

# A guide for digital product developers from novice to expert

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## Manual for Buddies sans frontiers



**DigiReactor**

**TURKU AMK**  
TURKU UNIVERSITY OF  
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The funding is part of Covid-19  
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# DigiReactor

DigiReactor project

A guide for digital product developers from novice to expert - Manual for Buddies sans frontiers

**Authors:** Satu Aaltonen, Antti Tuomisto, Sami Uusitalo, Marika Säisä, Reetta Raitoharju, Elias Savonlahti, Sanna Määttä and Tero Vahanne

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*Warm thanks to the digital product development learners, sparring partners and teachers who participated in testing the guide!*

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# 1. Introduction





ear reader! Embark on a journey to discover what kind of digital product developer YOU are - and how your idea evolves with the help of the people around you, your first team and partners, regional developers, universities.

The DigiReactor manual will help you answer the question of how to become a digital product developer in the born digital world. It will help you to think about what kind of digital product developer you are and how to work with others. It also sheds light on the formation and transformation of you and your team (yes, you can call it your team) around your idea. Your team lives and changes. Many interesting people will come along for a shorter or longer period of time.

This guide is in two parts. Part 1 is for you: the person interested in digital product development. Part 2 is for you: a professional working in product and business development.



### What is the DigiReactor manual?

The book is your companion on a journey to discover what kind of digital product developer YOU are - and how your idea will evolve with the help of the people around you, your first team and partners, regional developers, even universities.

This guide and the DigiReactor mobile app introduce the key principles of digital product development and provide practical examples and exercises. You can apply the lessons of the book in practice and the book will activate you to move your own digital product project forward.

Digireactioners are also supported by the [Digital Product Developers in Finland LinkedIn group](#).

### What is this handbook not?

The book is not a methodological guide. It is a story, an inspiration, a networking tool and a tool for working together.



DigiReactor is for innovators, world changers, product and service developers and innovators: people who want to become better and better. DigiReactor reinvigorates the idea and its owner. It encourages new contacts and experts to join the network. At the heart of DigiReactor is loving the problem rather than the solution.

The DigiReactor approach is designed for beginners and more experienced digital product developers alike. For novice digital product developers, it provides information and support for developing a digital service. DigiReactor is suitable for people who have a business or service idea that needs to be adapted to today's rapidly changing world through new eyes and with a new type of team. DigiReactor offers a journey for anyone who has the desire and need to work their idea towards reality, together with trusted partners.

DigiReactor is a collaborative and interactive approach for both individuals and communities, where along the way you learn the basics and tools of digital product development.



**DigiReactor is an ESF project 1 Sep. 2021 - 30 Jun. 2023, implemented by the University of Turku Applied Sciences (coordinator), the University of Turku and Turku Science Park Ltd. The funding of DigiReactor is part of Covid-19 pandemic related actions by the EU.**



# **PART 1: Me, digital product developer**

**1. How do you benefit from Born digital and individual  
competence path perspectives?**

**2. Born digital principles for Digireactioners**

## 2. How do you benefit from Born digital and individual competence path perspectives?

### 2.1 What is Born digital thinking?

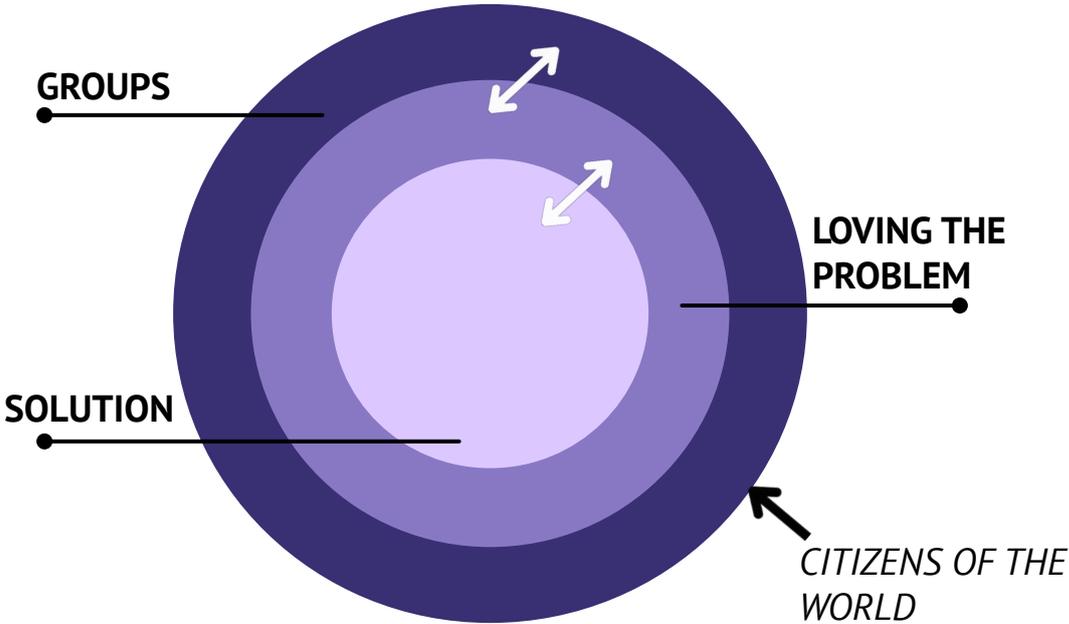
**Born digital thinking describes the dynamics and relationships of problem solving and problem loving in a new way. Born digital thinking (pictured on page 10) focuses on your community and the world around you and how they link to understanding, digitally solving and validating the problem. To solve the problem, you and your team are part of an interconnected community. They all have an impact on you, your team and your understanding of the problem to be solved: what is it about? What is THE problem to solve? How do you describe it in words, pictures, models? What is already known?**

This collective and its connection to the world is the living force that keeps the love of the problem alive. Love for the problem inspires us to get to know it better, which in turn contributes to finding the most relevant solution. At times, the paths of loving the problem lead to a feasible concept, which is then developed using traditional digital product development methods. It can also go from an initial idea in the middle of the diagram to loving the problem. It does not matter, as long as the two states of mind and doing, loving the problem and solving it, are identified as distinct states.

The idea of solving a problem produces a single partial outcome, an experience, an experiment, from a finite object, which contributes to the completion of the solution. It also most often produces a greater understanding of loving the problem for you and the collective. The increase in understanding influences the surrounding globally networked world, whose actions and information in turn influence the new changed and living situation in many ways according to the pattern. But only if YOU have embraced and chosen the Born digital mindset.



**Born digital thinking as part of the DigiReactor model**



## 2.2 Individual competence path as a starting point for competence development

The Individual Competence Path (ICP) highlights you and your set of experiences, actions, thoughts and contributions (whether present, active/passive, synchronised/asynchronised) to the digital world. There is no one right way to be, move forward and act, alone and together. In other words: all ways of doing things are right, as long as the goal is to do good and to do it well, in an ethically sustainable way.

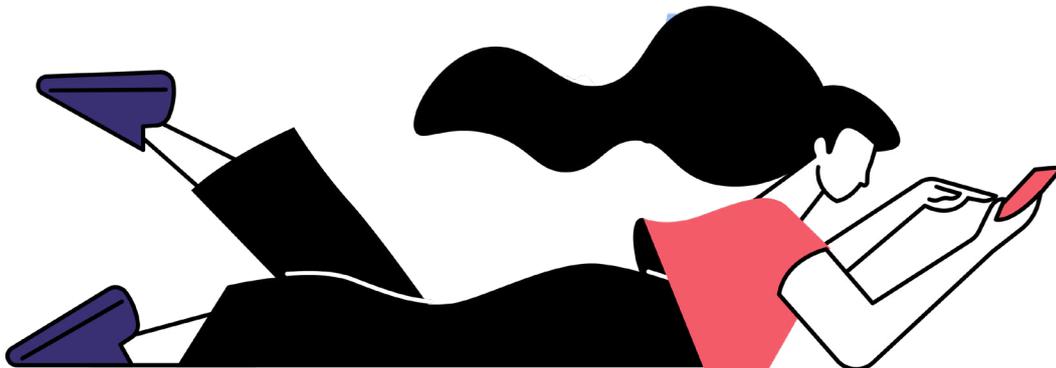
In the Born digital approach, the ICP is about dialogue and dialogue in different media in different ways. It is all about you and your knowledge, experience and good ideas on the theme of loving the problem, i.e. trying to understand your chosen problem in a holistic way. As part of this effort, you are, live and act in the community, more or less actively. Then some person or some thing in this collective makes you make this problem visible: that thing speaks to you or “bullies” you, doesn’t let go. It doesn’t matter whether you feel that the problem is really important to you or whether you are passionate about it. What matters is that you bring it up in your community and in a mindset of loving the problem.

