Combating crisis situations by innovative STEM tools and entrepreneurship skills

DOERS' MINDSET GUIDE

Course content

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Matic M. Golob \\ CamCare Uk \\ matic@golob.uk

Doroteja G. Maklin \\ CamCare Uk \\ doroteja@maklin.si

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1. Guide introduction

1.1. ABOUT CRIS GUIDES

Welcome to the guide on Doers' Mindset. This is the second in a series of three guides that are together designed to outline a unique and comprehensive curriculum on how to equip kids with the right understanding, mindset, and tools to successfully navigate uncertain, difficult situations that life will throw at them. The three guides combined aim to:

1. Build awareness of crisis as a wholesome event with life-changing consequences
2. Introduce curious and proactive mindset of the doers to construct behavioural patterns of people who get things done and not stand still waiting for others to offer solutions
3. Establish a structured way to address challenges, issues, problems, and crises
4. Include a note of importance of knowing and understanding various advanced, digital technologies with high potential to play major role in the development of solutions in occurrence of crisis

While the Doers' Mindset Guide is part of a series, it can, at the same time, be used and applied individually and independently of other two guides. Although authors desire is to use it in combination with others to maximise the learning outcomes and create proactive and prosocial leaders of tomorrow, they acknowledge that this might not always be possible nor feasible and have therefore designed this guide in a way it can be used withing array of topics and complimented by many other lessons and guides.

1.2. ABOUT THIS GUIDE

We humans, deal with solving challenges, issues, and problems on a daily basis. You might think that is not true for you, but it is. How many times did you have to figure out what to put on for an event or work even. You also solve problems when you plan your meals, when you shop, when you need to figure out when is a good time to squeeze in another meeting, etc. It is true that these are all simple problems, but none the less, we all undergo a mental process when solving problems.

When it comes to more complex situations, many people will freeze, avoid, run away or simply ignore it, because they believe, they do not posses' skills nor have abilities to address such situations. Many people also believe it is not their job or responsibility to do so, but this is all related to the way we perceive and think about the world and our place in it.

In this guide, authors take you on a journey from being a passive bystander to developing skills and abilities to become a proactive member of society, who embraces challenges and face them with optimism, curiosity, clear head, and a backpack full of structured processes, methods and tools to help you along the journey. Welcome to the Doers' Mindset Guide.

2. Index

3. Change and how we act in a face of one

"***There is nothing permanent except change***" is an ancient quote by Heraclitus, but it has never become outdated.

Where would the world currently be if it had not undergone constant changes? We would probably still live in caves unless our ancestors desired to improve their way of life. They needed to cook and warm themselves up - so they learned how to make and control the fire; they were limited in the number of things they could transport - so they invented the wheel; they realised they can't always use stars for navigation - so they designed a compass.

The world has been improving since the dawn of humanity and it has never stopped doing that. That is why, we use a satnav instead of compasses and heat our homes with solar panels instead of making a fire in the middle of the living room. However, change not only refers to technological progress. It is inevitable and omnipresent. It basically touches all aspects of our lives: meeting new people, learning new things, travelling, finding a new job, getting married, and even moving furniture in a room.

Even in times of crises life can offer us an invitation to try a new experience or take advantage of the situation. The outcome, whether positive or negative, depends on the way we react to these offers. We may decline them and go on crying over spilt milk; or we might take a (calculated) risk and have a chance to improve. Taking risks and dealing with failure is something we face throughout our whole life. So, if we learn how to manage situations, we find ourselves in effectively and spot opportunities even in the darkest of times, we will be able to make our life journey more successful and meaningful, with a high likelihood of having a positive impact on people, nature, and environment around us.

4. Doers' mindset

4.1. MINDSET

Do you know that whether you succeed in life (or not) almost always depends on your own outlook? A lot of research has been done on the issue and it has been proven that the way you perceive the world around you impact whether you spot opportunities of this world or not, whether you do something about them or not. So, what is a '***mindset***'?

Mindset is a set of our thoughts and beliefs which shapes our general attitude towards the world. It affects how we react, what we do, feel and experience in various life situations. Here is the definition provided by Longman Dictionary:

"Mindset is someone's general attitude and the way in which they think about things and make decisions"

Everyone has a mindset, but not everyone has the same one. There are various mindsets, but they mainly converge to one of the two mindsets which we will explore next.

Carol Dweck, a Stanford University professor, found that children reacted differently to difficulties and frustration in the 1970s, which led to the development of Mindset Theory. Some kids (teens as well as adults) get excited about problems, especially about more difficult and complex ones, and even actively seek them out. They can bounce back from a failure and try a different approach or persevere until the situation is favourable. On the other hand, other kids get anxious, and are often devastated by even the smallest setbacks.

Dweck and her colleagues observed that the meaning of failure is dependent on children's view of "ability" as something deep-seated and permanent, or something they can develop. They were intrigued by this observation and searched for underlying mechanisms. This finding sparked a multi-year investigation into the origins and ramifications of people's implicit theories in a range of domains, including academic and vocational accomplishment, health, and interpersonal relationships.

According to Dweck there are two main types of mindsets. A **Fixed mindset** which means your intelligence and talents cannot be changed through a lifetime; and a **Growth mindset** which, on the contrary, implies that people's abilities can be improved.

4.2. BEHAVIOUR

Mindsets inform human behaviour, and since they are related, let's explore what a behaviour is.

Imagine passengers at the airport being informed that their flight was delayed. How would they react? Some of them might argue at the information desk, others would google for compensation policies, while the third ones would sit back and continue reading their favourite book. Their behaviour can tell us a lot about their mindsets as well as their personalities. **Human behaviour is the term which refers to the way we act and interact as a response to a certain circumstance. It is the combination of several factors such as culture, values, attitudes as well as genetic structure (7).** While specific traits of someone's personality, temperament, and genetics may be more consistent, other behaviours change as they move between various life stages (for example from birth through adolescence, to adulthood, and from parenthood and retirement). In simple terms, human behaviour could be defined by a rhetorical question of "How does one act or react to a certain situation?"

4.3. MINDSET AND BEHAVIOUR INTERTWINED

What makes some people appear more successful than others? You would be right if you thought about the combination of the mindset and behavioural characteristics. It is our instinctive thinking that informs our behaviour in specific situations and lets us use Emma and Nicole, two 30-year-old friends who could not be more different from one another.

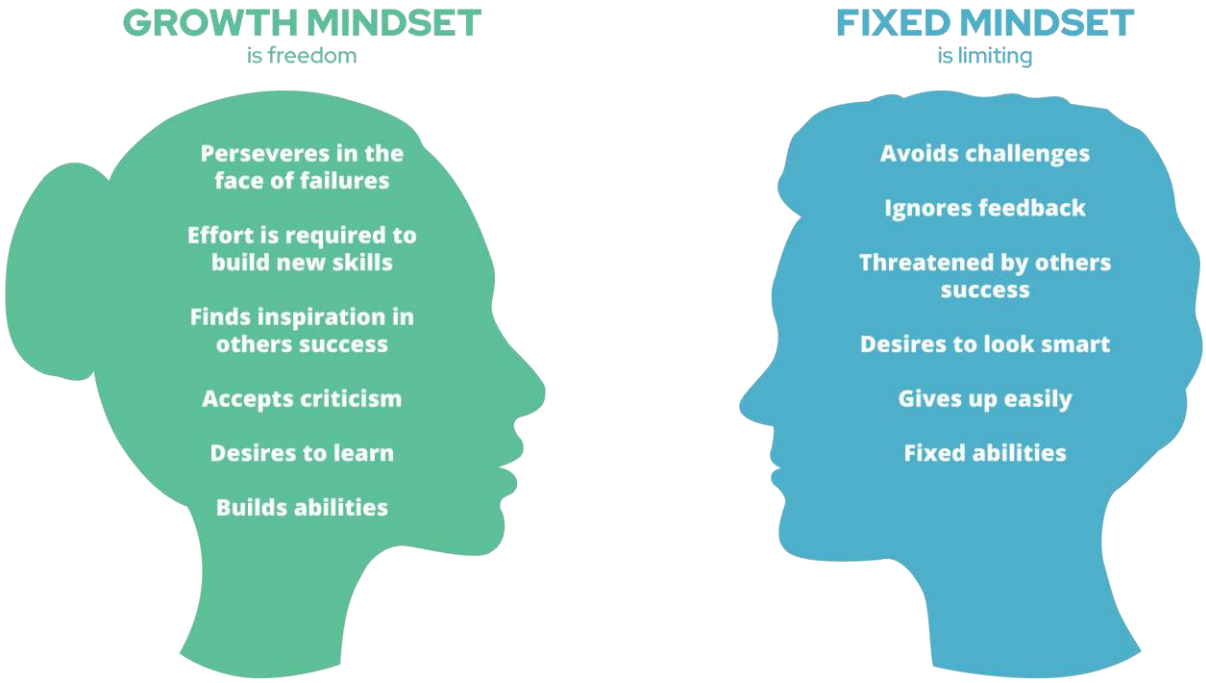
Emma is all about being good, proving herself through skills demonstration and performance that is better than the ones of her peers. Emma believes that skills, talent, and abilities are finite - they have a limit over which a person cannot ascend. Therefore, whenever she faces a setback, challenge, issue or a problem, Emma's first reaction is to react to it as if it would be a threat. Emma is also an extremely impatient person who gets easily irritated when things do not go her way, even though they might be out of her control entirely. You might have guessed it already; Emma has a fixed mindset with a choleric behaviour, inherently ambitious, possessing a great deal of anger, energy, and enthusiasm, which they attempt to instil in others. She is used to excelling in tasks that require strong control and are well within her safe space. Emma's first instinct to an unfavourable situation is "I can't believe this is happening to me? Why is this happening to me? What did I do wrong?"

Nicole is all about becoming better, continuously improving, developing skills and abilities. She measures her performance against her previous performance, as opposed to comparing herself against others. Nicole loves new challenges and learning about things she knows nothing about, all to further develop and broaden her capacities. Setbacks, challenges, issues, and problems present challenges that she must tackle and solve, and her excitement levels spike. Her first instinct to an unfavourable situation is "What do I know about the situation? Is there something I can do about it? What can I do to make it better or transform it into a favourable one?" And you

would be right again if you would think that Nicole has a growth mindset with optimistic, analytical, patient and understanding behaviour.

So how do you think Emma would behave in the abovementioned airport situation? And how would Nicole? Emma would be most likely agitated, frustrated and angry, blaming everyone around her and demanding from others to solve the problem. After a few failed attempts of a desk clerk to explain to her it is not the airline nor airport mistake, but bad weather, Emma would also become impolite and might even raise her voice trying to get her way. The entire time, she would also complain to her friend Nicole (and maybe even to some other friends over the phone) and lay blame to everyone and anything she could think of.

On the other hand, Nicole's brain would start sparking up and immediately analysing the situation. Bad weather means no or delayed flight. There are other means of transportation - could we take a train? Bus? Taxi? Rent a car and drive? Do we really need to be at the destination the next day, or might we use the day and travel the next day? There would be no demands from Nicole to other people. There would be only actional questions which lead to actions. Nicole would politely ask the desk clerk about procedures for delayed or cancelled flights, about the closest car hire company, possible train, and bus connections, and so on, to make sure she got all the info needed before action on her questions and finding the most favourable outcome.



While Emma might eventually have her situation resolved by others, Nicole would already be underway with the situation sorted and put behind, without ever offending anyone or making them feel bad for a situation they were not even responsible for.

The combination of growth mindset and behavioural characteristics that Nicole possessed in our short story is what we call the 'Doers mindset'. It is about '***doing, not talking***', about '***acting, not waiting***', about **'solving a problem, not complaining about one**', about **'making a difference for**

others and not vice versa' and ***'moving and flowing, not standing still and watching other people and opportunities pass you***'.

It is human to resist change, disruption, or a problem. Our brains like to keep things easy. We tend to run on auto pilot - unconsciously directed by habit and things we have repetitively programmed. Doing what we are already very good at feels great and natural, but it limits us, it captures us in the comfort zone and keeps us there.

If you identify yourself with traits of a fixed mindset, fear not, you are not alone. And the best thing is, a growth mindset can be (self) taught. Here are a few practical tips on how to shape your mindset:

1. Knowing about the growth mindset, can have a profound impact on its own, simply because it affects our beliefs.
2. Have patience with yourself when trying to build a new habit. It is like shaping your body, your muscles. It does not happen overnight and accept that it requires effort, practice, and repetition. Over time, as we persevere with efforts, as we struggle, and practice, we grow and rewire our brain.
3. Use "I cannot do it yet" instead of "I cannot do it." The word "Yet" expresses belief in yourself, knowing that you are not stuck in the same situation and buys you time to make the necessary changes until you can do whatever you put yourself up to.
4. Frame an uncomfortable experience as "an experiment, an opportunity to be creative."
5. Use a mantra to remind yourself of your intention: It is not about proving yourself to others. Instead, improve yourself.

Take these points to your heart, print it on the poster and hang it in your room, make it a background photo on your phone. Anything to keep reminding yourself that you can do it! But be aware and accept that everyone holds both fixed and growth mindsets about all sorts of our abilities and characteristics, so do not feel down, if you still find traits of fixed mindset in you after years of practising. It is partially due to biology - how our brain is built. Know that you can improve, but do not be discouraged if you are "never finished". It is a continuous improvement journey.

If the mindset underlies the way in which we think about things and make decisions, and behaviour defines our actions and reactions, then what makes some people appear more successful than others? It is the right combination - the doers mindset!

