PROJECT BOOKLET

Uncertain times 2037

mnemeion

Politecnico di Milano

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Master's Degree Course in PSSD

Innovation Studio

Uncertain Times 2037
#highereducation

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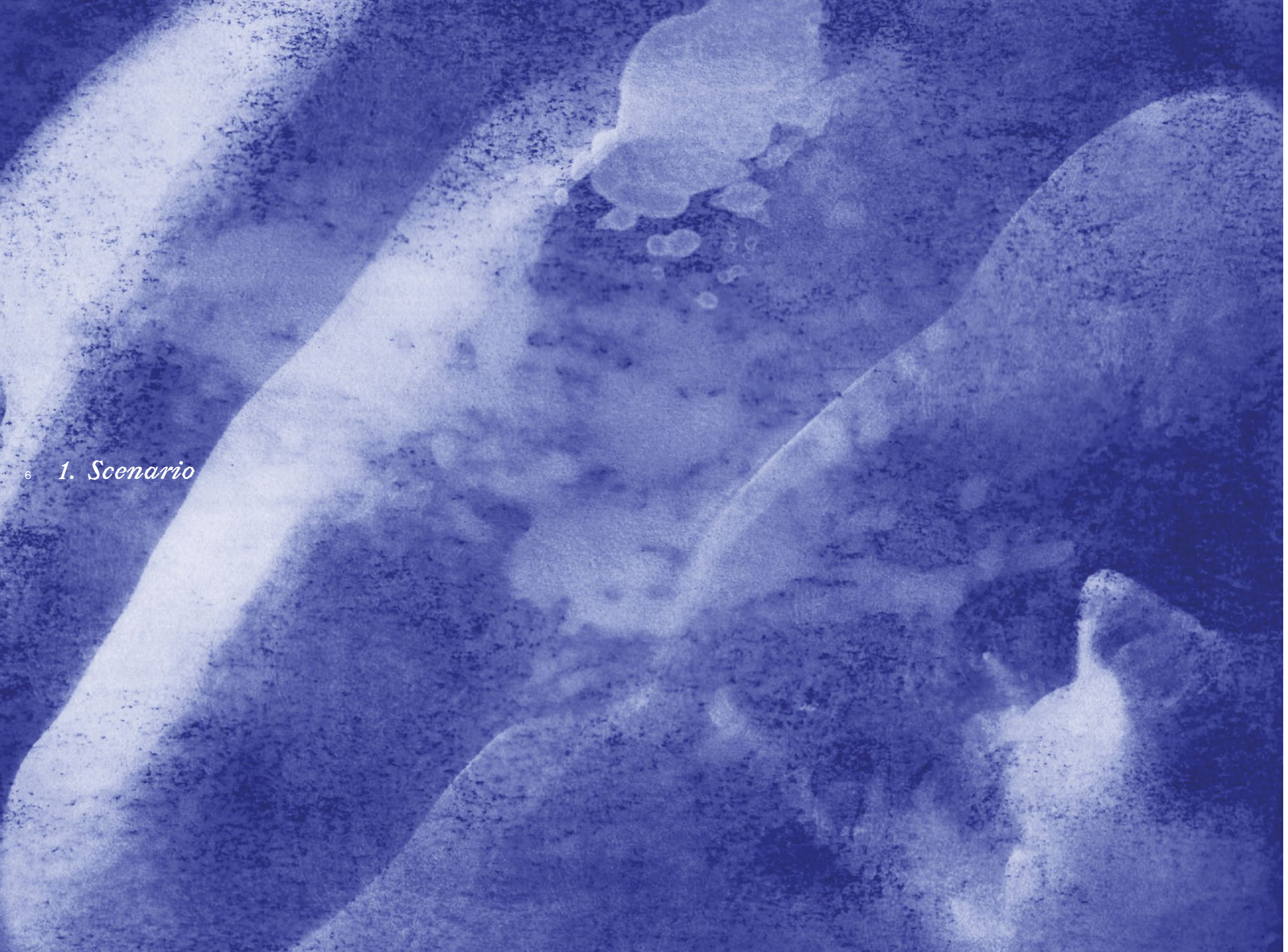
CONTENTS



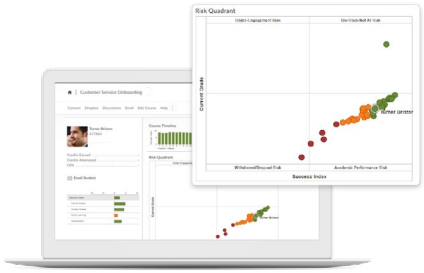
1. Scenario

IS DIGITAL TECHNOLOGY REALLY TOXIC?