The ICP creates a sustainable basis for your own ideas, the ideas of your community and the site itself. The collective, your “team” loosely defined, works with you to understand the problem, which from time to time comes up with initial proposals to solve the problem (or parts of it). The key here is the digital development path that looks and feels like you: experience your community and its dynamics as positive, people coming and going, physically and virtually. Be active, take notes, participate in events and discussions in your own way. Then share your thoughts in a mindset of loving the problem, with humility and courage. Occasionally explore and experiment with solutions to the problem with potential clients, alone and with a team.

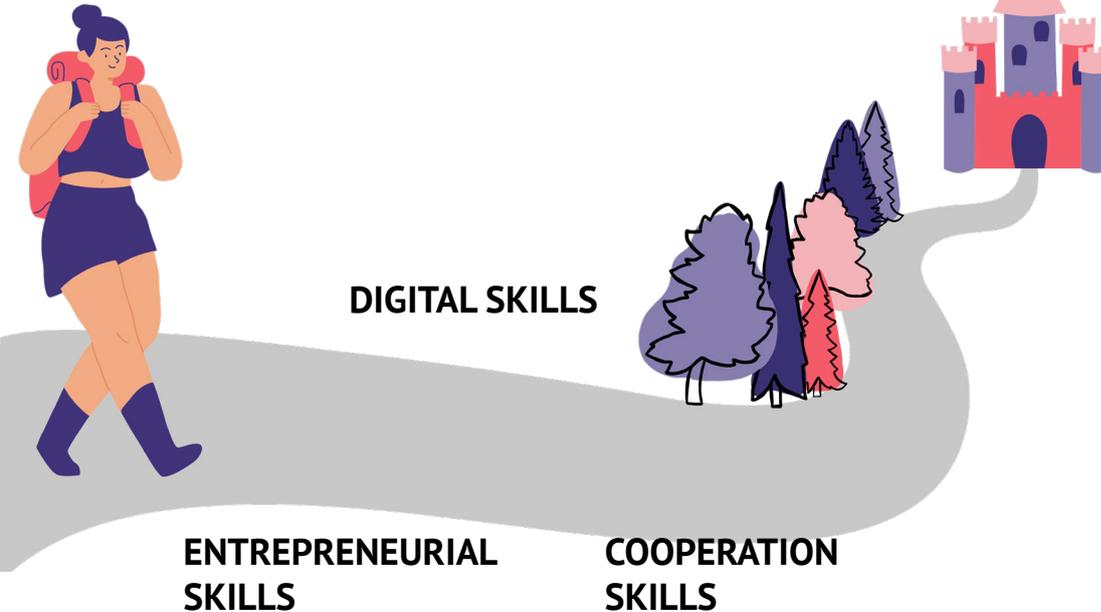
Your own path will be integrated into that making: from time to time, with the help of the DigiReactor manual and app, look back at things you have tried, dealt with, achieved and think about what you still need to try. The journey is a long one, a lifelong one in the pursuit of digital product development skills. But that journey is the destination.

The ICP reminds you that you are important just as you are: you have knowledge and skills, experience and insight, ideas and dreams on many issues. Putting these into words and enabling and supporting them are important both in the ICP and in DigiReactor. These ideas are supported by the fact that in DigiReactor you are never alone. ICP empowers you as an emerging digital product developer and it empowers you in your choices and ways of doing things. That is precisely why it is an individual pathway to excellence.

The ICP also helps you to build a collective in a way that is meaningful and relevant to you: the team and the people you meet are important to give your individual participation a lasting meaning. Similarly to when you participate in other people's teams and give them your time, skills and ideas.



## Step onto your own path – look at the horizon



The path describes well what you do and what are your goals in digital product development. It is not set in stone or a ready-made construct produced by others that takes you to a destination defined by others. It will emerge when you decide it will and it will have possibilities, options, crossroads, surprises, for better or worse, and they are a part of it. The path is flexible. The path also ends, in part, when it's time. But it's there: you've walked it, things, people, places, ideas and everything else you've taken with you to the next path.

The ICP does not specify, plan or map the path in any detail. The key concept is the path itself, its visualisation or creation, the enabling of its existence and the reason and need for its existence for YOU. And then on that path taking a conscious step, making the first step concrete, which DigiReactor encourages! You are not alone!

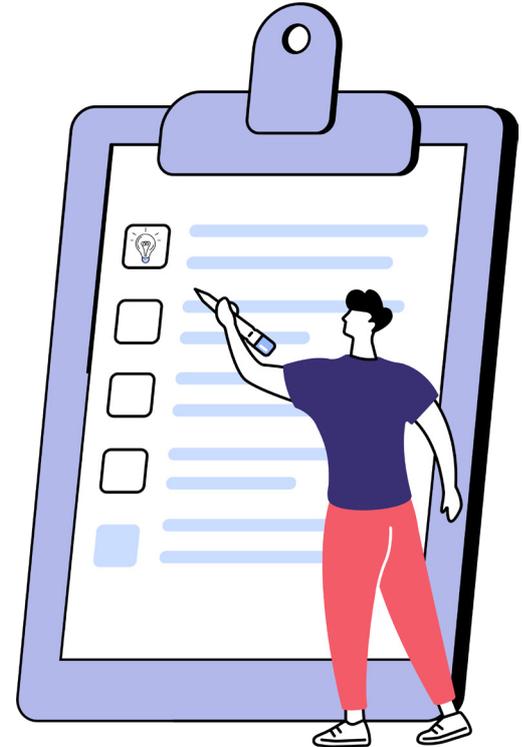
Another useful metaphor is the horizon: a set of goals that were the very reason you set out on your journey in the first place. Some of these objectives are related to you and your skills and their development, while others are related to the digital product idea itself.

The horizon lives and changes, as does your whole journey throughout. Now is now, yesterday was a series of experiences, tomorrow holds possibilities. Your thoughts are here and now. The people you meet and how you meet them will influence what you do and the results. Do good, do it well and with good intentions, and good things will follow. In DigiReactor, serenity has its place. It refers to “the ability to make unexpected discoveries guided by chance” and to draw the right conclusions from them. Serenity is more than just good luck. An open mind and an open heart help, not forgetting trust!

## Setting an objective – general or specific

The aim can be to develop your knowledge and skills in digital product development in general, in the spirit of the ICP. As such, it is everything you do to advance your own ideas, as long as you remember to occasionally reflect on your own journey, your two states of mind and the things you experience in them (loving the problem, solving the problem).

The goal can also be a specific technology, method, tool, etc. related to your idea. This can also be related to either identifying the problem and making it visible (loving the problem) or solving the problem. The most important thing is that from time to time you explore and reflect on your own activities, your path, your journey and the people you meet there, and discuss these issues with them.



**General and specific, internal and external. Holistic. A dialogue. DigiReactor is all this and much more. Take one last look at your inner Born digital and absorb the following DigiReactor lessons learned:**

## **Taking personality and current competences into account**

There are many of us and only one of you. That's why you are an important part of the whole; without you something is missing.

- You will meet many others on the path. Everyone has their own horizons. Some people's ideas and goals resonate with your values and ideas. These people are there. Not just people who support and encourage entrepreneurship for work's sake, but people who share your interests.
- However, it takes time to arouse interest, to share information, to gain understanding. Trust plays a big and important role in ensuring that these encounters inform the decision-making of the parties involved: do you want to continue the discussion together, do the others? Do you continue the discussion now or later?
- Self-awareness and reflection are part of being on the path. Remember that your idea is good, it's YOUR idea. You just have to develop it a bit and try it out. In your actions and ideas, remember courage and humility when discussing with fellow travellers (see chapter 3a).

Remember the DigiReactor lesson: there are many of us! There is a team for your path and your journey. A living, changing, diverse, team. **You can't do this alone.** Everyone can do something – limited only by your own horizon.

## Balanced development of knowledge, skills and attitudes

*Are you a super-digital product developer? A true all-rounder? On the DigiReactor path, success equals success, and success equals something you do yourself with knowledge, skill or attitude and share with others. A thing can be an idea, a thing, a piece of knowledge, a feeling or a thought. Thus, YOU are already awesome, just by starting on the path, meeting, listening and hearing, trusting and discussing.*

*Digireactioners are supertypes. You are a Digireactioner.*

### The digital product development toolkit is in your phone.

It's a support and a refuge on the path: it's ALWAYS there to help when the path gets blurred, the horizon narrows, no one is in sight and your own thoughts are stuck. Then sit down, open the toolbox and do the following:

#### **Stop and think where you are going with your idea**

- Examine your thoughts on your business idea: is your mind already trying to solve the problem? Or should you change your state of mind and start loving the problem for the time being. This alone can help you see the problem in a new way.
- Check the areas of digital product development. Do any of them seem appropriate for the current situation? If so, consider what is around that area: before and after. Do you find anything in these areas that ignites or generates new ideas, questions, tools, answers?
- Still stuck? No problem: contact Digireactor. We can help!