5. "Just do it" type of people

If you look you will find it. We are talking about inspiration. "Just do it" type of people are all around us. They are our neighbours, friends, colleagues from college and university times, family, … You will know them by the word entrepreneurs or business owners. While this is not necessarily the same as people with the doer mindset, they will possess most of the above mindset and

behavioural characteristics. These are people who had or recognised a problem or an opportunity and did something about it! They did not wait around for someone else to come and do the work. They did it themselves. Below you will find two examples of extraordinary people who went above and beyond to help the less fortunate and continue to do so today on a much larger scale.

5.1. IVAN OWEN: 3D PRINTED LIMB PROSTHETICS (MEDICINE)

3D printing has been successfully used in medicine since the beginning of the century. New skin for burn victims, airway splints for infants, facial reconstruction parts for cancer patients, orthopaedic implants, hearing-aid shells and ear moulds, dental crowns, and bridges - this is hardly a complete list of medical devices produced by 3D printers. 3D printed prosthetic limbs: the next revolution in medicine.

What is 3D printing? 3D printing is the construction of three-dimensional objects from a digital format. In simple terms, you design an object on a computer and the printer manifests it in reality. We talk extensively about this technology in the “Guide on AR VR & 3D printing”.

What about prosthetics? Limb prosthetics require a lot of work and research for manufacturing and the fitting process. Therefore, there is a shortage of qualified specialists, especially in developing countries. There also may be challenges caused by the high cost and time taking procedures for patients who need to travel a long way to have their prosthesis implanted.

The situation with children’s prosthetics is particularly complicated, first of all, because of the physical growth and psychological development. Moreover, the devices can be inaccessible for kids due to medical unavailability, insurance policies and complicity of use. All the above-mentioned hardships result in the fact that artificial limbs are one of the most urgently needed medical devices and have encouraged even ordinary people globally to look for the most optimal solution to help patients with limb difference. Here is when 3D printing has come to rescue again.

Ivan Owen is a mechanical special effects artist, who, in 2011, built a mechanical puppet hand which hooks to the forearm and is controlled by the cables looped around the fingertips. Instead of patenting his design Ivan decided to share the video so anybody around the world could use it. The video was seen by a carpenter from South Africa who had lost

four fingers on his hand. He contacted Ivan and offered collaboration to create a design for home-made mechanical finger prosthetics. And, despite thousands of miles separating them, they started developing the design. Later, another South African woman who had heard of the project, appealed to them with a request. Her little son, Liam was born without any fingers on his hand, so she was wondering if Ivan could think of a device which could assist people like her son. That was a real challenge for Ivan and his team as he knew the boy would soon grow out of anything they could make for him.

However, he did not give up, and instead decided to explore the issue. At this point 3D printing was suggested as a way to reduce the cost of prosthetic devices. It struck Ivan that if they used a 3D printed model for Liam, they could rescale and reprint the design as kids grew. He described the solution in an email which he sent to Makerbot - one of the biggest 3D manufacturers and asked if they could somehow help. Having had neither background in this sphere nor appropriate certification, the chances were slim. But, surprisingly, manufacutrer's response was supportive, and encouraging and Ivan's team quickly developed the prototype for Liam.

Now this project has grown into E-nable, “an online global community of “Digital Humanitarian” volunteers from all over the world who are using their 3D printers to make free and low-cost prosthetic upper limb devices for children and adults in need. The open-source designs created by e-NABLE Volunteers help those who were born missing their fingers and hands or who have lost them due to war, natural disaster, illness, or accidents.

Ivan’s personal characteristics: **innovativeness, kindness, problem-solving, taking risks, curiosity, desire to help, responsibility, positive attitude, resilience, creativity, relentless (re)search for solving problems.**

5.2. JOSE ANDRES: WORLD CENTRAL KITCHEN (PHILANTHROPY)

“Whenever there’s a fight so hungry people may eat, we will be there - we must be there” - John Steinbeck. These words have inspired Jose Andres to fulfil his mission. World Central Kitchen (WCK) is a non-profit, non-governmental organisation providing food to those in need as a result of natural disasters, wars, or other community crises. It also promotes environmentally friendly cooking methods, such as solar-powered cookstoves.

It was founded by José Andrés, a celebrity chef settled in America. He is generally credited with bringing the small plates dining concept to the US, having been born and raised in Spain. He owns restaurants across the US and for his efforts with WCK Jose a 2015 National Humanities Medal and an honorary doctorate from Harvard University in 2022.

It all started when a 7.0 magnitude earthquake hit Haiti in 2010 and devastated the island forcing a lot of people to live in refugee camps. Jose says: “When the earthquake hit Haiti in 2010, I was on vacation in the Cayman Islands. My children were playing on the beach; I was enjoying the sun with my wife, having a margarita. When I heard about what was going on in Haiti, not so far away, that was the moment when I said to myself, “I’m a chef, I could be helping.” This is where he first became interested in philanthropy. He witnessed the role of chefs and the potential of food to alter the world throughout his career as a chef and restaurateur.

WCK has worked in the Dominican Republic, Nicaragua, Zambia, Peru, Cuba, Uganda, Cambodia, and other countries, in addition to Haiti. The organisation responds to requests from non-profit and government agencies to

build school kitchens and so on. Moreover, having seen enough disasters, WCK is working to build resilient food systems with locally led solutions.

For example, WCK assists a group of Dominican women in marketing the honey they produce. It also invests in a coffee roasting facility in Nicaragua and collaborates with another empowerment organisation, Fabretto, to rehabilitate school kitchens.

World Central Kitchen and Jose Andres personally are currently working in Ukraine feeding refugees or sending food to previously occupied areas and even to those still being attacked where a lot of people were left with no access to buy the necessities.

Jose's personal characteristics: **resilience, desire to help, responsibility, courage, humility, kindness, adaptability, proactivity, leadership.**

5.3. OTHER EXAMPLES

In Appendix A you will find four additional examples of people who waited for no one to solve the problem they had, or they observed - they just did it and the rest is history. It must be highlighted that while these are high-profile examples, there are millions of other people just like them out there, making the difference, especially in difficult times, so there is plenty of inspiration going around if you just look for it. The Appendix A includes the following four additional examples:

- **Angela Muhwezi-Hall and Deborah Gladney** - QuickHire (Society)
- **Mauro Cozzi** - Emitwise (Environment)
- **Pierre Omidyar** - eBay (E-commerce)
- **Jack Conte** - Patreon (Crowdfunding)

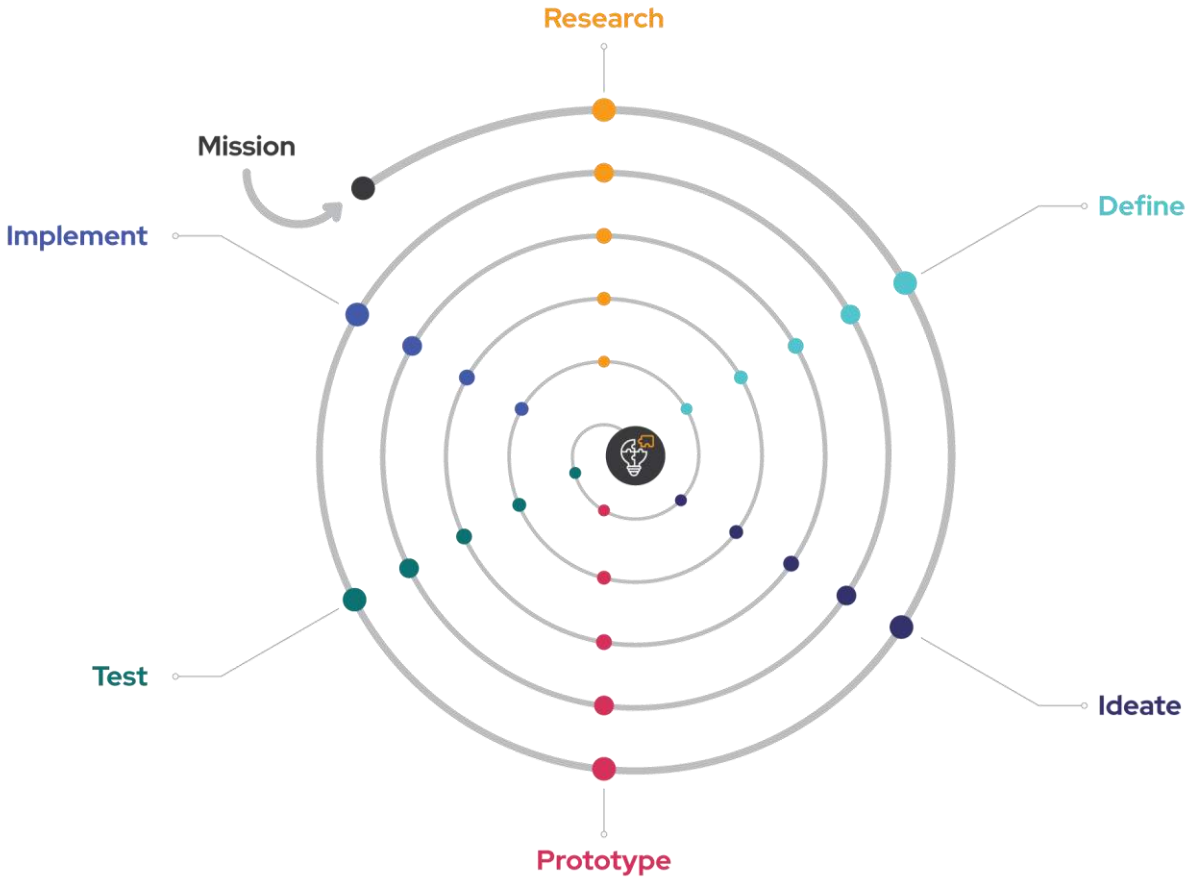
6. Getting things done

Getting things done is not an overnight task. The idea might be born overnight, but to actually bring one to life is quite a different story. Transforming the idea into reality is generally a messy and lengthy process, full of hurdles, setbacks, new realisations, and learnings, even frustrations, anger, and disbelief. This is not to try and scare you off, it is only to understand that the path of the "Doer" is no different than of anyone else when attempting something new or finding themselves in an unfamiliar situation. But there is light at the end of the tunnel and this chapter is about revealing this guiding light to help you navigate the often very turbulent waters of solving problems and creating solutions to address them.

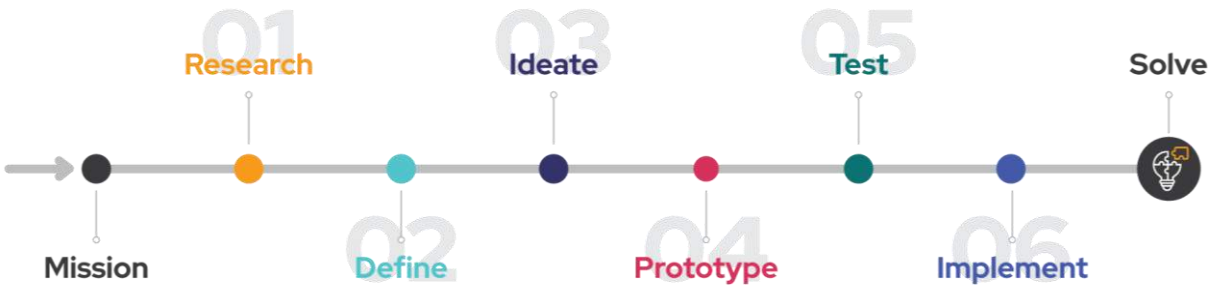
The word process can be scary, very formal, business-like even. But it is not. It is a term used to describe a series of steps taken (or to be taken) to move from situation A to situation B. We use processes in our everyday lives. When we go to the weekly shopping, we would most likely think beforehand what do we need to buy, check our cupboards, fridge and freezer for what is already in there, then create a list of the items needed, maybe check the prices and special offers in our favourite stores, put a side time of the day when we want to go and do the shopping, pick-up some bag-for-life bags, and finally head out to the store. Even in the store we would typically follow some sort of a process we established over the years. Maybe head to the beverages first as they are the heaviest, then to pantry stuff, and fresh meats and vegetables at the end.

Having a process can take many setbacks, reworks, and unnecessary tasks out of anything we do. If we were to go and pick items in the shop in the order we jot them down on a piece of paper, we would end up doing twice or even three times the number of steps to collect them all, then if we pick all the vegetables while at the vegetable section, and so on. It is the same with solving a problem. And the best thing is that with enough effort and some practice you can build this process thinking into your mindset - so it becomes the way you think about addressing and solving problems.

Let's have a look at what a process for solving problems for people looks like. It is depicted here as a spiral to symbolise that repetition of steps required to move from the initial state, which is typically a realisation that something needs to change or be solved, to the final state, represented by the solution in the centre of the spiral. Each colour dot on the spiral represents one type of the step that leads towards the solution and the size of the dots illustrates that the work is becoming narrower with each iteration, and that scope is becoming more focused compared to being fairly generic and broad early on.



This is a fairly accurate representation of a process "doers" undergo in the quest to solve a problem - and this notion of multiple iterations through the same set of steps is very important to ensure, we do not get frustrated if the solution is not quite ready yet after we went through all the steps for the first time. However, to ensure each step is adequately represented and understood, we can, for teaching purposes, simplify the process into a linear version as shown below.



Throughout the chapter we will follow the steps to explain the linear process through a story, which will walk you through a crisis situation and how a group of individuals recognised a need to contribute to its resolution. We will answer questions such as why a particular step is important, what are the expectations, what to do, how to do it, and why it matters. Specific instructions for individual activities within each step will be covered alongside a storyfied explanation of the process step. Let's dive in.