It is the 21st century and we are far more advanced as a species than we ever were. And this is just the beginning. Let's take a moment to reflect on how we are doing right now. As we write this report, we are in a time that is suffering from a pandemic and the world is experiencing a major shift from what it used to be. From this point onwards, things will never be the same, and we would need to prepare to adapt to the changes coming our way. One such massive change is digital technology.

The pandemic has shown how effective digital technology can be. Unlike the previous time when the world was in a similar crisis, we didn't stop carrying on with our daily lives. Offices were operational and universities were open. Only change, everything was online. In some industries, this caused a serious increase in efficiency, so much so that they completely moved their operations online. In the case of education, we experienced that much of it can be possible online with the right technology. Learning Management Systems (LMS') thrived and exploded as more and more people started adopting it during their stay and work at home.

However, it's important to be critical about this change and look into its ill effects as well[1].This was the very beginning of our interpretation of the future with the hypothesis that despite the advantages of digital technology, it is, in a way, "toxic", especially for education.
As a part of our primary research, we first set out to investigate through a survey, people's behaviour during the pandemic and their attitudes towards digital technology as a means to learn and work. We then carried out an interview to dig deeper into our research.

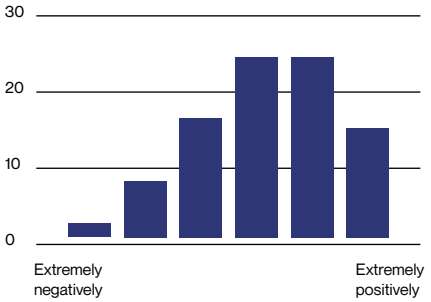


→ Brightspace by D2L - learning platform built to create highly personalized learning experiences[2].

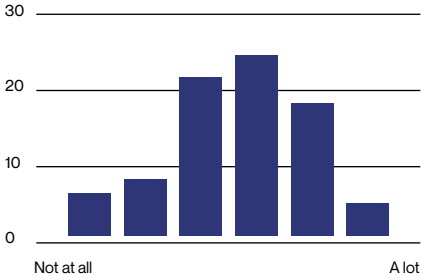
1. Sean, G. & Jason, P., 2020. The Pandemic Pushed Universities Online. The Change Was Long Overdue.
2. www.d2l.com/brightspace

The survey

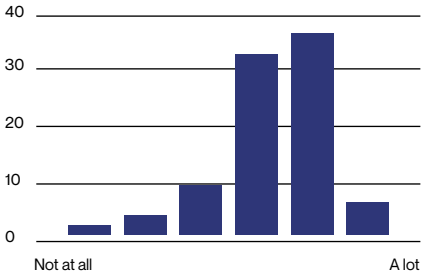
The survey sample size was 77 and comprised mostly (about 50%) a young generation (less than 30 years old). There was an equal distribution of male and female candidates. The major nationalities were Italian and Chinese with a minor count of other countries.



→ How was your daily work/school life affected by digital devices during the lockdown?



→ How much are you satisfied with your remote work/school experience?



→ How much are you satisfied with using these digital tools?

<u>From a support to a need</u>

What emerges from the survey responses is that, although the use of technological media was already very high in the pre-pandemic period, with the advent of the lockdown there has been a shift in the use of digital media from being just a means of support to being a necessary means of communication. It is also noticeable that some solutions used during the pandemic are still widely used today.

<u>Digital satisfaction</u>

From the data, it is possible to say that the digital media used during the pandemic had a generally **positive influence** on the observed sample. In addition, the data shows that the threshold of **satisfaction is positive** for the vast majority of people. However, we do not have very relevant data on the change in work performance because the data does not show any particular imbalance and the majority of people declare that there has been no change in performance.