## 2.3 Born digital + ICP = You as a digital product developer

Born digital. Stop and think about it and your idea. Form a Born digital concept of your idea, where actors are dynamically involved in the journey: some will be involved for a longer period, some will benefit from your service, some will be interested in what you are doing, and some will just follow with a glance, maybe commenting. These are all part of you and your idea in a world where you live by loving and solving your business idea with your team.

The end result looks like an individual talent pathway. You are not the same person who stepped onto the DigiReactor path. You have experienced seeing and doing new things. You have met a wide range of people in different situations and for different purposes. You are Born digital and a DigiReactor digital developer in the here and now.

**Have a good trip! See you, hear you! Love you! Puss och kram!**



# 3. Born digital principles for Digireactioners

Our DigiReactor operating model supports you, no matter what stage of development your digital product is at. It is based on the following principles:

1. courage, humility and empathy
2. diversity and community
3. value creation and financial sustainability
4. co-development and dialogue.

This chapter discusses the importance of these principles and how they are applied in practice when developing digital products. To help you put each principle into practice, there are short, inspiring examples of each principle, as well as exercises to help you practice these skills yourself. The examples are based on the experiences of participants in the project's training courses. The elements in the descriptions are taken from a number of people, so they do not reflect the actions of any individual participant.

# a. Courage, humility and empathy

Courage, humility and empathy are qualities that vary from person to person. Are they your strengths? Don't worry if they're not. These are skills that can be learned and developed.



**Courage** is the ability to overcome your fears and do the things you feel are important. Courage is not the same as fearlessness. Brave people can be afraid, but they can still act.

**Empathy** is the ability to put yourself in the other person's shoes and try to recognise what they are experiencing and feeling. Imagination is a tool for this. Your personality and life experiences influence your empathy, but there are many cognitive or knowledge-related elements that you can develop.



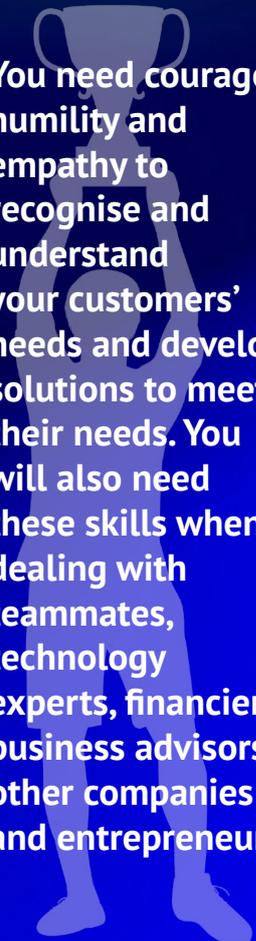
**Humility** is being able to recognise your own limits and relate to your surroundings. It involves respect for others. Humility and courage go hand in hand, although at first they may seem almost contradictory. It takes courage to admit that you don't know, understand or know everything.



You need **courage** to be prepared to approach people whose knowledge and experience are essential for development. Open up, discuss and be brave enough to show your lack of knowledge.

**Humility** does not mean meekness. Be proud of your skills and your passion for helping people with your solutions. However, be humble about your own understanding, and as a digital developer, you are ready to question your ways of working and your preconceptions with new information.

**Empathy** helps you understand other people's needs. It is particularly important to understand the problems that the digital service is trying to solve and the situations in which the service will be used. Team communication and dialogue with clients, funders and partners will be improved if you can put yourself in their shoes.

A white silhouette of a person standing and holding a large trophy above their head with both hands. The person is positioned on the right side of the page, against a dark blue background.

You need **courage, humility and empathy** to recognise and understand your customers' needs and develop solutions to meet their needs. You will also need these skills when dealing with teammates, technology experts, financiers, business advisors, other companies and entrepreneurs.



ou may have heard of user-centred design. It's a generic term for the design of digital products or services, development methods that put the needs of potential customers at the heart of the design. Service design, lean startup and agile methodologies are based on a mindset of rapid experimentation, user involvement and continuous iterations to put users' needs at the centre and move forward quickly and cost-effectively. Courage, humility and empathy are the skills you need for user-centred design.





**Riitta** has been a paediatrician for 15 years. She has an idea for an app that would guide families in the event of a child contracting an upper respiratory tract infection.

Riitta is a professional in her field, but a novice in digital product development.

Riitta is considering the need and feasibility of her service. In this new situation, Riitta realises that she cannot know what kind of problems and situations her potential clients will face or in what kind of environments they would use the new service.

To find out, she asks a mother of young children she knows for permission to come and interview her family. Riitta then starts a discussion on Facebook.

Recognising the limitations of her knowledge showed her **humility** and analysing the accumulated knowledge increased her ability to **empathise** with the needs and problems of her target group. Although she was courageous in her work, meeting families with children in a new role without a doctor's coat required a new kind of **courage**.



**Samantha** is a PhD researcher at the Faculty of Medicine. After the outbreak of the Covid-19 pandemic, she started to think about what she could do to help as a future expert in the field. There was a public debate at the time about how she, as a future expert in the field, could contribute to the situation. There were problems with the availability of vaccines and the attitudes of the population towards vaccination.

Could he contribute to increasing vaccination awareness in sub-Saharan Africa, where her parents come from? A digital campaign could be a way to influence attitudes.

Samantha's first idea was to provide research-based information on the benefits of vaccination through a website. Through education, she had developed a strong belief in the power of information. But she could not do anything on her own. She understood that.

Samantha applied to the DigiReactor programme, where she was helped by mentors. Together they found a suitable local partner, whom Samantha was brave enough to contact. Working together, she learned that vaccine resistance was often not due to a lack of information. It was more about trust and attitudes towards health authorities and the practical difficulties of getting to vaccination points in remote rural villages.

The lesson helped Samantha to better **identify** her target audience **needs**.



**Jose** is an end-of-study arts student from Spain. He has studied Finno-Ugric languages in Finland. Languages and cultures are his passion.

The job market in Finland is not easy for a foreign-language humanist. Jose has started to think about whether he could find employment through his own business after finishing his studies. As he has thought about the idea, he has become convinced that the company's services need to be digital in order to take advantage of the Spanish-speaking market. He has an idea based on combining language, culture and comedy. All elements that are close to his heart.

Jose has already developed the content in his mind quite a long way. But he hasn't talked about it except to his closest friends. The threshold for sharing an idea is high, as Jose is subconsciously afraid of being rejected. The idea is so close to who he is and what he does, that any criticism of the business idea would be perceived as a criticism of himself. That's why it's really difficult to take the idea forward.

But Jose recognises that without help and advice, he will not succeed. So the first step is to get involved in DigiReactor meetings. There, others are in the very early stages with their ideas. There, little by little, he is **encouraged** to talk about his idea and receive encouraging feedback. After the programme, he feels ready to book an appointment with a regional business adviser and to be brave enough to pitch his idea to them too.