6.1. MISSION

In late 2019 the first known case of COVID-19, a coronavirus disease, was identified in Wuhan, China. It then spread quickly worldwide, resulting in the global pandemic. It needs no special introduction that COVID-19 is the single largest crisis of this era, as it not only caused millions of deaths all over the world, but it has, in many ways, transformed the way we go about our everyday lives; from travel to work to how we interact socially. When COVID-19 came to Europe and spread, most countries faced an unprecedented crisis which undoubtedly slowed down the battle against the coronavirus - The lack of Personal Protection Equipment (PPE) such as face masks, gloves, visors and so on - and this is the focus point of our story. However, it is important to acknowledge that it also did not help that lack of PPE was not the only thing threatening the world spinning: school and workforce systems were collapsing, health system was completely overturned to dealing with, mainly, covid emergencies, economies were falling, travel, tourism and hospitality went dark, just to name a few.

People were afraid. They were afraid for the health of their loved ones, the elderly and of course, for themselves. The lack of PPE meant that whatever PPE became available it went directly to health institutions which struggled immensely with the same problem. Any PPE remaining on the market was typically gone within seconds, and so people had virtually none. This meant no protection when interacting with the outside world. It also meant you could not go to the shop, pharmacy, etc. On the other hand, medical professionals could not adequately protect themselves when dealing with patients with COVID-19, and were actively risking their own health, life even, besides giving up their privilege of leaving COVID-19 hospitals and areas to avoid further spreading the infections. It was a tough time all over. While governments and import companies were negotiating with PPE producing countries such as China and India, to obtain sufficient quantities of masks, sanitisers, and gloves, this had various and slow successes. Bottom line, it was not enough. Quicker actions and resolutions were needed.

In the meantime, a small group of people who have never met before (the team), decided that it is no longer feasible nor smart to wait for others to ensure protection for them, so **they started working together to look for ideas for a solution that would be quick to implement and could help medical professionals as well as everyone else to protect themselves against the virus.**

Mission is the initial recognised state of the problem and a potential opportunity to address it. It will typically come as an observation of a certain state in a given situation, conclusion out of a repetitive pattern, interest, or desire to improve something, continually faced hardships, dissatisfactions, or problems. On its own, this observation bears no meaning unless steps are taken to find a solution and resolve it. It must also be worthy of efforts, meaning if resolving it does not provide value to people, then it is trivial. Having a clear mission is a great first step and writing it down is very important as it continues to remind everyone involved about the reason why they are doing what they are doing.

6.2. RESEARCH

The team first sat down, brought out their laptops and started looking for evidence and information that their impression of the mission had a sound reason. They were aware that what they identified in the mission, must be supported by evidence, otherwise they would base all their future work on merely an assumption, their own perspective, that might be biased and the need they discovered may not exist entirely. So, they dug into some research to find out if the lack of PPE is truly causing the problems, they were afraid of. They scanned news reports, journals, social media, looking for the hardship related to the lack of PPE. They did not need to look for long as COVID-19 pandemic was extremely well covered by the media, and people took their pain, frustration, and desires to social media daily. World Health Organisation (WHO) as well as numerous other global and local health institutions also incessantly published research findings, progress, and challenges daily.

The team collected stories, data, and information about all different types of the challenge of lack of facemasks is causing. Key findings of their desk research included:

- Impromptu protection of health workers in hospitals, elderly homes, and other health institutions, putting the only people who could help contain the crisis and save lives of the infected, in great jeopardy.
- People were afraid to go out
- People could not go to shops to get key supplies
- Governments were slow in providing protection
- Private companies charged extortionate rates for face masks
- Supplies of masks were unreliable and have often diverted to higher bidders
- People were scared and did not have sufficient information on how to protect themselves beyond social distancing
- Solutions are needed NOW, not next week or tomorrow

- The most exposed people are health workers, elderly, and people in frontline services such as shop workers, lorry drivers, taxi drivers, support workers, school and kindergarten teachers, policemen and policewomen, firefighters, and others.

Based on these findings, the team realised they needed more information, so they devised a plan to talk to several people from the most exposed group. So, they reached out to a couple of nurses and doctors from covid hospitals, shop workers and a few others from the general population. Before reaching out, the team collectively prepared a few standard questions so they could compare the information and draw comprehensive conclusions. Besides a few demographic questions such as, gender, age group, education, job position, location, key responsibilities at work and their motivations, they also prepared questions to understand:

- What are the exact challenges of the lack of PPE they are facing?
- When where and how often they face these challenges?
- How are they currently protecting themselves?
- What would be the best alternative protection if they could get it?
- What would it mean to them to get adequate protection?
- What is the general perception of the current situation?

You could say the team performed interviews. It is this personal connection that helped the team really step into the shoes of the people from the exposed group and build the empathy with them and the situation they were in. As team members divided those interviews to cover more ground in a shorter time, they held a meeting where they shared their information as well as their observations from the interviews they conducted, with other team members. This ensured not only everyone on the team was aware of the key findings, but it also enabled the team to consolidate these findings and observations. COVID-19 being an enormous global crisis, stories, and feedback the team heard were emotionally packed and sometimes extremely difficult, which became even more evident during the team meeting where no eye remained dry when conveying

the hardships, the people from the most exposed groups are experiencing and fighting off on a daily basis. Several examples will be covered later, but when hearing that doctors run out of masks, visors, and protective gowns, wore ski masks, bin bags and were reusing days old surgical masks to serve and help people deal with deadly disease, is just one of them. It was these stories and findings that reinforced, cemented even, the reason why the group of people got together to help.

While all the above might seem like weeks or months' worth of work, the team spent less than two days on the initial desk research, a day to prepare and schedule the interviews, and another day to carry them out and share findings amongst themselves. During the interview days, the team continued to carry out desk research to look for best practices, other examples of challenges, and so on. And we must not forget, this group of people were volunteers, with daily jobs and obligations, not working full time on this, so this timescale is really short, but it is extremely important as it ensures that the mission has solid ground to work on, and that the future work is not wasted (which could be if the mission would be merely a gut feeling or impression of someone who has not checked if others have the same problem).

The next steps the team had to undertake included synthesising the findings, observations, and information they collected throughout the research.

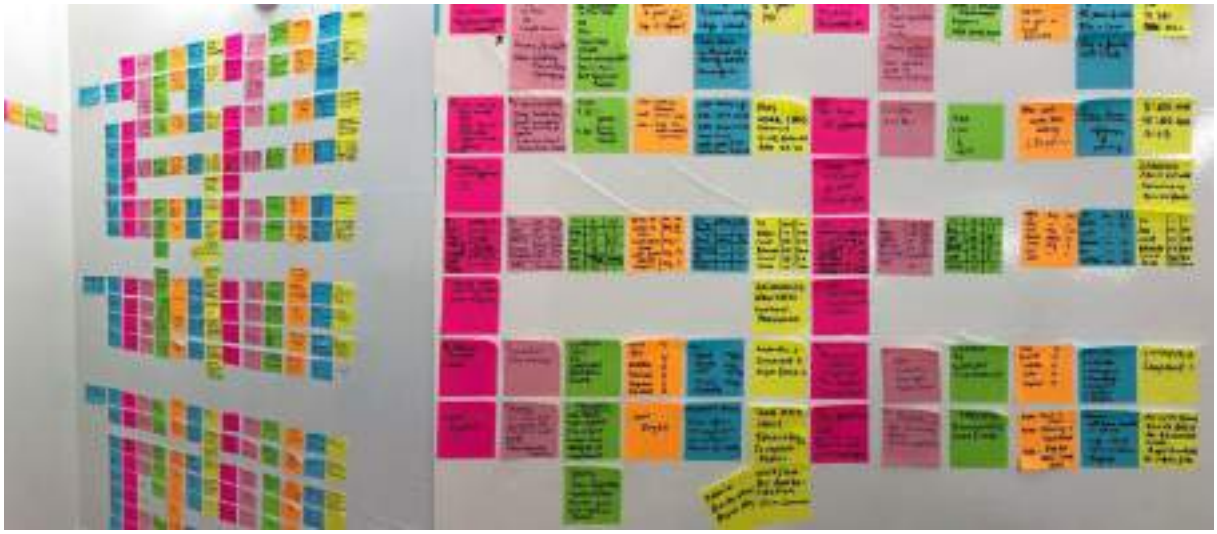
To briefly summarise the Research part, which is a necessary and vital step in solving any problem, as it helps to identify if the initial challenge (defined with the mission) has any traction in the world. It helps to build empathy with people who have this challenge or problem, effectively enabling the team to see it from their point of view. Problems are being solved for people and understanding how they feel, what they need, how they go about it, is one of the most important parts of discovering and creating a solution for their problem. Therefore, research must always be twofold: (1) focused on understanding people who have the problem under consideration, and (2) building the knowledge to understand the problem, the underlying reasons behind the problem, and what

implications the problem has on people and the environmental landscape. It also must be emphasised that while in hindsight (looking retrospectively) most things seem universally obvious, Doers always ensure that the mission is not based on their feelings, perceptions, and beliefs, but it has solid grounds; meaning that there are groups of people who have this challenge and have the same needs as identified by the team in the mission. Desk research is data and information oriented (quantitative), while talking to people affected is focused on their perception, experience, reactions, and emotions (quantitative). One without the other is inconclusive. Never forget that problems are solved for people, and not simply because they are problems, or in other words, if no one has a problem, then there is no problem.

6.3. DEFINE

Having collected all information and observations, the next step is to synthesise these into meaningful insights and actionable tasks. Let's remember ourselves that the team collected information about the challenge outlined in the mission as well as people who have this challenge and gathered observations as well as built empathy with people. The team calls all the results of these actions "user research data". By users, they mean anyone with the problem outlined in the mission statement, as they are all the potential users of the solution that will be developed.

As the name itself suggests, user research data are focused on the people being in a particular situation, so the team decided to synthesise and structure their findings based on these people. To do so, they first went back to the information they collected about users, to see if there are any correlations, similarities or differences between the people who face the same challenge. To do so, they simply used different colour post-it notes and wrote down their observations and information. Each team member was responsible to write down info about the interviews they have conducted and share these observations with the rest of the team. All the information the team looked at is described in the previous section, so the story will now just straight to conclusions they have made.



Once they have jotted down info and observations from all interviewees, they realised the information is messy and not structured enough to be useful, yet. Since their goal was to create a solution that users will want to use, they knew they had to structure findings based on type of person as well as what is important to them. Once they pulled together all the info about interviewees, the team confirmed what they suspected from the beginning. They have two distinct types of people here, or as they call it, two different personas.

Persona for a health profession (Left) and a general population (Right)
Full size images are available in the Appendix B.

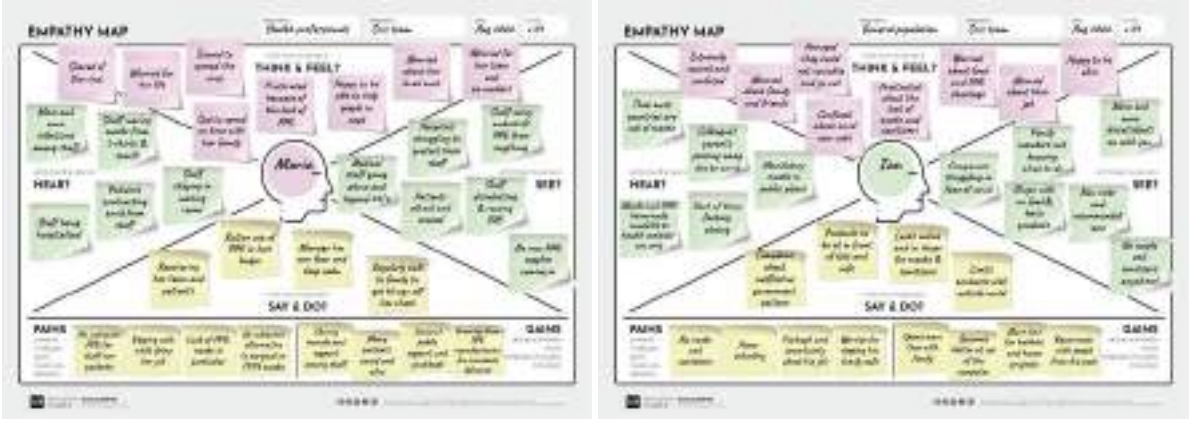
Personas are fictional profiles, typically developed to characterise and describe a particular group of people based on its common characteristics and/or interests. They will help our team to focus their decisions by adding a layer of real-world consideration to the conversation, and they were confident that their personas will be of great help as will be based on the research and observation, and not on pure fiction and their (potentially biased) feelings. The team used a visual way to categorise and synthesise info and observations for each of the two types of people, which they identified them to be:

1) A medical or health professional with extremely high risk of coronavirus exposure
2) General population with moderate risk of coronavirus exposure

The reason the team decided to use personas is because they are easy to relate to, while they converse the voices of many. For any decision, the team can always ask themselves, what would Maria or what would Ian like, want, need, and quickly step into their user shoes in this way, rather than assume what the people persona is personifying would like, wand or need. This helps to

ensure the solution to a problem is truly based on what the needs of the people are and is one of the keys towards success.

The next step for the team is to understand the unique aspects each persona has regarding the problem outlined in the mission statement. To do so, they held another working meeting, where the team decided to categorise their findings and observations from the research step into 6 categories that will adequately outline specific challenges and potential focus areas. These 6 categories are not something the team came up with on their own, but they are based on years of experience and research by scholars and problem solvers. The categories are also laid out around persona and use a visual template called the 'Empathy map' to make it easier for any team to use to truly walk in user shoes, or in other words, to see, hear, feel, and think like they would be in the shoes of their user.



Empathy map: For Maria - persona of a medical or health professional with extremely high risk of coronavirus exposure (Left) and for Ian - persona of a general population with moderate risk of coronavirus exposure. Full size image available in the Appendix B.