<u>Shared beliefs</u>

What people commonly agree on is that technology will be more and more present in our lives and will evolve faster and faster.

Another common feeling is that digital technology will help us in everyday actions.

Q - *In my opinion, it will become a more and more present component in our lives, new technologies will be introduced with the aim of simplifying more and more the dynamics of everyday life and speeding it up in a way that will allow us to save much more time.*

Q - *I believe that new technologies will be used more and more frequently to make our work easier or at least more comfortable and easier, where work allows it.*
Another general sentiment that emerges is that we will be increasingly dependent on it.

Another general sentiment that emerges is that we will be increasingly dependent on it.

Q -*It will make us more and more dependent.*

Q -*Technology in the future will lead us to have all possible comforts but it will be harmful to our physical and mental health.*

Q -*I think it will become indispensable and therefore an integral part of a person's very life.*

Q -*I think technology will evolve further but in more simple ways for people to use it. The technology will Develop in the field of diverse programs and will acknowledge the fact that it can not replace human interaction totally.*

The interviews

The interviews, similar to the survey, aimed at investigating people's attitudes during the pandemic in relation to digital devices, trying to focus on the weaknesses and strengths of the lockdown period by paying more attention to people's experiences.
It was aimed to cover a wider target group. Different profiles with different characteristics and lifestyles were interviewed. What we found was an interesting direction that evolved from common opinions and from those that were quite unique.

Insights and Quotes

I - Although people think the future of the world is increasingly digital and recognize the benefits of technological modes, they don't always appreciate this change.

Q - *The world will become increasingly digital. I don't like it, but it's undeniable that it will happen, and my fear is that the trend is towards that. I don't like telework either, even though I recognize its many benefits and advantages because I have difficulty managing myself when I'm alone in my isolated room. I like to have stimuli from outside people while they work but having said that you can't deny that these are the trends*

I - In general there has been a "digital literacy".

Q - *I tend to notice that people have become more technologically emancipated, especially people a bit older. everyone has found themselves in one way or another forced to use technology, the situation has forced people to learn how to use technological devices."*

Q - *"I personally had never opened up social media but had to in order to follow sports activities, I had to adapt and open up social media in order to follow classes online.*

I - People's performance also depends on external stimuli.

Q - *I like to have stimuli from outside people*

Q - *Another fundamental aspect in my opinion, I was saying that I liked to leave home and change environment, also because from the point of view of the study, changing the environment would stimulate me; instead, always being in the same room alone to study, my performance worsened and although I had more time, all that gain was cancelled by the fact that I did not change the environment.*

I - During the pandemic, people suffered from a lack of physical interaction.

Q - *[I felt] loneliness not because I couldn't hear my friends, but because of the physical distance. The media managed to keep us in touch but it's certainly not the same.*

Q - *I was apathetic and bored. Those were the dominant feelings for the months we made it home.Ii felt that way because i didn't go out. it's like putting life on hold. i tend to shut down and do nothing when i don't have social interaction with the rest of the world.*

Conclusions

The interviews showed that in general people have a positive opinion towards digital technology adoption, with some apprehensions. Perhaps, not as extreme as our initial assumption of digital technology being labelled as “toxic”, but the concerns of the people from their experience in the past couple of years are vital to acknowledge and reflect upon.

The common acceptance of digital technology as the way of the future confirms that its benefits outweigh its disadvantages at the moment. However, its acceptance was not always willful. Some adapted to the change willingly, some were indifferent, while others did not have a choice to reject it. Some have said that **digital technology cannot replace the physical means** of learning and education as it lacks the human factors. Perhaps the minority of our survey comprises people who would rather **adopt digital technology at their preferred pace** instead of being rushed into it. However, looking into the future, this number would be diminishing. What is important is to acknowledge that no matter how small the number, they are still people and the important question is **will our future be inclusive to accept them?**

→ Remote working - are people going to adapt to digital technology or will itself gradually adapt to people's lives?