# Exercises

1. Check out the DigiReactor app's sections 1.1. Idea, 1.2. Research and 1.3. Strategy and think about how you would use courage, humility and empathy in these steps.
2. Write down your idea, present (Mom test, etc.) it to two people, analyse your new insights.
3. Ask two other people, "What can I do to help?" Analyse the results.
4. Create an empathy map of the user(s) of your service:
  - You can find the map and information on how to use it here:  
<https://www.nngroup.com/articles/empathymapping/>

## **Need more information? Check out the following sources**

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## b. Diversity and community

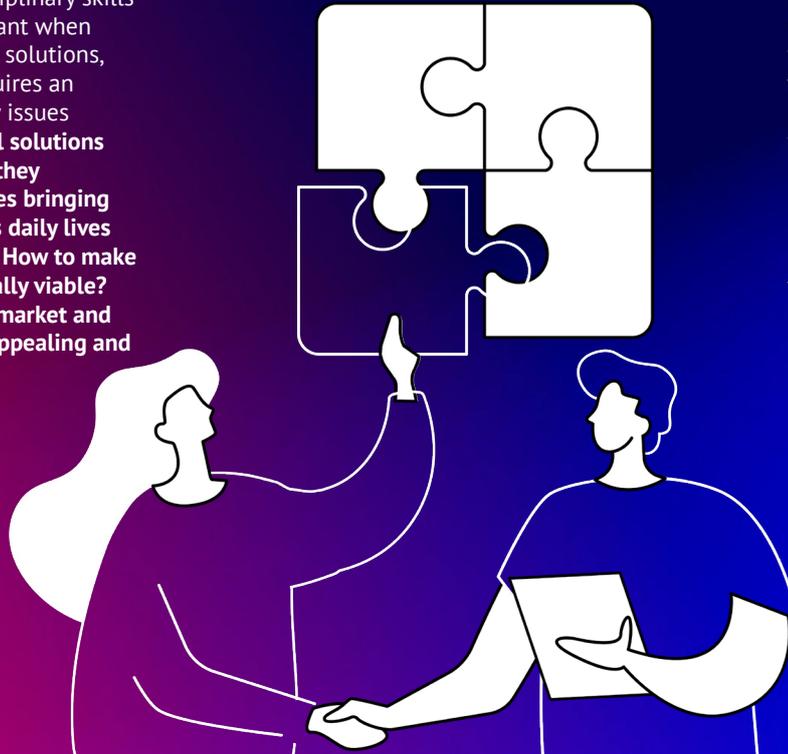
**Diversity** suggests that it is useful for you to seek the company of a wide range of people when developing a digital product. If you're young in the business, seek out more experienced people. If you're more experienced, join young people who are taking a fresh look at the industry. Everyone brings their previous experience, skills, values and attitudes to the discussion. Get as many points of view as possible. It's not just about differences in age, gender or ethnic background, but often even more important are differences in worldview, lifestyle, differences in consumption habits or values. Individuals are like strings on a guitar, each playing in their own way.



If different individuals are likened to guitar strings, **community** is the guitar's echo chamber, bringing individual voices together and making them sound even more beautiful together. It is not easy for different people to work together. You have to work hard to build trust and good vibes. The responsibility lies with everyone, but start with yourself. Think about how you could, with small everyday words and actions, create an atmosphere where everyone feels valued as themselves.

**You know the stuff! There are some things you may be better at than others. So are your teammates. The benefit of working with many different people comes from the fact that differences in knowledge, skills and experience give everyone a different perspective on the needs of the clientele, the service you are developing and how to deliver it.**

Diversity and multidisciplinary skills are particularly important when developing new digital solutions, as a good solution requires an understanding of many issues such as: **What technical solutions are possible? How are they implemented? How does bringing a solution into people's daily lives affect their behaviour? How to make the solution economically viable? And how to bring it to market and communicate it in an appealing and understandable way?**



**Fortunately, you are not alone.** Other like-minded people are there for you. That's why it's important to go to places where you can find people with whom you can discuss your ideas. You need a diverse community around you. Diverse, because key scientific findings show that heterogeneous teams are more successful at creative tasks than homogeneous ones. At best, everyone learns and the product idea evolves.



Don't be afraid of community. Community doesn't have to be binding, formal and eternal. Ideally, the teams and communities you work with to develop your idea will change and transform depending on the skills, sparring or feedback you need at any given time.

Remember, the more diverse your team or community, the more attention you need to pay to communication within the team. It is good to think about the division of labour within the team, especially leadership. Someone needs to be appointed as a leader or someone needs to take on the role of leader spontaneously. Sometimes some individuals spontaneously take on the role of leader and start to encourage other team members to be active and open. It's great to see it happen, but it's not always something you can rely on... This needs to be consciously taken into account when working in a team.



For 24-year-old **Niko**, the community of DigiReactor participants and mentors was the first team he shared his digital idea for reducing student loneliness with. He was joined by two other students, two people who had been in the workforce for some time and one recent graduate. They did not know each other at the beginning of the programme. The digital product ideas of the participants were very different from each other.

Niko was a little nervous when he first met the team. What could he and a 50-year-old German man with a long consulting career have in common? Or him and a young woman in her third year of nursing school? Was going to the DigiReactor programme a wise use of time after all?

As the meetings went on, Niko was surprised at how much the other team members had to contribute. In a **diverse team**, many had unique experiences of loneliness and student life. One team member was developing an exercise and well-being service for women. From her, Niko received sparring on the ethics of the service. A German consultant gave Niko useful advice on setting up a business and marketing. Minttu, the least experienced of the team, who is studying to become a nurse, was given the opportunity to act as an “experience expert” and tell him about situations in which she has missed new friends.



**Maria's** DigiReactor team had a difficult start. There seemed to be no common meeting times that worked for everyone, it took a very long time to reply to messages and it felt like the participants were in the team against their will. Maria, who had expected a lot from working together, found the situation frustrating.

Instead of waiting for others to take care of the situation, Maria took an active role herself. She decided that the short virtual meetings did not create the kind of commitment and **sense of community** that would carry her through the busyness of everyday life. He asked for the phone numbers of his team members and created a WhatsApp group for them to share. Through it, communication became more casual, but still a little forced. Maria decided to invite the team members to meet each other for coffee. A common evening time was arranged that suited everyone and they went to a café.

After a pleasant evening, Maria's initiative was praised. It was good that someone had shown leadership, led the way and done something about an issue that was bothering everyone. It was decided that from now on, everyone would take turns to be responsible for the invitations, but Maria would see to it that everyone did their duty.

# Exercises

1. Check out the DigiReactor app's section 2.3. Team and think about how you would take diversity and community into account when building your team.
2. What qualities or skills would you bring to someone else's team?
3. Attract two members to your temporary team to bring new perspectives to your idea.
4. Take a look at the Minimum Viable Community (MVC) canvas and fill in the elements that are relevant to your idea.

Minimum Viable Community: designing the concept and prototype of your Community of Practice  
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- DigiReactor blog post: Teamwork in the core of digital service & product development  
<https://digireactor.fi/?p=1826>
- DigiReactor blog post: Thoughts on creativity and diversity in the DigiReactor coaching set  
<https://digireactor.fi/?p=1223>

## c. Value creation and economic sustainability

As a digital product developer, you need an entrepreneurial attitude. What does that mean? An entrepreneurial attitude is the ability to creatively use the limited resources at hand to create new value for your customers and innovative solutions to existing and future problems. An entrepreneurial attitude is also often associated with a bold, proactive approach and learning.

Value creation and resilience are not just attitudes, they are also skills that can be learned. So what should you learn to create value for customers in a sustainable way? Entrepreneurial skills can be divided into three main categories: (1) the generation, identification and evaluation of ideas and opportunities, (2) the identification and mobilisation of available resources, and (3) the ability to plan practical actions and implement them (EntreComp framework).

An important step in the development of a digital product is the step from idea to opportunity. If you believe that your idea will create value for people other than yourself, you may have an opportunity. There are four questions to test the potential of an idea. There are four steps to testing the potential for value creation. Ask whether your idea is (1) anchored, i.e. feasible as a service or product, (2) attractive, i.e. whether customers are willing to pay for it, (3) in the right place at the right time, i.e. appropriate to the environment and its needs, (4) feasible, i.e. proportionate to the resources.

Think creatively about the resources at hand. Who am I? What do I know and what can I do? Who do I know? From these, you can start to plan how to get others involved and together you are more than YOU alone. Trust yourself and be persistent. Learn to calculate what kind of activity is worthwhile and at what volume. Business models have been developed for digital products. Check them out in the DigiReactor app. What services do you use? How and what do you pay for? If they are free for the user, find out how they are financed.

You're not doing your project in a vacuum, but as part of a community of people. The diversity and community skills from the previous chapter will also come in handy at this stage. The sustainability of a digital product is built on the interplay of economic, social and environmental value, with all these aspects of sustainability taken into account. From a sustainability perspective, it is important to secure all three pillars of sustainability, because if the economics of the company or community behind a digital product are not sound, it will not be able to deliver environmental or social value for very long. On the other hand, activities that destroy ecological or social values also pose a risk to economic value creation.



digital product must be useful to its user, so that they are willing to spend time with it and possibly pay for its use. The customer hasn't gained any value from your tinkering with your idea. Get to work on it. Inspire others to get involved. For example, test the opportunity with a simple prototype, ask for feedback, develop further, test and launch. It's important to work with future users to create a solution that fits their needs.



**Kevin** has a revolutionary idea. So revolutionary that it is difficult to talk about it in terms and language that others can understand. He's already spoken to several university teachers about his idea, but mostly he's received a friendly but somewhat evasive response. Clearly, they had not understood what the idea was about.