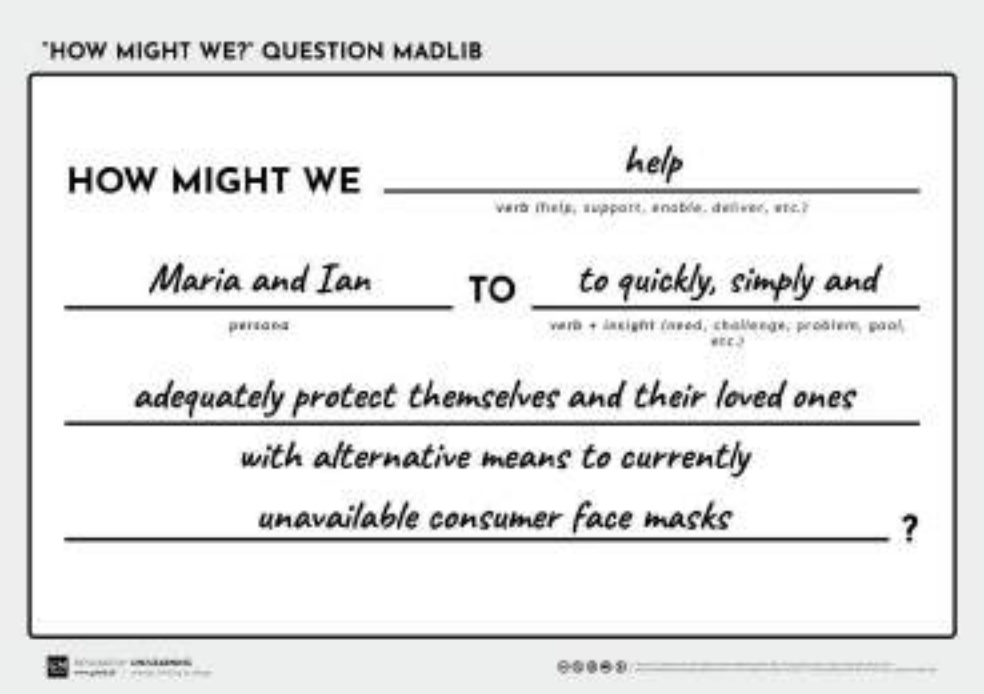
So, the persona characterises and describes a particular group of people based on its common characteristics and/or interests, while the empathy map provides insights for each persona in relation to the challenge or a problem being considered. An Empathy map helps teams facilitate the discussion about the needs of a group of users (persona). It focuses discussions on what is happening with, and around the persona at the given point. Using the Empathy map, the team can visually develop and display what the user is thinking, feeling, seeing, saying, doing, and hearing.

Using this tool, the team developed one Empathy map for Maria and one for Ian, their personas. It is important to highlight that these insights are not fictional or created by the team. They were extracted and observed during the interviews and through the research.

Once the team structured the research findings and observations around the two personas, it became evident that while both Maria and Ian have the same challenge of lack or no PPE, the type of the PPE and the scale on which is needed, are different. To ensure the team does not limit their thinking when looking for ideas for the solution, the team decided to formulate a guiding question, which will help their efforts to frame the challenge and provide focus on the underlying problem. They call this technique "How might we?" question because it requires the team to transform the

mission statement into a structured question that demands to be answered, hence providing an actionable momentum that is entirely based on the empirical findings.

The team considered the biggest overlaps between the two personas and their feelings, thinking, seeing, hearing, saying, doing, pains and gains. They have also discussed how passionately interviewees were talking about each of these points during the interviews in the research step, to try and understand what were the most important or needed traits of the challenge. They used their insights to form a few "How might we?" questions, reviewed them and combine the good parts to form one question - The question - that will be answered in the following steps.



"How might we?" question formulated for Maria and Ian - to frame the challenge based on the empirical evidence from the research and observations through interviews. Full size image available in the Appendix B.

6.4. IDEATE

A mammoth amount of work has been done to arrive at the sole question to be answered, and this is the first point where the team can start looking for ideas. You have probably already noticed that up to that point, the team did not think about potential solutions or have any ideas for concepts. And this is only correct, since up to this point, the team did not have all the knowledge and insights moulded in a meaningful way. This means that they might have not pursued the right question and hence, they could develop the idea that would not solve the core problem, or solve it partially rather than fully, or even create a great idea that people would not need, want or desire - with that, they would have solved nothing.

There are plenty of ways to generate ideas, but the team was aware that they are looking for alternative ways to traditional and commercial face masks. This meant that they needed ways to

brainstorm creative, novel, even wicked ideas, while respecting the needs of the users. Since the first step in the ideation process is to generate as many ideas as possible (without prejudice and judgement for the idea or for the person who came up with it).

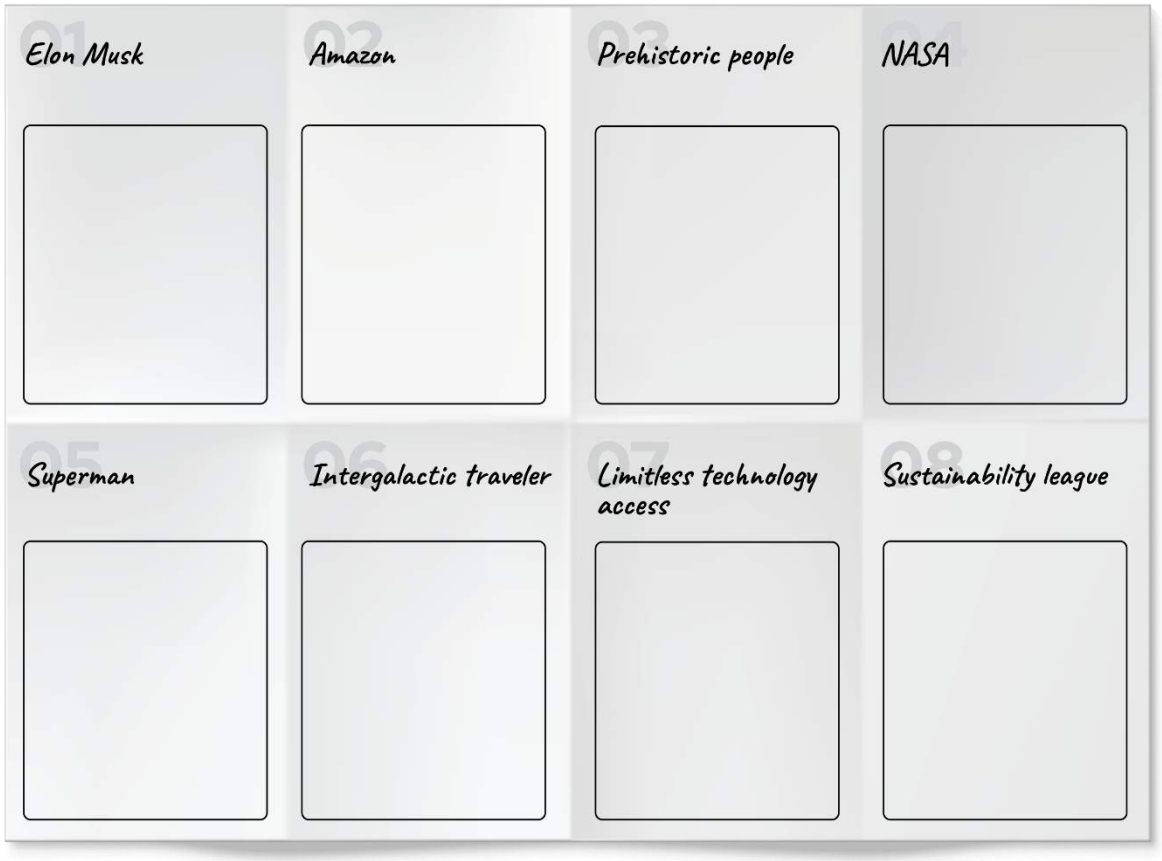
To ensure everyone on the team has the equal opportunity to contribute, the team first set some ground rules:

1. **Establish an open and safe collaborative environment.** As in any group or team activity, you have dominating and quiet people, as well as others along the spectrum. Therefore, without this rule, shyer members of the group could feel intimidated as no one wants to present an idea only to hear it labelled as bad or stupid by others from the group. Hence, one of the most important rules that everyone must be aware of is that the entire process, and especially the ideation stage, is a judgement-free zone. Therefore, any notion of the hierarchy, seniority, or strong ego must be left at the front door.
2. **Build on ideas of others.** Complimentary to the first rule, this rule helps to stop everyone from saying "No, this idea should/shouldn't…" but instead saying 'Yes, and…". Let ideas of others spark inspiration in others to propose spin-off or alternative ideas, adding to the richness of the team's pool of ideas.
3. **Bring forward or revisit learnings from previous steps.** Moving "forward and backwards" is not uncommon or undesired in this problem-solving process as the team can always learn from other stages. For example, by spending time thinking about the problem from a user-centric perspective and empathising with users, the team can ideate with a solid foundation of understanding that will help them ask the right questions about each idea presented.
4. **Keep the focus on the problem.** In such creative stages, it is easy to lose sight of what the team is trying to solve/achieve, or they might just get carried away in the spur of creative spark. Therefore, keeping focus on the problem they are solving (defined in the define stage) is very important for coming up with plausible and relevant ideas.
5. **Be visual.** Similarly, to focusing on the problem, it is easy to drift off and start describing ideas in detail. This is not the aim nor is it practical as it takes a lot of time and effort to review such ideas later. It is not uncommon to come up with a hundred ideas at such a session, so in the ideation step, the team tries to limit the number of words used to describe the idea to around 5. It is even more desirable and encouraged to be visual during these sessions. The recommendation is to sketch, draw, colour anything that can be. Use big bold lines and fonts so the idea is easy to read/spot to anyone from the team who might stand further away. Do not forget rule number 2, to build on ideas of others - if the team members cannot read/see each other ideas, they cannot build off them.
6. **Encourage wild ideas.** Most solutions in the world are based on conventional, everyday stuff. Since the team is trying to come up with an alternative solution to common, commercial face masks, they will need to turn to more 'out-of-the-box' kind of thinking. And having a rule that encourages the team to think outside the box, is very important as it serves as a constant reminder, that this is what is desired and not frowned upon.

The team has also printed these rules (words in bold) on a large format and stuck them to the wall so they would be reminded of them as they brainstormed and discussed the ideas.

With the rules established, the team started with the first round of individual brainstorming to get ideas going. They have ensured each team member has a stack of post-it notes and a bold marker. Then they have allocated 5 minutes to think, scribble and doodle down ideas in silence before having a brief sharing session. In this session each team member presented in a few words their idea and stuck the post-it notes on the wall for everyone to see. After everyone shared their ideas, the team held the second brainstorming round, but this time only 2 minutes long, followed by another sharing session. Having the second round is very important, as the ideas presented by other team members during the sharing session might sprung new ideas among the team. So, with this approach, the team felt confident they got some of the most obvious ideas, as well as some really unique ones out there.

To ensure some wilder ideas came to life, the team now held the third round of brainstorming, designed to let the creative juice run free. It is appropriately called Crazy 8, and it is brilliantly easy to do. Each team member took a piece of A4 paper and folded it once along the long edge, and once along the short edge. Then, they folded each of the resulting halves again along their shorter edge, to get 8 equally sized rectangles (see image above).



For each of the 8 sections, the team then decided how they would like to brainstorm in each of the eight 30 second rounds. As shown in the image, the team's first brainstorming was to think like Elon Musk, so they asked themselves: "*How might Elon Musk help Maria and Ian to quickly, simply and adequately protect themselves and their loved ones with alternative means to currently unavailable consumer face masks?*" They had 30 seconds to come up with one idea. Then they moved to the second question which was: "*How might Amazon help Maria and Ian to quickly, simply and adequately protect themselves and their loved ones with alternative means to currently unavailable consumer face masks?*" And so on until each team member has answered all 8 questions - and yes, this only took them 4 minutes, and the team got a lot of new, fresh, and wicked ideas, on top of the ones they already brainstormed before.

But what can anyone do with so many ideas? You would be right if you thought not much. Thus, the next step the team had to undertake was to eliminate duplicate ideas, group similar ones together and finally, create categories for different groups or ideas. Clustering and categorising usually takes place once the ideation is complete, although the team did some of it during the ideation, specifically between brainstorming rounds. This helped the team to keep things neater and more organised without putting limitations on the creative process and mind frame. This activity helped the team to narrow down the pool of ideas to more manageable clusters. It, furthermore, allowed them to start identifying which ideas could be combined into, what is called a superior idea. Superior idea is an idea that is better and more suitable to the challenge under consideration, compared to individual ideas. At this point, the team decided to hold another round of ideation, but rather than coming up with new ideas, they focused on discussing which ideas or their parts could be merged into one. Once clusters and superior ideas have been established, the team moved to the last activity in the ideation step - the selection. It is extremely important to understand what drives the selection process and what is one absolutely crucial thing for the team to keep in mind whenever the selection process is involved - to put yourself into the shoes of the users.

