focusing on another offering: product, process, service, and municipal. Each case study presents an organizational challenge and a derived solution. Furthermore,



the significance of innovation is discussed by describing the degree of value, change, and impact. Finally, examples are provided for innovation activities and processes, innovation management, and innovation management system (ISO 56010 2023).

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