But would potential customers? As a result of the DigiReactor meetings, Kevin began to wonder whether he should put his head in the lion's mouth to think about the follow-up of his idea with his target group of young adults. The idea seemed a little daunting. How to communicate the idea in a way that young people would understand, if even the university professors didn't seem to understand it well? But Kevin **bravely** decided to take up the challenge.

Kevin got a space where he organised a co-creation workshop. He invited young people interested in the idea and invited them to spend two hours together to spar over the idea. For the event, Kevin had drawn a first description of the service on power point transparencies. This served as a basis for the discussion.

During the session, Kevin realised that there did not seem to be a need for the service he had designed. But the great thing was that the discussion revealed other problems close to the idea that would be **valuable** for young people to solve.

Next time – as the next time is already planned – Kevin plans to use it to test whether the ideas generated now could be turned into **business opportunities**.

**Tom** has been volunteering for a few years now as a buddy to children of single mothers. He finds volunteering with children and young people rewarding. Gradually, he has begun to wonder whether children without a male role model could also benefit from some kind of app. It would be a way of creating social **value** for a wider audience than just individual children.

However, the service should also be **financially sustainable**. Tom understands that a business model based solely on individual donations or grants will not serve the ongoing development and maintenance of the app. In addition to

**social impact**, he needs to consider financial sustainability and a business model that does not conflict with his social objectives. This is something Tom does not have the expertise to do. By **asking around**, Tom is able to find a few people at a local university who have expertise in social business development. With their help, a first step forward can be taken.



# Exercises

1. For concrete tips on creating value and ensuring financial sustainability, see for example sections 1.4 Business model and 3.1 Customer segmentation in the DigiReactor application. Check them out.
2. Check out the Harvard Business School's Customer Interview Techniques article (below). Plan your first interview. Contact a few potential customers and interview them according to your plan. What will you learn?  
<https://startupguide.hbs.edu/product/customer-problem-fit/customer-interviewing-techniques-that-uncover-your-users-unmet-needs/>
3. Don't know where to start? How to create business opportunities and use the resources at hand? The following exercise will help you identify your own and your community's resources. First, learn about a decision-making model called effectuation and its five principles. Then fill in your own effectuation screen, applying the principles to your own situation. You can download the canvas from the link below.
  - The five principles of effectuation: <https://effectuation.org/the-five-principles-of-effectuation>
  - The Five Five Principles of Effectiveness: <https://effectuation.org/the-effectuation-toolkit>

## Need more information? Check out the following resources

- Reed, J. 2022. 5 Key Attitudes for Entrepreneurial Success  
<https://www.delawareinc.com/blog/five-key-attitudes-for-entrepreneurial-success/>
- Saras Sarasvathy Explains the Entrepreneurial Method. Big Think video on Youtube:  
[https://youtu.be/Ruvb\\_kGAMYw](https://youtu.be/Ruvb_kGAMYw)
- CoSIE Blog. <https://cosie.turkuamk.fi/arkisto/index.html>
- CoSIE. The Ethical Compass <https://youtu.be/yqkOF7PZHGI>
- DigiReactor blog post: Why to choose agile prototyping to support testing in your digital product development  
<https://digireactor.fi/?p=1926>
- DigiReactor blog post: Failing fast or persistently sticking with your idea?  
<https://digireactor.fi/?p=1901>
- DigiReactor blog post: How to choose right business model?  
<https://digireactor.fi/?p=1230>

## d. Co-development and dialogue

Co-development, as the name suggests, is the joint development of a product idea or the business around it. Together with whom? The most important people to involve are your potential customers – the people you are developing your digital product for. Co-development involves potential users more deeply than interviews, surveys and other systematic ways of gathering information about them, their needs and preferences. The aim of dialogical, equal communication is to make the “voice” of the relevant stakeholders heard. In co-development and dialogic dialogue, you can tap into your capacity for empathy.



For example, you can **co-develop** the value created by your service, a technical solution, a business model, a strategy or your company's way of working. Various social media platforms are handy places for targeted co-creation. On the other hand, you can also organise physical workshops or hackathon events.

Co-development is simply people working together towards a common goal, which can be promoted and supported in many ways. The process should cover at least the following five principles: (1) involve everyone equally, (2) recognize the different goals of the participants, (3) proceed by doing, (4) pay attention to the co-development environment and process control, and (5) deal openly with the emotional reactions generated by the process (agilemobile.fi).



Who should you invite to join you? In addition to potential customers, co-development can involve any group linked to the issue being developed, such as technology suppliers, business owners, business partners and staff. Think about which groups have important understanding and knowledge of the problem to be solved, the needs of the target group and the potential solutions.

**Dialogue** means an equal and reciprocal discussion in which the subject of the discussion is opened up, the other person's opinion is respected and people are prepared to question their own opinions and starting points. In this sense, dialogue is a divergent – opening up – form of discussion, whereas conventional discussion is convergent, aiming to “win” one opinion. However, the idea behind the use of dialogue is also that the parties will eventually arrive at a solution that is acceptable to each participant. This can be either a compromise or, at best, a solution that departs completely from previous positions. The dialogic method implies a commitment to the search for a solution and a willingness to learn from other participants in the dialogue. At the heart of dialogic co-creation is a process of continuous learning as the discussion progresses.



**Dialogue is humble, empathetic and innovative. It is based on an awareness of the limits of one's own perspective and a willingness to understand and take into account the perspectives of others. As a result, something changes, something is learned.**

**The dialogic method requires that all participants in the dialogue allow each other the right to participate, including in the definition of the rationale for the development activity. Achieving genuine dialogue is difficult, but worth striving for. The core values of dialogue are equality and respect for others. The pursuit of this approach to development is a value in itself.**



Today's DigiReactor workshop will focus on stakeholder involvement. Participants have been asked to think about the stakeholders of their digital product. Ali's idea is to develop an app to help small bakeries and grocery stores make their waste food known to customers. Ali will place the stakeholders of his service on the Miro board. He has been given 15 minutes to complete the task. How can it be so difficult? All that comes to mind are the sellers and potential buyers of junk food. He adds them to the board, but then goes blank.



Led by Mari, a discussion takes place where each team member uses their own skills to help Ali complete her whiteboard. One comes up with the technical development of the app with the help of fellow students, the other with the help of funders. A third asks how to get waste food to subscribers. Ali had initially thought that customers would go to the store to pick up the food. We are starting to think about whether home delivery could be an additional service.

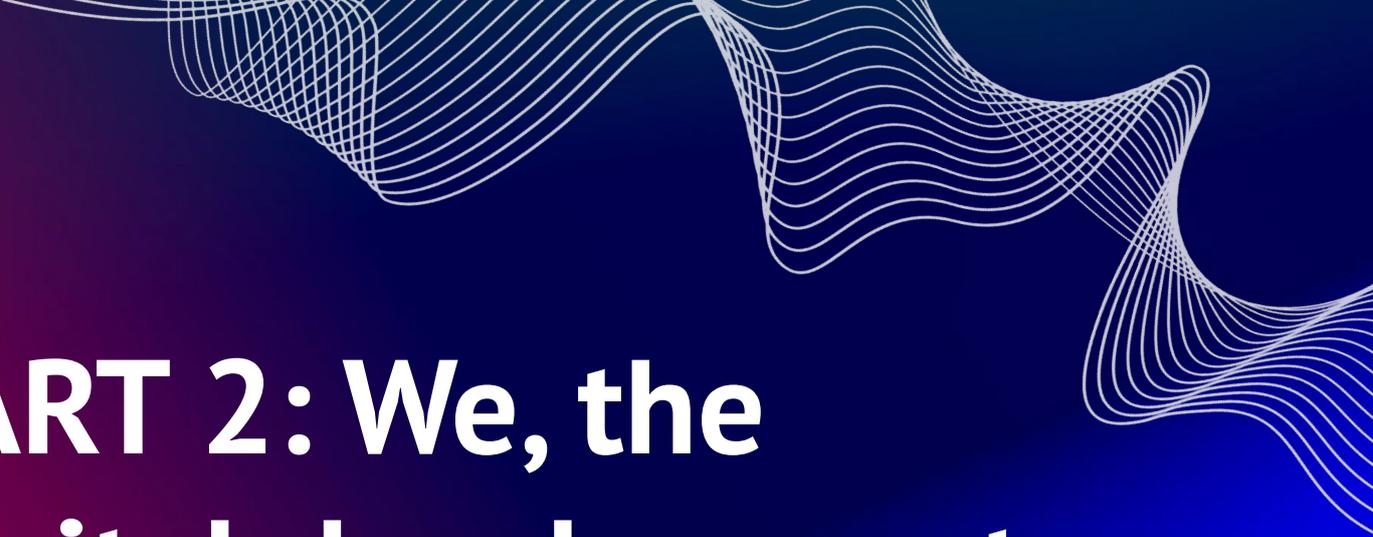
Thinking together, building on each other's knowledge, will complete Ali's stakeholder table. More importantly, the service idea itself was **developed** a few steps further – **together and through dialogue.**

# Exercises

1. Check out the DigiReactor app's sections 1.2 Research, 2.1 Design, 2.2 Stakeholders and 3.4 Branding. Think about the stages at which dialogic co-development would benefit you.
2. Write down who you should invite to develop a digital product with you? And who would you invite to help you plan the launch of the product?
3. Check out the dialogue method, Timeoutdialogue (<https://www.timeoutdialogue.fi/>). Gather five friends and have a dialogue on a topic of common interest, following the guidelines of the Timeout method. Afterwards, write down how you felt and how the conversation differed from a normal conversation between you. What would be the benefits of this kind of discussion for digital product development?