As mentioned earlier, exploring hundreds or even dozens of ideas is not very practical; whether from time perspective, effort, cost or practicality. That is why the team resorted to a practical approach to down-select ideas and identify the most promising one. To do so, the team first established clear selection criteria. The team printed the two personas on a large format and put them on the wall next to their ideas. Why? To ensure that any decision they will make will be for

the benefit of Marian and Ian. In particular the team started the selection process by asking themselves two questions:

1. How desirable is the idea for Maria and Ian?
2. How well does the idea solve the problem of "*Quickly, simply, and adequately protecting Marian and Ian, and their loved ones with alternative means to currently unavailable consumer face masks?*

The selection was carried out through voting in two rounds. In the first round, each team member received 5 green dots and was asked to ask themselves "How desirable is the idea for Marian and Ian?" for each idea that remained on the wall. They had to place a green dot next to the idea based on how strongly they believed Maria and Ian felt about this idea. They could use the 5 green dots as they saw fit. If one idea was really dominant compared to others, then they could stick all five of their dots to that idea, but then had none remaining to put to other ideas. In the second round each team member received 5 blue dots and repeated the exercise with only this time, they asked themselves "*How well does the idea solve the problem of quickly, simply and adequately protecting Marian and Ian, and their loved ones with alternative means to currently unavailable consumer face masks?*"

Once all team members casted their votes, the best idea was selected based on the cumulative highest score. The team also reviewed the follow up ideas, to check if there are some additional aspects or features that could improve the winning ideas, but in this case, they unanimously agreed that the selected idea is good enough to start with. The idea the team identified as the best in solving the problem Marias and Ian's of the world has was: **A protective face masks that can be 3D printed at home by anyone with the most basic and cheap 3D printers widely available across most countries in the world, with interchangeable and easily sourced filters capable of filtering out coronavirus. The 3D model of the mask would be made available as an open-source file on the internet, for everyone to download and print in only a few hours.**

With a clear idea rooted in the needs of the user, the team was now ready to move to the next step of the process - bringing this idea into reality.

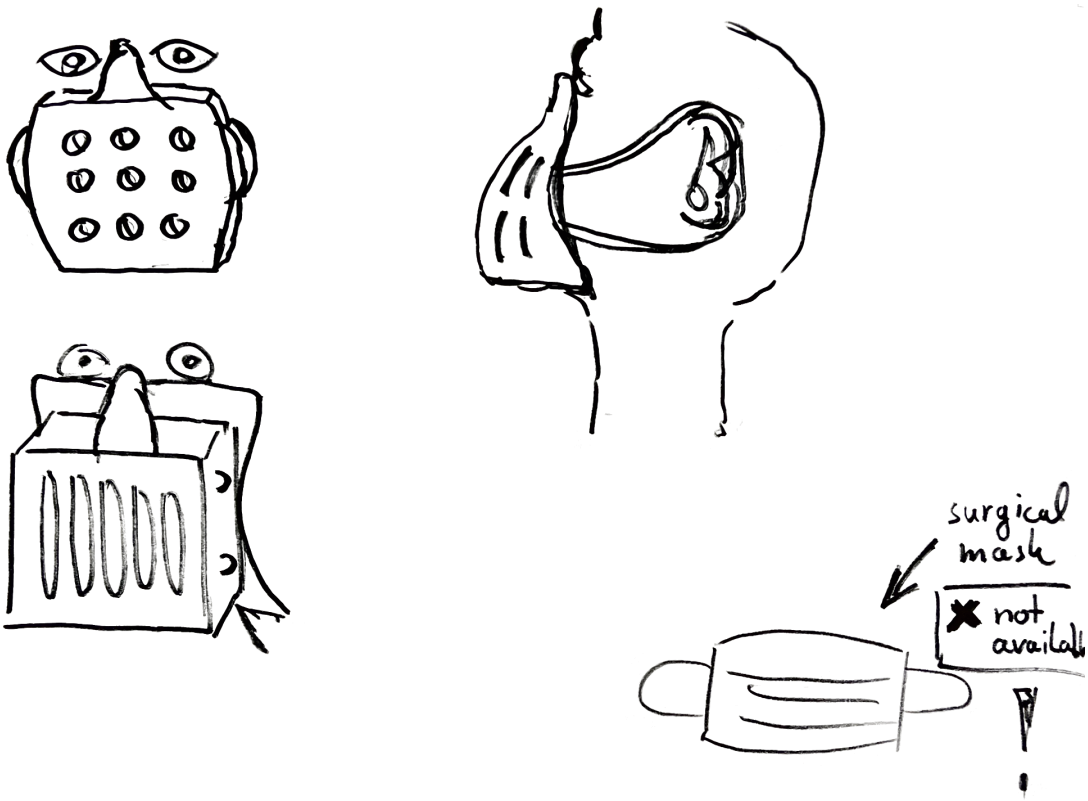
6.5. PROTOTYPE

The team was fast at work, converting intangible thoughts into tangible design. They knew how important it is to get the masks out there to the people who desperately needed them, so they decided to go with a prototype-test-improve type of approach. This meant that the team consciously decided to release mask design and files for 3D printing very often - everyday or every other day. This would allow them to get instantaneous feedback, based on which they could carry out design, 3D printing process and filtering improvements.

To further speed things up, the team divided into 4 groups:

1. Group 1: Mask design
2. Group 2: 3D Printing & materials
3. Group 3: Filtering
4. Group 4: 3D printing help

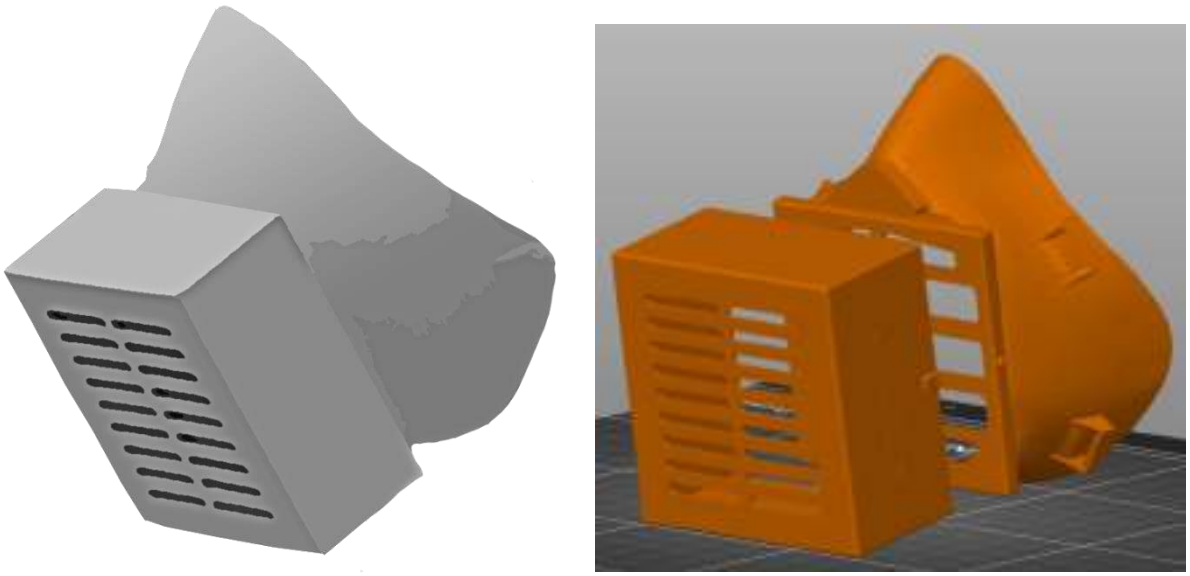
Group 1 focused on doodling and sketching various designs for the mask. They also used cardboard, sell-o-tape, and scissors to cut out and try some of the most promising designs, to get the feel for them and the ones that made the initial cut, were also 3D modelled on the computer and 3D printed using 3D printers the team already had.



First ideas of the mask design sketched on a piece of paper

Group 1 used findings and recommendations from Group 2 regarding the use of materials and 3D printing parameters and from Group 3 regarding the filters. Curiously enough, the Group 3 discovered that some HEPA filters, which can be found in vacuum cleaners, air cons, engine air intake ducts and many other applications, are a reasonably good for filtering out coronavirus, and they offer a significantly better protection than masks made from old cloths for example.

Groups 1 and 3 worked together on designing the front part of the mask to ensure people can insert the filters into the mask themselves. They have opted for a rectangular shape, since in this way, different shaped filters can be easily cut to a square shape and inserted into the mask.



LEFT: First design of the mask drawn in isometric perspective; RIGHT: First computer generated 3D model of the mask design ready to be 3D printed

Groups 1, 2 and 3 have together reviewed the materials and printing parameters identified as potentially useful by Group 2, and agreed based on the studies and research, that the most common materials such as PLA (poly lactic acid) and ABS (Acrylonitrile Butadiene Styrene) are suitable for mask printing to ensure they can be sterilised as well as they are airtight (no air can come through the material nor any tiny gaps remain between the layers of the materials).

The first 3D printed masks were tested the next morning by the team, which quickly realised that the material is suitable, the filter fits the mask nicely, but the mask does not fit the face very well. To solve this issue the team redesigned edges of the mask based on their finding, 3D printed new masks and tested them again. This time they got better results, although masks fitted better to some team members than others. The team, however, agreed that this is a good first design to test it with potential users.

While most of the team started printing more masks and preparing filters, Group 4 continued to look for volunteers that would be able to print the mask and test it out.

6.6. TEST

With a few dozen masks 3D printed, the team sent them out to selected people who they interviewed a few days ago during their research. The masks were sent for free but in exchange for the feedback. Participants of the test and the team agreed that they will schedule a video call for feedback after the participants had the opportunity to test the mask for one or two full days. Meeting with people would be generally better as it yields better observations, but being in a full-blown pandemic, in-person work was a no-go.

Before the video feedback call, the team prepared a few questions for the users. These questions were based on some areas of mask design, material, wearing and use of the mask, and filters. The team decided to do the feedback calls in format where two team members would be present; one to interact and communicate with the user, while the other team member will be taking notes and jotting down observations. They have also agreed with the users that the session will be recorded so the team could always go back and revisit the feedback. Below are examples of questions the team asked during the feedback session:

- Are you still healthy? Is it protecting you?
- How does it feel to wear the mask? How can you breathe in it?
- For how long did you have it on, and did you use it multiple times per day?
- How was the fit around the perimeters of the mask?
- Is there anything you would like to let us know about? Any highlights or challenges?
- Can you please put the mask on (here the team very carefully observed how users put the mask on to see with their own eyes if there are any challenges)?
- Can you please take the mask off ((here the team very carefully observed how users put the mask on to see with their own eyes if there are any challenges)?
- Could you please change the filter (here the team very carefully observed how users put the mask on to see with their own eyes if there are any challenges)?
- Would you recommend this mask as it is to your colleagues/friends?

As you can see, the team took advantage of being able to see users use their product, as they knew, observations are worth much more than simple descriptions provided by the users in the form of answers. The reason is also that the team knows better what to pay attention to, and so the observational feedback is much richer and more valuable.

Based on a few dozen feedbacks, the team collected and clustered the findings using post-it notes (one colour per user) and a big blank wall. Their findings were that:

- Feedback 1: Nearly all users experienced some sort of an issue with the fit of the mask to the face. This was even more true for women and younger people. Men had less issues with snug fits.
- Feedback 2: The cover for the filter was very difficult to click back together

- Feedback 3: Users from the 'Maria' user group (medical and health professionals) reported concerns regarding the lack of availability of HEPA filters in the hospitals, health centres and other health institutions.

Based on the feedback the team got very concerned with the last feedback (the one from Maria user group), as they knew the other two feedbacks could be tweaked by design changes. Reviewing the masks design, feedback, and the winning idea itself, the team realised that the idea was truly more suitable for Ian, and not so for Maria. The team have also gone back to review the Empathy maps developed earlier and reviewed all other ideas they brainstormed. They realised that they need to dig a bit deeper on the topic of alternative filtration to HEPA filters. So, part of the team called back the users from medical and health institutions to investigate if there are any filters that already exist and are widely available, that could filter out viruses (the team intentionally did not mention why they are asking this and left out the details it is for masks, so they would not limit users' thinking). The other part of the team dug into the online research to find what kind of filters would be available across medical institutions. They have also called a few explaining why they are interested in this information, and being genuine about their intentions, most institutions were happy to help. Some institutions also volunteered to send some filters over to the team for testing.

What the team essentially discovered at this moment was that they needed two solutions or two mask designs to be more specific - One for Maria and one for Ian. While both ideas were protective face masks that could be 3D printed by anyone using the most basic and cheap 3D printers widely available across most countries in the world, they would differ in:

- **Filtration system:** since Maria would be wearing the mask in a high-concentration environment, the filtration system must be extremely reliable and good, as well as widely available within the medical environment. However, for Ian, the most important aspect of the filtration is that they can easily get their hands on it, and that it adequately filters the air from viruses.
- **Fitting to the face:** since Maria would be carrying this mask for prolonged periods of time at the time, the fitting will have to be comfortable and not only sealed like for Ian, who would be using the mask for short periods of time, like when he goes to the shop, etc.

This was an extremely important discovery. Through the research the team also identified alternative filters that were available by abundance in the medical institutions and their supply from manufacturers was not affected like the supply of surgical face masks.

Based on the feedback and the new findings the team was quick to be back at the drawing board to address them. Group 1 focused on redesigning the original mask to create an easier way for the filter cover to be reattached after the filter change (Feedback 2), and to redesign the mask to create a version suitable for medical filters (Feedback 3). Having sorted feedbacks 2 and 3, the team now focused on creating a better fit. They elicit the help of group 2 (the material guys) and together they discovered two things: First, they could design 3 different sizes of the masks - Small (predominantly aimed for kids), Medium (predominantly aimed for women) and Large

(predominantly aimed for men). The second idea came from the material group, which discovered that if the already 3D printed mask is heated with a traditional household hair dryer, the perimeter of the masks around the nose, cheeks and chin areas can be manually reshaped to ensure a much snugger as well as comfortable fit.

The team got super excited about the findings and ideas, so they carried out the agreed changes and printed new masks overnight. The next morning, medical filters also arrived, and the team was able to quickly test the different sized masks, the creation of a customised face fit using the hairdryer and the new masks designed for Maria. Their initial tests proved significant improvement, so the team started printing new masks immediately and at full speed, rushing to get them delivered to the users for use and testing. The new medical masks, the updated filter cover design, and the hairdryer trick proved to be very successful, so the team decided to distribute the masks to their friends and families as well - of course in return for additional feedback.