The survey and the interviews have served as a basis to capture the dominant trend of mass acceptance of digital technology that would continue to follow. But it has also shown us a vast multitude of *weak signals* in different directions. As a team we challenge ourselves to address these signals as opposed to the dominant one. We ask ourselves - what would the future look like if people had a choice to abandon their digital footprint at a time when its the *inevitable norm*? How will they cope with the change trying to return to being (just but truely) *human again*?

Our intuitive approach takes the route to interpret the future having three degrees of adoption and acceptance of digital technology - the basic, the intermediate and the advanced. It is an attempt to narrate a scenario based on the collective interpretation of the future as a team and to explore the possibility of the existence of a product-service system that would serve the needs of the time taking cues from the present and the past.

A WORLD WITH POSSIBILITIES

Our interpretation of the future looks into three possibilities based on the degrees of adoption of the rapidly advancing digital technology.

Basic

Starting with a basic level of adoption of digital technology, we envision a section of our society who would continue to live in a phygital world, similar to where we are now. A world, which has slowly embraced digital technology, incrementally improved it over the years, but is still in touch with the physical human reality and its way of life. A world where digital technology is a catalyst to human growth and learning. Perhaps the future would be easily grasped this way as it would be merely an improved version of our present.

How education is evolving[3]:

As many institutions have learned during the coronavirus pandemic, it is harder to engage students online if there is no personalization element to the content. In order to improve the learner experience, analytics can provide a huge help in:

- → *Design highly personalized pathways*
- → *Intervene when necessary*
- → *Offer personalized support to students on the basis of a combination of insights (log-in frequency, score percentage of assignments, percentage of engagement)*
- → *Deliver more types of contents*
- → *Provide additional tutor time*
- → *Focus on learning outcomes on an individual level*

Technology to facilitate change:

Technology will not completely replace face-to-face time with a teacher, but it can match and often enhance learning processes. In this sense, it is facilitating the vision for the university of the future[4].

We have to understand what future students will want from their university experience.

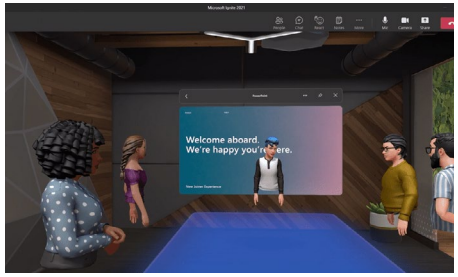
→ Felix Kuijpers, Programme Manager Education Innovation with ICT, Avans University of Applied Sciences (Netherlands).

3. Sean, G. & Jason, P., 2020. The Pandemic Pushed Universities Online. The Change Was Long Overdue.
4. Jeremy, A., Emilee, I., Brendan, D. & Howie, B., 2020 The Future of Lifelong Learning, Ontario: D2L Corporation.

Intermediate

The next degree of adoption is the intermediate level, the era of mixed realities. This is a situation where a large part of us have embraced an alternative reality to live in. Infact, it's a possibility which is closer than we think. The Metaverse, Virtual Reality, Augmented Reality and Mixed Reality already exist and are growing with every passing minute[5,6].

It is a future state that lets us be who we want to be in our minds. A power possibility if used correctly, but also alarmingly dangerous in so many ways. Its impacts would also be greatly felt in education: teaching and learning will both be enhanced to build and transfer knowledge more effectively as our research shows us in the following section.



→ Microsoft Mesh - collaboration and co-working platform by Microsoft empowered by VR[10].

5. Preston, J., 2021. Facebook, the metaverse and the monetisation of higher education.
6. Rice, M., 2021. 38 Edtech Companies Changing the Way We Learn.
7. Falchi, A., 2021. Quotidiano Nazionale.
8. Zhang, J., 2021. Game changer: The first Olympic games in the cloud.
9. Alhomdya, S., Thabat, F. & Hasan Abdulrazzak, F., 2021. The role of cloud computing technology: A savior to fight the lockdown in COVID 19 crisis, the benefits, characteristics and applications. International Journal of Intelligent Networks, 2(1), pp. 166-174
10. microsoft.com/en-us/mesh

The future learning environment[7,8,9]:

→ *IoT CLASSES*

Objects won't be lifeless anymore. Every object within a learning space (room sensors, tablets, students devices) will collect informations from the environment while being connected to a main network, empowering the in-class learning experience.