## Do you need more information? Check out the following resources

- Malik, O. 2016. The Art of Science of Co-creation. TEDxJMU video on YouTube <https://youtu.be/DXpA-nSA9Fk>
- Livescault, J. 2023. Braineet blog post. What is Co-Creation and Why is it so Valuable? <https://www.braineet.com/blog/co-creation>
- DigiReactor blog post: Always have the customer in mind <https://digireactor.fi/?p=1917>



# **PART 2: We, the digital development community**

**How to make DigiReactor manual for Buddies sans frontiers a reality? A DigiReactor activity guide for regional developer organisations, start-up communities, cities, universities and other regional actors.**

# 4. The DigiReactor model

DigiReactor is a collaborative and interactive approach for both individuals and communities, where along the way you learn the basics and tools of digital product development and work your idea into a concrete reality together with trusted partners. DigiReactor offers support to all those who need to acquire the knowledge and skills to promote their digital service on their own digital product development path.

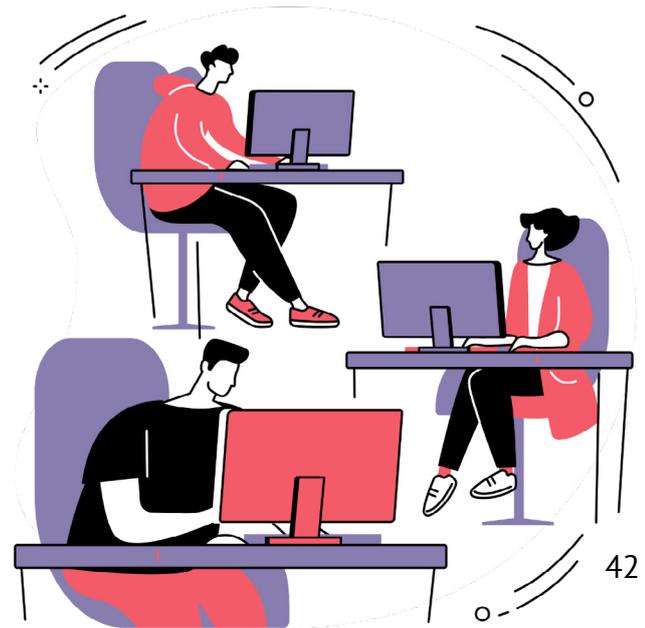
We had the opportunity to put the DigiReactor model coaching series into practice and we want to share our story so you can learn about our shared journey with budding digital product developers. This chapter describes what we did in the DigiReactor project and why.

## How did we do it? Elements, steps and results

The starting point of the DigiReactor model is to enable participants to start digital development in a step-by-step, goal-oriented and small concrete steps. The model offers ways to find new talent for collaborative and networked development.

At the level of concrete actions, the DigiReactor method consisted of two series of coaching sessions, both of which could be attended or just one, depending on one's own interests and previous knowledge. The coaching series started with coaching events open to all, with some participants going on to development workshops.

The “**Digital Product Development**” series consisted of six coaching events for digital experts. The coaching events were followed by a series of six development workshops, where selected digital product developers could further develop their ideas under the guidance of personal mentors. The workshop series “**From Idea to Digital Service and Product**” required the participant to come up with a digital product or service idea, which the participant worked on as part of the development path. Both coaching series were free of charge for participants.

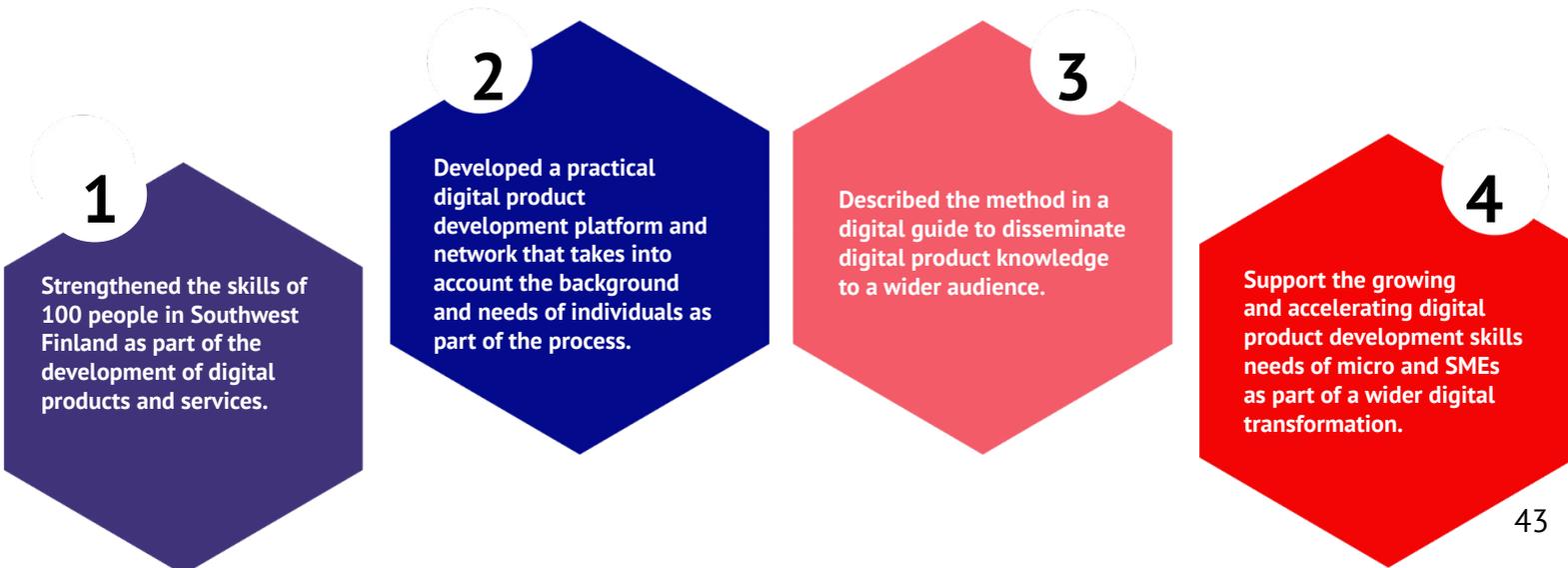


## DigiReactor's objectives and actions

DigiReactor aimed to produce a practical, personalised and collaborative method for developing digital products that micro and SMEs can use as part of their digital transformation. Digital transformation is not only about changing processes and technologies, cultural changes are also key. Changes in working practices and cultures have therefore been taken into account in DigiReactor's training content, in addition to technologies.

Digital product development and service design have been implemented and trained for years. The shortcomings of many of the previous trainings have been (a) the lack of time available to participants, (b) the differences in the skills needs of the participants and (c) the lack of attention to the needs of foreign language speakers.

DigiReactor project activities:



## Digital product development – open forums for those interested in the topic

DigiReactor organised two series of six joint events. The open, English-language events were aimed at digital product developers, entrepreneurs who want to digitise their business or do product development, people interested in entrepreneurship, students, immigrants and international experts. The aim of the events was to inspire, support and provide practical tips and tools to support digital product development.

The themes chosen were:

1. user-friendly digital product design, service design and accessibility
2. digital services for business support, revenue models
3. marketing and selling digital products
4. digital discoverability: search engine optimisation
5. Financial planning and financing of digital product development
6. Examples of digital transformation

Training sessions were held every week, on Thursday mornings. Each session lasted approximately 3 hours.