LEFT: Mask design with space for HEPA filters for Ian (general population); RIGHT: Mask design with medical filter for Maria (health and medical professionals)

While the team waited for the first feedback from the users, they continued to 3D print the masks, while joining efforts with the Group 4, to get as many individuals and companies as possible with 3D printers on board, to help in printing the masks. By the time the second feedback was in, the team had already printed and distributed several dozen 3D printed masks. The feedback was generally extremely positive, and users were super excited and happy to finally have some great protection. The team received photos of doctors and nurses from surgery rooms, A&E emergency departments, receptions and nursing departments showing thumbs up. Messages saying "Thank you for saving our lives" also came in and friends and families also provided encouraging feedback. Of course, further design changes were identified by the team and those were quickly carried out and uploaded to the internet regularly so anyone could download the latest designs and 3D print their own masks for themselves and their close ones.

6.7. IMPLEMENTATION

Everything described above, from research to last tests before “mass distribution”, was done in less than 2 weeks. It took another week, and the original team now had more volunteers joining their team, as well as a support network of over 100 individuals and companies with 3D printers, actively 3D printing masks for all the Ian’s they knew. A few more experienced individuals and companies were selected to print medical masks for Marias, since there was less room for error. During the next few months, the team continue to print masks, onboard volunteers and supporters, spread awareness of personal protection, develop recipes for homemade hand sanitisers, developed a 3D printed parts for virus to be used by medical and health professionals, especially carers in elderly homes and dentists, created posters and videos demonstrating the right use of protective hand gloves, hand washing, hand disinfecting, masks fighting and removing, and so one, all while continue to look for and receive feedback and continue to improve designs.

As the open-source motion grew the responsibilities of the core team shifted. They remained responsible for the updates to the design and redesigns of the masks to accommodate different filtration systems, but for most team members, responsibilities shifted towards coordination activities and working towards certifications and laboratory-validation of the materials, printing, filters, PR, and reaching out to as many individuals and institutions where there was the shortage of masks. To do so effectively, they needed a good public relations presentation pack to ensure the right messages get communicated across, coherently and uniformly.

6.8. PRESENTING YOUR IDEA: PITCHING

While the product is the start of the show, if no one hears about it or if no one wants it, it becomes a waste. Presenting an idea to attract users, partners or even investors is called Pitch. Pitch is a short performance, typically carried out in person (if this truly is not an option, then virtually) during which the presenter is trying to achieve a predetermined goal: Either to convince users, find new partners, attract investments, and so on. The difference between the pitch and presentation is the persuasive element that pitch always has, while presentation tends to be more informative in nature.

The team followed a well-established and proven process to create their pitch and standardise their communication efforts with public and other potential partners and users.

1. **Outline the Problem:** Talk about what problem or challenge are you solving, who has this problem, what challenge does this problem present to these people and what would it mean for them if you solved their problem
2. **Describe the Solution:** Talk about how you are solving this problem and what value does this bring to the people. Do not get into technical details or any other details beyond how your solution solves the pain people are experiencing.

3. **Highlight the Business Model:** Talk about the strategy of bringing your solution to the people. When presenting a business idea to potential investors, talk about finances, but when talking about social, volunteering, and charitable solutions, focus on your strengths (who are your partners, what communication channels are you using and how many people can you reach, what are your key resources and outline all the value your solution brings to the table)
4. **Compare with the Competition:** Talk about other solutions already available that are addressing the same need or solving the same problem as you are, and make sure to highlight how your solution is different and better than the one from others.
5. **Introduce the Team:** Talk about people who made this solution what it is. This part is all too often overlooked, but it should not be. The solution is only as good as the team behind it. For example, the team from our story above had a 3D printing specialist, microbiologist, entrepreneurs, innovation consultants, scientists, graphic designer, public relations person and a few makers and technicians, and strong partners ranging from doctors and nurses to elderly caretakers, to ambulance drivers, university professors, shop assistants, teachers, and several other people. Such a diverse team covering all aspects of the solution, demonstrates strength and communicates trust. Use it to convince others about your solution and everyone making it.
6. **Conclude with a clear Action or Proposal:** Conclude your pitch with a clear statement or a message that calls to action. Something that people will remember you by for hours, days, even months after your pitch. It is also a good idea to slide in, right at the end before saying thank you, a few-worded punchline. But if you do decide to put it in your pitch, you better make sure it is good, otherwise people might remember you for the wrong reason or lose their attention instantaneously.

However, even the best pitch cannot convince people if it is delivered poorly. So here is some advice for delivering a killer pitch:

- Practice, practice, practice
- Record yourself, watch the recording, change things you could do better and repeat
- Practice in less formal environments, with team members, friends, or colleagues
- Pitches are not the same for all audiences, so change them according to the situation
- Be careful about and practice your body language and how you deploy energy in your voice to emphasis, build anticipation or demote parts of your pitch - these things are almost as import levels as what you are pitching
- Be yourself, as people will talk to you after the pitch, and your credibility would go out through the window if they would feel like talking to a different person
- Use visuals from your pitch deck to convey a story or add a personal touch to the pitch

With the pitch ready, every step of the process taken, ideas developed based on the findings and observations from real people, solution tested, improve, and verified, and a fantastic team that cares about and is passionate about the cause in place, we now have all the ingredients to

successfully plough through the commercialisation stage. By commercialisation we do not refer specifically to money making, but to the time-period when the solution is available to the people.

Following the team through the above-mentioned steps, we hope you grasped the essence of this problem-solving process which is in one version or another at the heart of everyone with the doers' mindset. This process ensures the relentless pursuit of value-adding through solving problems for real people, communities and societies, and their needs, issues, challenges, problems, and crises. From outlining the challenge in the mission statement, to research and empathy to build the real state picture while ensuring the team can see, hear, feel, understand, and experience things their targeted users' experience. It then shifts focus on the people having this problem or experiencing this issue or being in a certain crisis (so called personas) to create the understanding of the group of people and their experience about the situation they have (empathy map). Equipped with the synthesised findings the underlying and fundamental problem(s) or challenges of the situation or crisis is revealed and framed into a simple yet actionable question with a specific structure to ensure the focus of the next steps is on the right things (How might we question). A question requires an answer, and this is the next activity - trying to find as many possible answers as possible to the developed How might we question. Different types of brainstorming are used to ensure the team comes up with diverse sets of ideas, from more conventional and reserved ones to entirely wild ones. But since not all ideas (it is not unusual to come up with more than hundred ideas for any one question), the team needs to review, group, categorise and combine them before down selecting to the winning idea based on predefined criteria that is based on what is important and desirable by personas. The winning idea is then quickly prototyped and tested with selected users, who are observed during their interaction with the solution and also provide feedback. The team then uses new insights to modify and improve the solution. When no major further issues are spotted during the tests, the team starts launching their solution to a wider audience while continuing to monitor the performance and collect feedback. The focus has at this point shifted from solution development to solution commercialisation.

Having gone through the entire spiral of the process the team has a solid solution with a significantly higher chance of gaining traction with its potential users and succeeding. Having a strong doers' mindset and positive behavioural characteristics, the perseverance in the face of a challenging situations such as crisis or complex problems is one of the main keys to success.

7. Doers' assessment

Doers' Mindset is a mindset found in people who do not just talk, but actually go and do things. Over the previous chapters, we have familiarised ourselves with some of the aspects of the Doers' Mindset. Now it is time to see if you have it as well (or how to start developing it).

The Doers' assessment is a tool developed through research to help pupils understand and improve some core doers' skills and characteristics. This self-assessment tool is complemented

with a simple 3-step action plan template that enables pupils to plan on how to move from current skill level to a more advanced one within a month of taking the test. It is accessible both as an online and offline tool, that can be used in the class or as a task to complete at home.

7.1. DOERS' ASSESSMENT PROCESS

The assessment process has been purposefully designed to be simple, clear, quick, effective, and useful to everyone. As the first step, participants complete the assessment using a simple three-level assessing scale:

1. Grey Level: **That is not like me**
2. Orange Level: **This is sometimes like me**
3. Blue Level: **That is totally like me**

The assessment is easy for participants to fill in and the results are encouraging towards future improvements as well as engaging participants in developing their own simple 3-step action plan in the second part of the process. The result of the Doers' assessment with the 3-step action plan is improvement of their doers' skills and understanding and empowerment that they can become better by making small steps towards set goals.

Illustration of the assessment process

Anyone can develop doers' skills to help navigating through life's challenges. It does not mean that anyone possessing those skills will go on to become an entrepreneur or must become one, but if they want, they have greater chances of becoming a successful one. Using Doers' Assessment will help you identify core areas to better understand and improve your doers' skills and characteristics, advancing you on the journey to mastering the Doers' Mindset.

7.2. DOERS' ASSESSMENT AREAS

The assessment is divided into 7 areas considered crucial to the Doers' Mindset: (1) Passion, (2) Doer (self-starter), (3) Creative problem solver, (4) Eager to learn, (5) Agile and open minded, (6) Empathic, and (7) Process-oriented. Each area consists of 4 statements where participants individually rate statements using the assessment scale described above (Grey, Orange, and Blue).

7.3. RESULTS

To get the result, the pupils are required to Count the number of statements rated in “GRAY”, “ORANGE” and “BLUE” areas and write the numbers down. The result of the assessment is represented as the area (grey, orange or blue) with the most marked statements. Results are provided according to the area in which the majority of statements were rated. Each result provides a pupil with encouraging text suggesting improvements of skills guiding the pupil towards their own 3-step action plan to improve one selected skill.

7.4. DOERS’ ASSESSMENT

Print out a two-page sheet and fill in the assessment using the grey, orange, and blue scale. Use an “**X**” to mark the area that best describes you for every statement. For example, if you are someone who loves to showcase your work, you might want to put an X into the blue “That sounds totally like me” column for the statement “I take pride in my work.” under the Passion area.

When finished rating ALL the statements count your ratings in grey, orange and blue areas and note them in the Results row at the end of the template.

Area	**Statement**	**That is not like me**	**This is sometimes like me**	**That is totally like me**
Passion	Being 'average' in anything is a terrible thought for me.			
	I take pride in my work.			
	I want to build something that will be recognized publicly			
	Today, without a lot of money, we can’t take on a whole lot			
Doer (self-starter)	I love learning new things and I always find something interesting to learn about.			
	I show up when I say I will.			
	People count on me in difficult situations			
	I am not afraid to take on initiatives			
Creative problem solver	I learn from my mistakes rather than feel guilty about them.			
	Where others see problems, I see opportunities			
	When faced with difficulties, I look for alternative solutions			
	After a failure, I am able to pick myself up and start over			

Eager to learn	I can become the best at any skill regardless of natural ability.			
	There's always something new to learn at every moment.			
	I'm very aware of my unique strengths and areas for improvement.			
	I am curious, and I am continually in search of discovery			
Agile and open minded	Competition keeps me alive!			
	When I have a problem to solve, I immediately think of all the people (friends, family, friends of friends) who might be able to help me.			
	I love to take on challenges and perform my best in every situation.			
	For me, everything is possible if I believe I can do it			
Empathic	Making conversation is something I'm good at.			
	I strive to fill the needs of people.			
	I cultivate relationships with people who could help me.			
	I train and support others which also gives me opportunities to get better at something.			
Process-oriented	Unless you are walking with a destination in mind, you are losing time.			
	I can easily prioritize my tasks			
	I plan for the best and worst-case scenarios before a big event.			
	I really enjoy situations where there are rules to respect			

Result			

7.5. RESULTS INTERPRETATION

Use the following table to interpret your results and determine what actions to plan and take next.

GREY	If you ranked the highest in the **GREY** area, you have some doers' skills already and there are some more to be developed on your way to become a real doer. It is important to try and work hard towards skills that will help you in the future. Now, select one skill that you have marked in grey, and make a 3-step action plan on how to improve it.
ORANGE	If you ranked the highest in the **ORANGE** area, you are well on the path to become a real doer. Some of your skills are already well developed and you are using them as part of your everyday, while some can still be pushed onwards to advancement. If you want to become a real doer, select one statement that you marked in GREY or ORANGE to start your improvement journey by making a 3-step action plan.
BLUE	If you ranked the highest in the **BLUE** area you most likely already a real doer! But as real doers always search for new ways to improve and complement skills and behavioural characteristics to become even better, continually grow, and help the community, so should you. If you marked any of the statements in GREY or ORANGE, select one statement and start your improvement journey by making your own 3-step action plan.

In case the participant's result comes out as a tie, use the following table to interpret the result.

GREY AREA = ORANGE AREA	proceed with the **ORANGE AREA**
GREY AREA = BLUE AREA	proceed with the **BLUE AREA**
ORANGE AREA = BLUE AREA	proceed with the **BLUE AREA**

7.6. 3-STEP ACTION PLAN

The skill I selected to improve over the course of one month is:

_____

Step	Action	Action description	How will you know the action has improved your skill?
1	List an action that will help you make a progress in the **first week**		
2	List an action that will help you make a progress in the **second week**		
3	List an action that will help you make a progress in the **third & fourth week**		

8. Summary

Compasses, cars, smartphones, and other, today considered everyday things did not always exist. All of this was developed by humans. In a world full of opportunities, it is the mindset that drives curiosity and allows exploration of new possibilities. Mindset shapes our relationship to the world and is the basis of our thinking. We all have mindsets, but they can be quite different from one another. Linked to the mindset is behaviour - how we behave and react in particular situations. Our direct action depends on our mindset and behaviour. It could be said that everyone has his or her own combination. As for the mindset, it can be fixed or flexible. People who can be said to have a growth mindset, are usually the people we know as problem solvers and entrepreneurs. These are the people who recognise and welcome problems and challenges and exploit them to create value for people. These are the kind of people who do not wait for someone else to solve the problem for/instead of them but get on with solving themselves. Of course, when we read or learn about stories of 'successful' people, it looks like they made it overnight. But this is not the case. While an idea can be born in a moment, the development, implementation, and execution take a huge amount of effort. It is quite a process, full of downs, obstacles, new skills, difficulties, but also many successes and joys.