Each coaching event featured two expert presentations. The nature of the coaching events requires the speakers to have sufficient IT skills, industry knowledge, business knowledge, knowledge of the target audiences, experience of presenting and fluency in English. In line with the horizontal principles and objectives of the project, to ensure the participation of audiences with an immigrant background, an emphasis was placed on speakers with an immigrant background.

An important objective for the series of public events was to attract participants for the subsequent series of workshops. The nature and atmosphere of the events was kept very open and trusting. Participants were encouraged to share their ideas and thoughts with the DigiReactor mentors and experts who attended the events. Participants were also encouraged to network with other participants. The importance of a good, multidisciplinary team cannot be overemphasised, especially for entrepreneurs and start-ups.

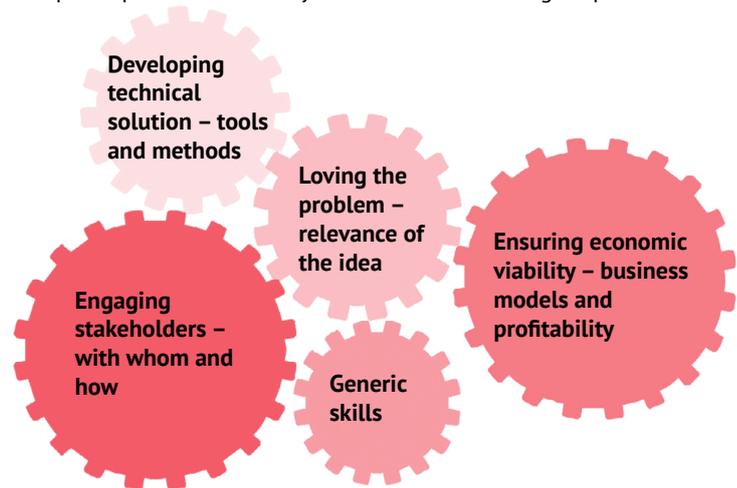
## Your own starting level – your own perceptions of competence

The starting point for the individual coaching sessions was that the participants had an idea for a digital product that they would go on to refine and develop further. No previous experience or expertise in digital product development was required.

Before the individual coaching sessions started, the participants had an initial interview to discuss the development idea in more detail and their own starting level. The discussion also aimed to ensure that the coaching was appropriate and timely for the participant and to build trust.

Participants also completed an online competency self-assessment, which encouraged them to assess their own competencies and future learning needs. The self-assessment also aimed to illustrate to participants the diversity of skills needed for digital product development.

The themes of the survey were (Pöppelbuss et al. 2022):



The themes were also repeated in the coaching topics.

At the end, participants assessed how these same skills had been developed through workshops, teamwork and the development of their own ideas.

## Working in teams

The workshops were organised to take into account not only on-site but also remote participation. People were divided into close teams and remote participants were free to choose whether to attend the workshops remotely or in the training room. The separate group meetings were all remote. Mentors were evenly split between the two teams to support the progress of discussions and tasks.

Each workshop covered a different topic area. The topics of the workshops were:



- Setting objectives and contextualising the problem
- Data collection and stakeholders
- Technical solutions
- Economic viability
- Pitching your idea to external experts and presenting your future plans.

The workshops included expert presentations and discussion exercises in teams. Participants were also given pre-assignments before the workshops. The workshops allowed participants to present their answers and ideas to the tasks and to discuss issues related to the development of their ideas among the team.

# Individual and team mentoring

## Individual mentoring

Participants always had the opportunity to book an appointment with a mentor of their choice. This allowed the participant to choose a mentor based on their expertise (entrepreneurship, finance, technology, human sciences).



## Team mentoring

Regular remote meetings were organised with the teams. Participants were offered three or four times that were convenient for mentoring, from which the team chose the most suitable. The meetings were used to discuss current issues related to the development work, such as the progress of the development work and the tasks assigned. Often the most important thing was simply to discuss the topic and its status among the team.

## Learning by doing (own idea and development tasks)

The workshops aimed at an open and active exchange of information and encouraged participants not to spin their own ideas in their own minds alone, but to bring other views and ideas into the process from the beginning. This is why the tasks given were designed to support the airing of one's own idea in the outside world. The tasks themselves are not the most important thing, but the fact that the participant is and remains involved. Developing a digital product idea is not a simple process or method, so all the reflection around one's idea helped the process and kept it alive. The tasks helped to focus the work on a clear area, but if it didn't work out that time, it wasn't a problem. Almost as important as working on your own idea was listening to other participants' ideas, insights and dilemmas: everyone was struggling with similar problems and seeing and hearing this helped many to move on.



# Workshops carried out

The first workshop was about *designing your own digital product* idea using the guideline “love the problem, not the solution”. In the post-workshop development exercise, participants considered the problems that their product/service should solve. The task was to identify the target group, assess the importance of the problem chosen and investigate whether there are already solutions to the problem.

The theme of the second workshop was *transformation* and in the subsequent development task, participants had to create 1–5 transformations for their own product, based on the examples given. They were also encouraged to consider what methods could be used to gather more information to support the development of the product/service idea.

The third workshop focused on *stakeholders*. As a development task, the participants had to identify different stakeholders, make a plan on how to engage and communicate with these stakeholders and consider the timing of the contacts. Participants were also encouraged to contact at least two stakeholders and present their ideas to them.

The fourth workshop was on *technical implementation*. In the development exercise, participants were challenged to think about what the technical implementation of their idea could look like and to list the pros and cons of the chosen option. Participants were also encouraged to think about data collection: what kind of data they could or would like to collect about their digital product and what could be done with that data.

The theme of the fifth workshop was *financial viability* and the development task required participants to reflect on the financial aspect by answering a series of supporting questions:

- How much revenue would you like to generate from your digital product?
- How would you like to receive financial benefits from your product?
- How much does it cost to develop the product?
- How much does it cost to maintain the product?
- How much does it cost to market the product?
- Can you invest money in the product at risk?
- Do you have the time and money to wait until the product starts to pay off?

After the fifth workshop, participants were also instructed to prepare a three-minute pitch for the product for the last time.



## Reflecting on own learning

The debriefings were an informal discussion in which the participant was encouraged to share their feelings openly. The discussions were conducted both remotely and face-to-face. The themes of the discussions were:

- Workshops: what was good about the workshops? How could they be improved?
- My learning: What did I learn? What did I not learn, even though I wanted to?
- Implementation: what went well? What didn't?
- Teamwork: what did you like about it? What didn't work? Any other comments?
- Any other comments?
- How do you plan to proceed with your idea? Do you need help?

## Self-evaluation of the DigiReactor model – areas for improvement

Once the content of the events and workshops is tailored to the needs of the organisers, appropriate to the time and situation, and of high quality and appeal, it is important to reach the right target group. Communication should take into account that the marketing message should be structured in a way that appeals to the right target group and includes an easy channel to contact them for further information. It is also important to identify the different actors that reach the target group and involve them early on in the communication. Clear ground rules are also important. For example, in the first round of breakfast events, we heard afterwards that some people had thought that they had to attend all events and that they could not participate if they had not been there from the beginning. These misunderstandings arose, even though we did our best to inform them. **Therefore: be vigilant and test and verify the effectiveness of your communication and information activities.**

When organising events, it is also important to understand the reasons why people attend. It is not always enough to have a good speaker or interesting content; participants need to get something more from attending, such as the opportunity to interact or network at the event. This is where outreach and **the visibility of the organisers, i.e. the individuals, both in communication and on the ground, is an important part of building trust and dialogue.** This should be started early, unless the organisers already have a good grasp of the target group and the day-to-day activities in their area.



The comparison of the results of the initial and final questionnaires of the individual competence pathway did not work for many participants. Most participants completed the initial questionnaire, but only a few completed the final questionnaire. The reasons could be lack of time, fatigue, not seeing the benefit of the final questionnaire, the end of the workshops and the completion of their own results. So why would the participant have continued with the self-reflection. To remedy this, the YKP and Born Digital ideas should be used to ensure that the workshops and **DigiReactor activities do not end until the participant's personal self-assessment and discussion has taken place.** The motivation for this could be to make better use of their follow-up activities and the Digital Product Developers in Finland LinkedIn network. Of course, this makes the approach more cumbersome, but we believe it is worth it.

Other ideas for development include the videoisation of breakfast meetings, so that “subscribers” can watch the videos. This would also activate the above-mentioned LinkedIn group and organically increase the critical mass of the community.



# 5. Summary



We hope that the Guide for Digital Product Developers from Novice to Expert – Manual for Buddies sans frontiers has inspired you to take new steps on your own individual talent path towards the Born digital world of the future. If you are a sparring partner, trainer or developer, we hope that the manual will give you new perspectives on your own work.