The series of steps undertaken to move from an identified challenge to idea and finally to the solution is called 'process'. We use processes everyday as part of our daily lives. In both our daily lives and more complex situations it is best to follow the right process. When we follow the same process more times, and are convinced it is helping us, in that moment it becomes the way we think - it becomes part of our mindset.

Whenever we are presented with a challenge, are facing an issue, hit a problem, or find ourselves in a crisis, our brain lights up. How, it depends on the mindset we have. If your mindset is not yet on the growth mindset autopilot, then the key thing to do in such situations is recognise that you are at the cross path. You can take the direction of stagnation, inactivity and be in a disbelief that this is happening to you, or you can say to yourself: Stop, think, understand what is happening and identify what you already know and what you do not. Then start slowly learning about things that you need to know and viola, this is already the first step of the problem-solving process.

The first step is to gather all the data, information, and observations. The latter is extremely important, as it provides the human, the feeling, aspect of the knowledge. Research focuses on two parts - understanding the people who have the problem and gaining the knowledge to understand this problem from their point of view. Over the research phase, a vast number of insights is gathered and these need to be made sense of and framed in a way that demands action. By actions, we refer to the act of finding answers to difficult questions such as challenges, issues, problems and even crisis situations. Using ideation techniques such as brainstorming, we worked in a focused way, while ensuring that the highest number of possible ideas are elicit in a short time. When doing this in a team, it is extremely important to have a safe and open environment for collaboration, to always build on each other's ideas, to share ideas and to collaborate all the time. It is also important to stay with the problem itself - not to drift elsewhere. The next logical step is

to move from ‘hundreds’ of ideas to one - the one that is most desirable and has the strongest potential to address all the needs of people for whom we are solving the problem. Having a strong idea is only the first step towards smithing it into a solution. We use rapid prototyping to quickly build, create or even act-out the solution, so we can share it and show it to potential users in return for their feedback. This feedback is not only listened to, but it must be observed, as nonverbal communication can give away as much if not more than the verbal one. Using the new knowledge, the solution is modified and improved, and testing repeats. Once the solution reaches the maturity stage at which it can be offered to people, we enter the implementation step, while continually carrying out tests and research activities and feeding them back into the processes to constantly provide new or better solutions and add even more value to our users. We never stop. We continue to grow our solution and our mindset!

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10. Appendix

10.1. APPENDIX A

10.1.1. ANGELA MUHWEZI-HALL AND DEBORAH GLADNEY: QUICKHIRE (SOCIETY)

Covid 19 has become not only a severe health crisis but also one of the worst recessions in modern history. Still, as Schumpeter famously characterised in the 1930s, economic crises are periods of "creative destruction", in which new ideas and businesses emerge. So, the global pandemic has resulted in a true startup boom, with the number of new businesses throughout the world exceeding previous year's figures. For example, McKinsey reports that 84,000 new firms were registered in France in October 2020. This is a new high and a 20 percent rise over the same month last year. Likewise, 10,000 new businesses appeared in Japan in September 2020, which is by 14% more in comparison to September 2019. And in the US startup business activity grew from 3.5 million in 2019 to 4.4 million in 2020, a 24 percent increase.

Such a surge in entrepreneurship may have been caused by a great number of laid off or furloughed employees who decided to start their own business. Along with that, people's values and attitude towards work have changed significantly. Workers now need more flexibility and decent work-life balance. They are cautious about returning to such industries as retail, manufacturing, or restaurant business, which require fixed working hours. The pandemic also motivated the two sisters: Angela Muhwezi-Hall and Deborah Gladney from the USA. They started a company called QuickHire — a career site focused on service workers — which they had been bearing in mind for several years.

QuickHire is a platform for finding jobs in the service economy. They cooperate with job seekers to help them discover career fulfilment by matching them with suitable employment. On the other hand, the platform enables companies to find a more engaged and aligned workforce pool. "We pushed this idea around for years and continued to give excuse after excuse on why now is not a good time, and Covid just made the whole world stop," Ms. Muhwezi-Hall said. "I don't know, if Covid didn't happen, if we'd ever have gotten around to it, honestly." That is further proof of the fact that crises such as Covid-19 pandemic can yield something positive, as in this case, giving not just a drive, but also a business opportunity - Companies were having difficulty finding staff, therefore it was an ideal moment to launch a recruitment firm.

The sisters' personal characteristics: adaptability, taking risks, proactivity, resilience, problem solving.

Sources: www.forbes.com, www.mckinsey.com, www.eu-japan.eu, www.piie.com, getquickhie.com, www.nytimes.com

10.1.2. MAURO COZZI: EMITWISE (ENVIRONMENT)

Industry has a massive impact on the environment we live in. We have to be aware of the climate change issues and other ecological problems our planet is facing in order to minimise them. Businesses are under constant pressure from investors, regulators, customers, and other stakeholders to act, and they must quickly learn about their emissions and how to reduce them if they are to remain competitive in the years ahead.

That is why many companies resort to carbon accounting (also: “greenhouse gas accounting”) which refers to the methods used to calculate how much carbon dioxide a business emits.

Mauro Cozzi is the CEO and Co-Founder of Emitwise, a firm that automates difficult carbon accounting processes to accelerate the transition to a net-zero world. Some of the world's leading manufacturing companies are using Emitwise's technology to precisely quantify real-time emissions and address carbon hotspots.

Emitwise arose from the creators' desire to address the ecology crisis who say the idea of founding the company was developed while having a beer in their kitchen.

How did Mauro come up with this idea? He says he has been “a climate hippie” all his life and always wanted to create something meaningful with a significant social influence. At the same time, he realised that in a capitalistic world any initiative has to be profitable, otherwise it may not have

a massive impact. So, he and his team were driven by the question: "How can we assist businesses in making money by being more sustainable?"

When they started their research, they found out that there is a gap among businesses between understanding the idea of being green and its actual implementation, as well as seeing the benefits of that. Mauro says that talking to potential clients is usually the hardest part for young entrepreneurs. However, you mustn't skip it. He admits he was also terrified but this is what you always do in entrepreneurship: you try, you fail, and you go on doing this until you succeed, learning rapidly along the way.

Mauro's personal characteristics: passion, diversity, drive, leadership, focus, strategic, future-thinking.

Sources: corporatefinanceinstitute.com, www.southampton.ac.uk,

10.1.3. PIERRE OMIDYAR: EBAY (E-COMMERCE)

When the computer was invented, the business world underwent a huge transformation. Thankfully, the computer revolution has spared many of us from mundane tasks like sorting paper somewhere at an old-line factory or handwriting an ad copy for a new brand. People who were considered as geeks, nerds, and propeller-heads in high school and college are now making a lot of money as software developers, systems engineers, chip designers, and entrepreneurs. The computer age has also triggered a lot of brand-new businesses based on the Internet. Thus, in 1995, American entrepreneur Pierre Omidyar founded eBay, a global online auction and trading firm. eBay was one of the first companies to develop and advertise a website that connects buyers

and sellers of products and services over the Internet. The e-commerce company, which serves individual sellers and small enterprises, is a global market leader.

Pierre Omidyar, eBay founder

eBay's mission: "We connect people and build communities to create economic opportunities for all. At eBay we create pathways to connect millions of sellers and buyers in more than 190 markets around the world. Our technology empowers our customers, providing everyone the opportunity to grow and thrive - no matter who they are or where they are in the world. And the ripple effect our work creates waves of change for our customers, our company, our communities, and our planet."

How did the idea of eBay take off? On his personal website, Pierre Omidyar constructed the first simple prototype. He stayed at home during Labour Day weekend to finish the programming before the auction site went live. The first item he sold was a laser pointer, which Canadian Mark Fraser purchased for $14.83 even though it was marked as damaged!

Auction Web was the very first online auction site, and it was a huge success right away. The idea behind Omidyar's business model was to bring buyers together in a "honest and open marketplace." People began listing a wide range of items, and Omidyar was able to grow the site even further thanks to the selling fees. "I never had it in mind that I would start a company one day and it would really be successful. I have just been motivated by working on interesting technology." says Pierre.

The way eBay has kept up with technology and reacted to user feedback has been crucial to its success. For example, eBay purchased PayPal, an innovative mechanism for making safe online payments, in July 2002. Since eBay's launch, e-commerce has changed dramatically, but the site has adapted successfully. To improve the user experience, the seller and buyer processes have been simplified, and new features have been included, such as automated re-listing of unsold items and the option to make an offer rather than waiting for the auction to end.

Pierre's personal characteristics: passion for technology, motivation, curiosity, intelligence, hard work, persistence, easy-going attitude, innovativeness, ability to understand human nature.

Sources: books.google.si, fortune.com, www.ebayinc.com, www.entrepreneur.com, www.bbc.com, www.headspacegroup.co.uk

10.1.4. JACK CONTE: PATREON (CROWDFUNDING)

Patreon is a membership service that provides content creators with business tools for running a subscription model. It provides rewards and privileges to subscribers, allowing producers and artists to earn a monthly income. YouTube videographers, webcomic artists, writers, podcasters, musicians, adult content makers, and other types of online content creators use Patreon. It allows artists to collect funds from their followers, or patrons (as they are known on the service), on a recurrent or per-work basis.

Patreon was created by Jack Conte, who was initially a professional musician selling MP3s and uploading his songs on iTunes. Later, Jack discovered YouTube where his videos receive an

astonishing one million views on average. Despite his YouTube fame, he only generated roughly $150 in ad revenue from this effort. "It became very clear to me that there's this gap between what creators are worth in the world and their pay checks," Jack explains. Since then, he decided that his mission would be to remove the term "starving artist" from the English language.

When it came to fundraising the project, Jack and his college Sam Yam faced rejection of potential investors. Nothing went according to a plan. Yet, they called the investor after each denial to get honest feedback and learn more about the reason for decline. It was crucial for them to figure out the roadblocks and then methodically address each of them.

Jack says that he was really frightened when he first started pitching. He was just a musician and speaking about all those figures and details of Patreon's metrics seemed alien to him. So, Jack decided to drop the mask and be himself. He went on enthusiastically telling the investors the original story of Patreon's creation and how passionate about music he is. And that worked!

At that point Jack realised that it was the most important for the investors to make sure the founder is really passionate about the problem he desires to solve, and nothing will stop him to do this. In addition, you always have to be honest with yourself about your own weaknesses and those of the real world that need to be fixed

What drives Patreon's founders? They are driven by the fact that they support creative people throughout the world financially on such a big scale. "We're proud and motivated that creators rely on us for their paycheck and, ultimately, their creative freedom. We take that responsibility seriously and have fun fulfilling that mission together."

Sources: entrepreneurshandbook.co, www.inc.com, medium.com, www.patreon.com

10.2. APPENDIX B

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Ian

female version: Nika

Cambridge, UK

39

Factory worker at Manufacturing company

Time with family, football, socialising, cooking and BBQ

Ian is married and has a son and a daughter. He has been working for the same company for 15 years and he enjoys the stability the job offers, although he thinks the salary could be higher. He has trust issues when it comes to news and government, and always talks to his friends about the latest developments. He enjoys free time with his family and friends on their backyard, where they often make BBQ and drinks weekends.

VALUES & INTERESTS

- Friendship and loyalty
- Expensive stuff
- Football
- Enjoying life
- Job and financial stability
- Psychological safety

BEHAVIOURS

- Works 8-hour shifts with weekends off
- Takes care of his children
- After work is relaxing time with sports on TV
- Helps put children to sleep
- Does a bit of gardening
- Would meet with friends at least a few times a week

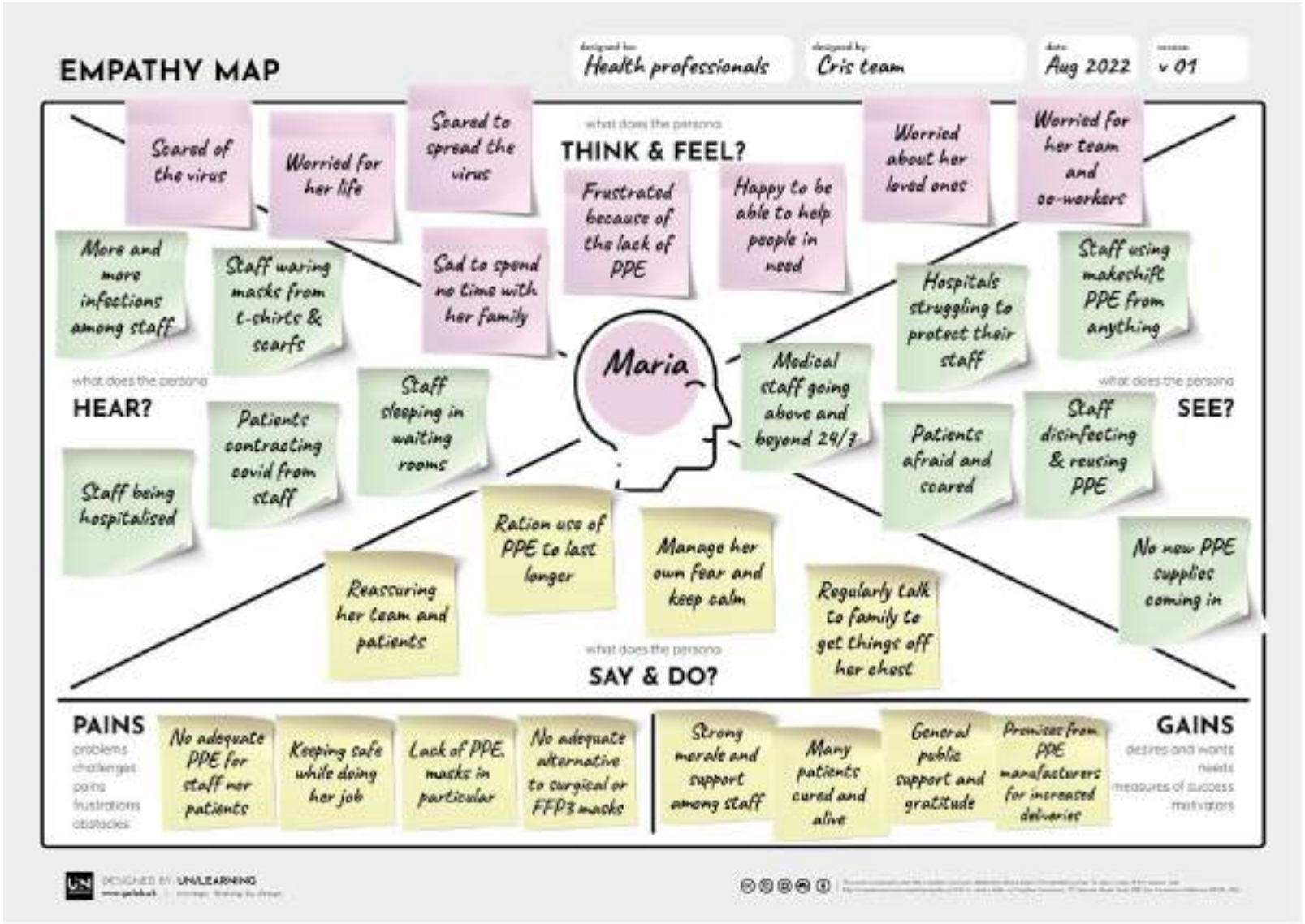
GAINS & NEEDS

- Likes the feeling he is in control
- Needs approval and acknowledgement
- Loves his family and friends dearly
- Loves football and sports
- Needs stability and structure
- Enjoys evenings with friends and silly jokes

PAINS & FEARS

- Fears the unknown
- Fears of being wrong
- Dislikes being excluded from a social occasion
- Gets frustrated with things he is not good at
- Dislikes people in power
- Hates politics

DESIGNED BY UNLEARNING



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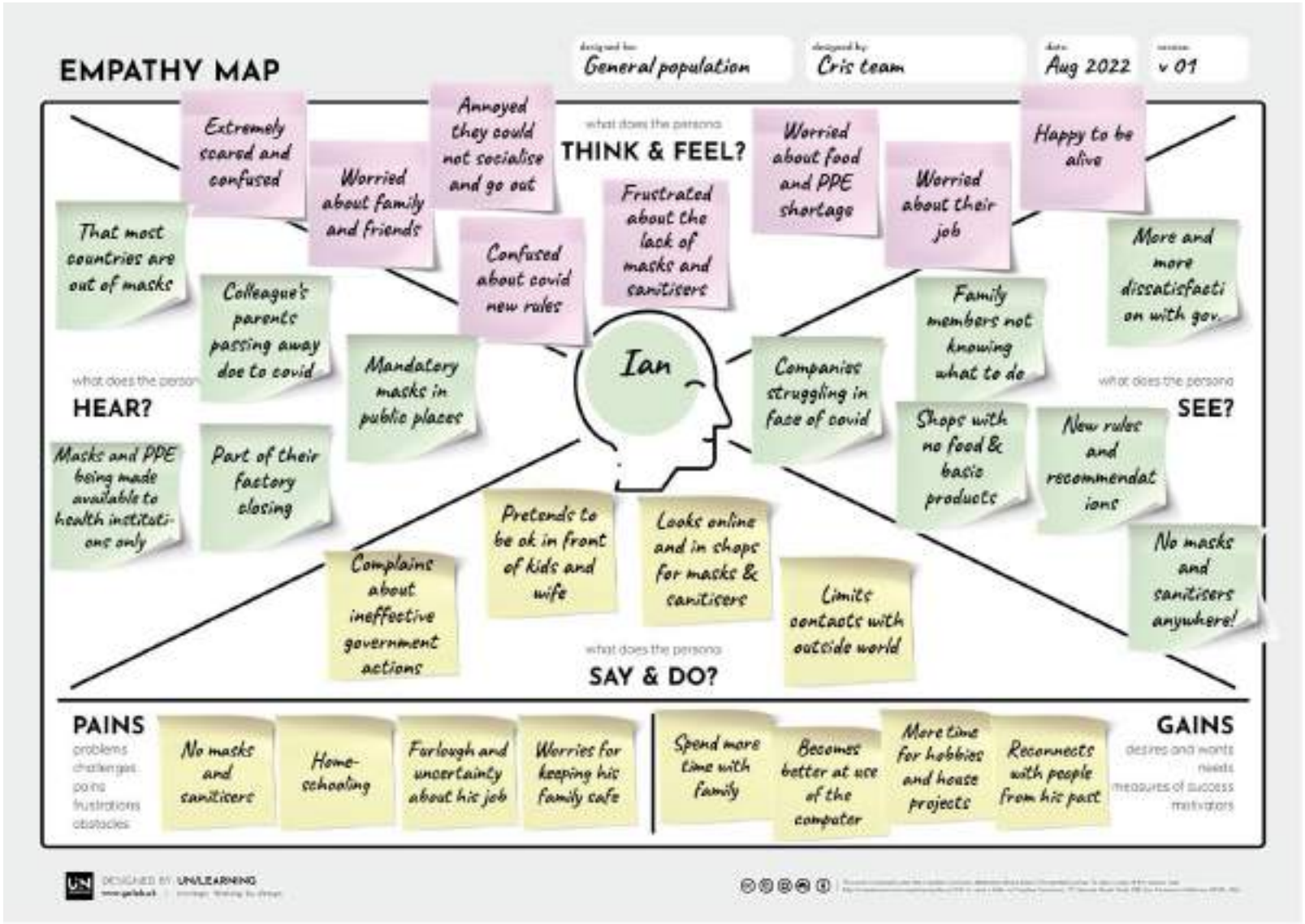

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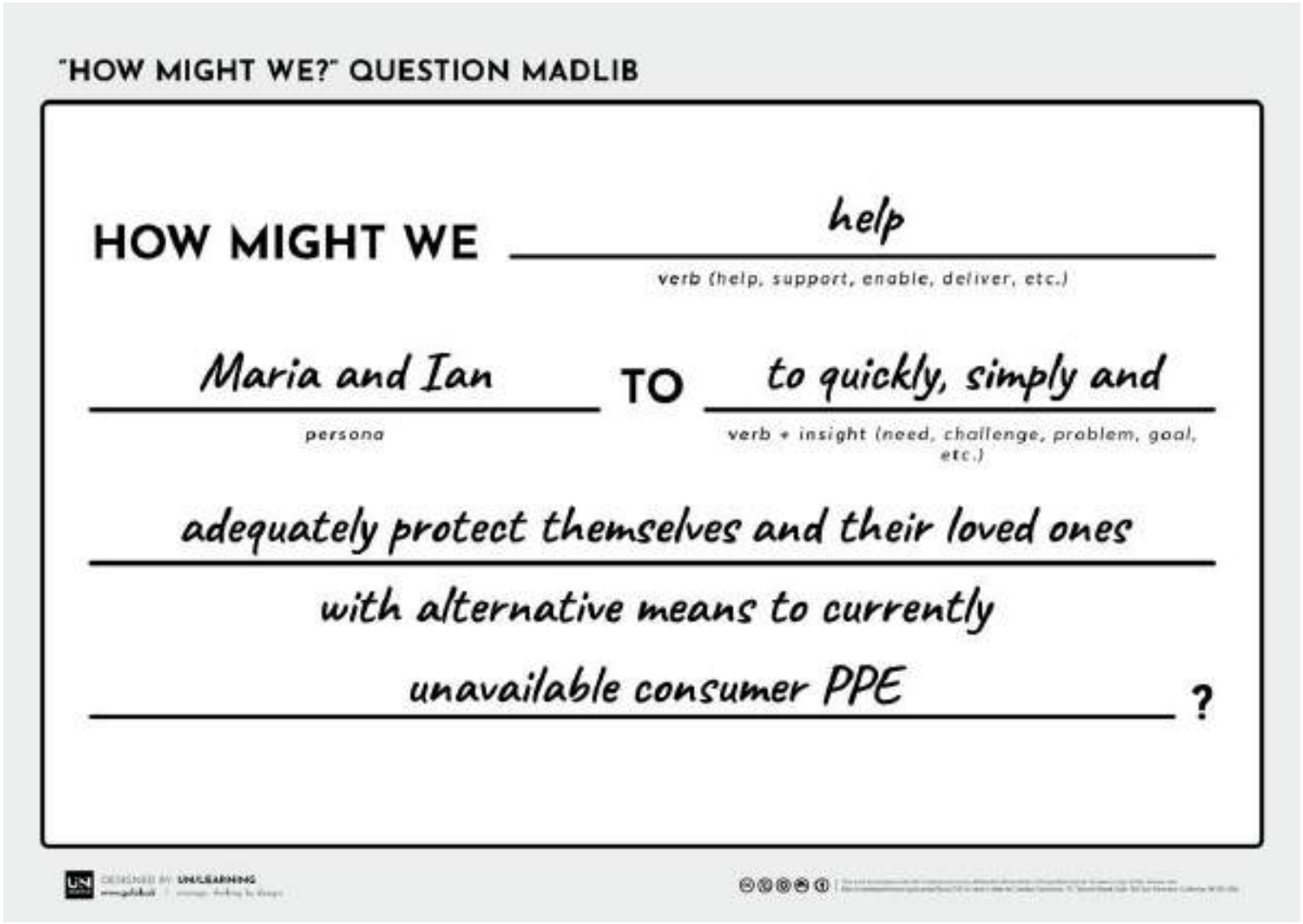

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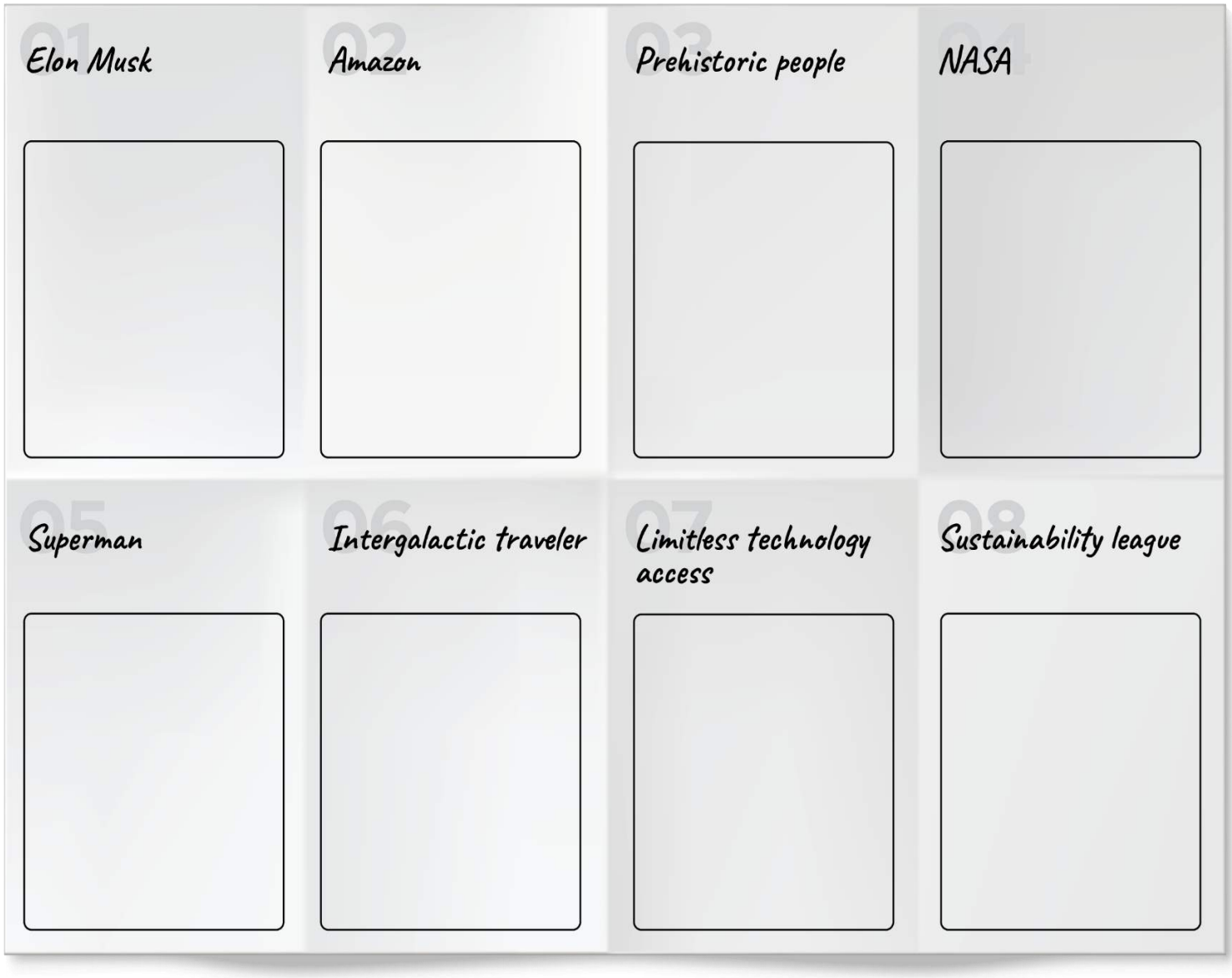

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