The new Born digital mindset and digital product development will enable agile development of existing businesses and the creation of new start-ups. The change in consumer buying behaviour with Corona contributed to the demand for new digital products. It's not just products that change. Digitalisation also changes the way we do business and the environments in which we use products and services. A big change is underway!



Change does not stop. Digital products live and evolve throughout their lifecycle. Changes are not always fully predictable. That's why developers need to be vigilant and open-minded: experimentation, testing, feedback gathering, iteration and development process management. This is called the Plan-Do-Check-Act (PDCA) cycle of continuous development, which, combined with constant curiosity and learning, keeps your service and product up-to-date and in line with customer needs.

Our guide introduced the Born digital principles needed for digital product development. Courage, humility and empathy are required to build customer insight and develop solutions. The same skills are also needed to engage with key stakeholders. In addition, as a digital product developer you need an entrepreneurial attitude, which means the ability to use the limited resources at hand in the most creative way possible to create new value and innovative solutions to existing and future problems.

In summary, digital product development is about skills, knowledge, taking your own path and working together -- as well as trial and error. Above all, digital product development starts with the courage to engage in a dialogue with different stakeholders about the product and service idea, empathy and understanding of customer needs and the ability to meet those needs. The most essential of these are summarised below:

## Techniques, tools and methods

- Something may come up on your path that needs to be done. The tool you need may not be immediately familiar, or you may have doubts about its quality and efficiency. The need for new tools may also come from other trail users and trail junctions. Here too, it helps to sit down, even with a fellow traveller in your team, and start to find out. The mobile app will help here too, as will other DigiReactor guides and advice on digital product development tools, not to mention the web. In particular, remember and trust your dynamic team and its virtual members. Ask, discuss, experiment, learn, share and collaborate with your live team.
- Improve, apply, hack with every tool necessary. Tools, techniques and methods will not solve your problem. If they did, we wouldn't have any problems. A little improvisation and application is in order when using tools, rather than slavishly trying to follow instructions. This encourages you to try different tools: if they help you move forward with your idea, then they work.
- Learning by doing is not a ditch. At this point, you can also consider further education/retraining, open university courses and other training leading to a degree or qualification in relevant industries, entrepreneurship or technologies. This additional training can be one of the most important things on your path, whether it leads to starting your own business or not. You have acted like a good DigiReactor member and walked the path, with your eyes on the horizon.

## Policies and a culture of doing

- You cannot do digital product development alone. You're always in this together with your living, changing and evolving Born Digital team. You are also together with your customers: potential, current, future, "wrong" and other people ... all encounters are valuable on your path.
- DigiReactor offers you a culture of working together through its LinkedIn network: [the Digital product developers in Finland group](#). DigiReactors' local activities can be global in scope. You can see far when you look close. Think local, act global. Digireactor is people-sized, close and physical meetings strengthen trust. These are important, especially at the beginning, to make your path visible and to take the important first steps. We are close to you and we would love to meet you!
- **Contact is just a click, an email, a LinkedIn message, a text message away. See you. Be a Digireactioner, contact us. You have something to say, you matter and we want to meet you!**



*The experiences and insights presented in this publication are a compilation of the experiences, discussions and feedback from the DigiReactor workshops and events. A warm thank you to all the people involved in DigiReactor for the fantastic trust, the deep discussions and the sense of community!*



## Selected from DigiReactor workshops



*“It all started with the morning snack sessions.”*

*“This (my idea) can work!”*

*“I’m glad it exists, and that it worked remotely!”*

*“I was sceptical, but I was surprised that (other) people really wanted to do business projects.”*

*“Personality is a big thing, you get to the heart of the matter, the idea and the person!”*

*“Linking work and family experiences with entrepreneurship and digital product development was natural. It all felt possible, even though time was limited.”*

Selected from DigiReactor workshops



*“The discussions were the best!”*

*“Now it’s more structured, gets done and promoted.”*

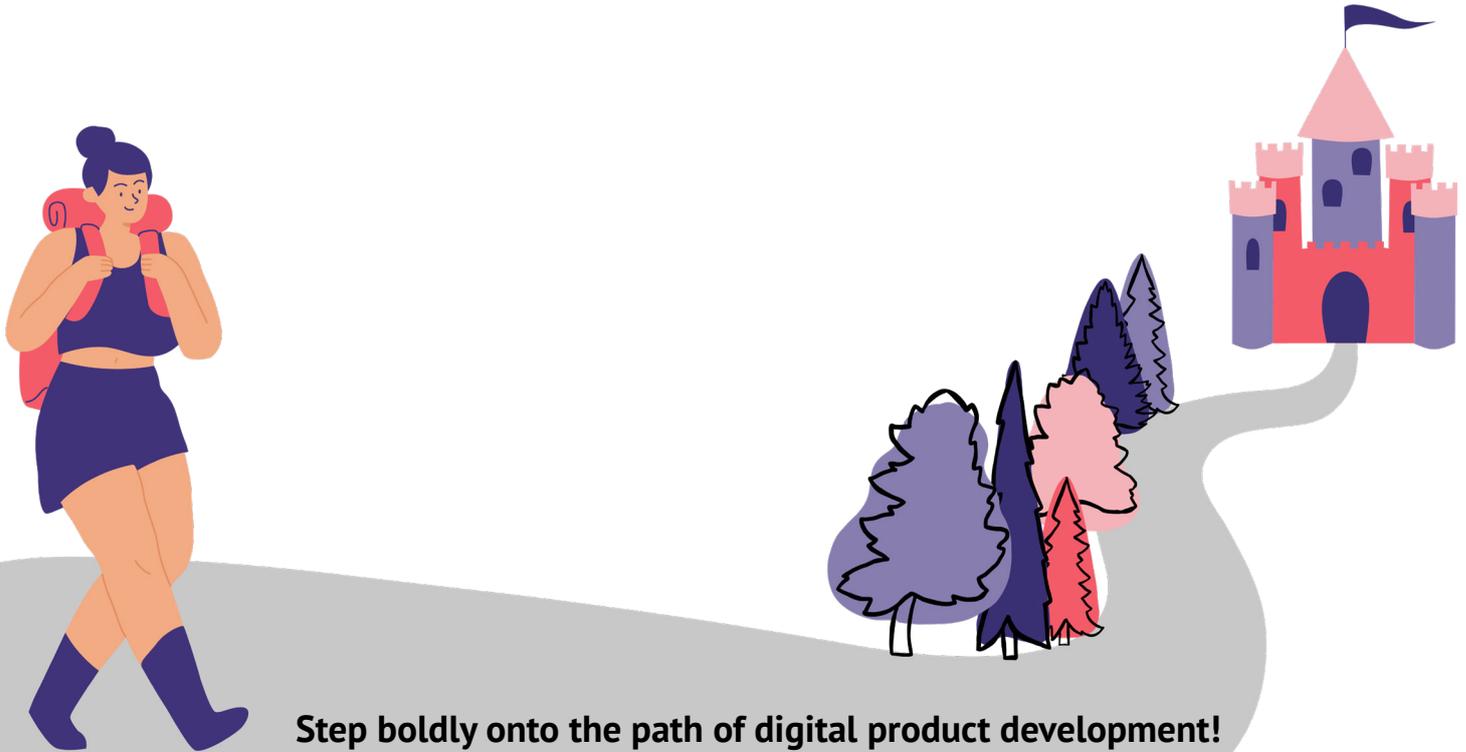
*“Best tip: a signpost! The examples of others also help tremendously!”*

*“I learned to see my service in a more holistic and born digital way. It improved the content of my development plans!”*

*“The love the problem mentality should be remembered to put in every interlude.”*

*“I have less time than I thought – but I really like the discussions when I get to talk to others! My business idea has progressed!”*

We hope you were inspired to become a digital product developer and that you found the courage to discuss your goals and ideas with others. Feel free to get in touch, and also check out the DigiReactor app, which offers information, tips and tasks to support your digital product development. The app can be downloaded free of charge from Google Play and the Appstore.



**Step boldly onto the path of digital product development!**

# DigiReactor

## Contact details:

**Marika Säisä**, Turku University of Applied Sciences, +358 44 907 2080, Marika.Saisa@turkuamk.fi

**Sami Uusitalo**, Turku Business Region, +358 50 434 1811, Sami.Uusitalo@turkubusinessregion.com

**Antti Tuomisto**, University of Turku, +358 40 737 1533, Antti.Tuomisto@utu.fi

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