→ *CLOUD COMPUTING*

Files, presentation and even softwares will be stored and available on Cloud. Thanks to an increasing speed in internet connection (6G/7G) any software or kind of information will be streamed real time from Cloud servers on device working as interfaces.

→ *AI & MACHINE LEARNING*

AI's are going to support teaching by automating key activities such as grading and providing feedback and insight on areas which students need to improve. This leads to enhance personalized learning among students, especially those with special needs.

→ *MIXED REALITY TEACHING*

Since all the informations will be stored in Cloud and elaborated by AI's, there will be new ways and tool to consult these information and use digital tools.

AR optical devices students will allow students to empower their workplace, interact with far away teachers as well as AI tutors. Hence, on positive note, we would use digital technology to our advantage. The touchpoint to learning will become more seamless and knowledge will become even more accessible. However, the effects of this abundance may also have adverse effects on our overall well-being and mental health depending on our individual capacities.

Advanced

The third possibility is the one where we truly unite with our creation - the “Cyborg Age” or the advanced degree of adoption. It is a reality of the mind and the mind alone. Our physical existence has no meaning except for being a battery to keep our minds alive. The possibility of this future is in fact knocking at our doors today with the rapid development and investments in neural technology and Brain-Computer Interfaces (or BCIs) today[11]. It is truly the limitless age, a time, so to say, of superheroes created by our own imaginations. At this point learning becomes an unconscious act more than ever[12]. The only touch points between our brains and machines would be our thoughts.

The implications of this on traditional education would spell a endangerment and a rapid or complete decline. Universities and institutions as we know them today, will loose relevance as there would be no need for them anymore. However, the question here is, how much control will we have over our thoughts and identity at this point? Will we be able to hear our own voice or, will we act at the will and whims of artificial intelligence disguised as our “free and independent choice”? Perhaps in at the break of dystopia, there will be a ray of hope. Education may yet again be our saviour and hold our hands and help us detach ourselves from our digital identity and re-learn how to become human again. Perhaps, the new role of education in the future can be the “the darkness” we need to “see” amid the “blinding light” of the digital world.

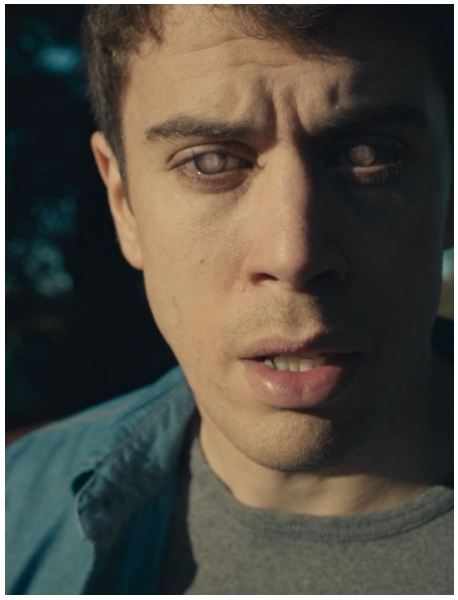
11.
12. The Royal Society, 2019. An Introduction to Neural Interfaces, London: The Royal Society.

    Tuğtekin, E. B., Dursun, Ö. Ö. & Uğur, S. Ş., 2020. Virtual Identity in Blockchain. IGI Global, 1(1), p. 26.

Conclusion

From our survey and interviews we were able to deduce that there is a widespread inevitable acceptance of digital technology in our lives. However, the degree of willingness is something which is under question. Are we, as a collective, ready to adapt at a pace dictated by the advancement of digital technology? Or, does our future allow us to adopt it at a degree and pace we would prefer? Will there be a possibility to choose? And finally, how will this change education in the uncertain times ahead?

Our exploration begins with these questions but does not attempt to answer them. Rather, they serve as the basis for our speculation of what the world would look like in the future which embraces both extremes - advanced human life enhanced by digital technology on one hand, while on the other, a basic human existence that is free from any digital footprint.



→ The entire history of you - this episode of Black Mirror show us a world where a skull implant and contact lenses let people look through each other's eyes

WHERE ARE WE GOING?

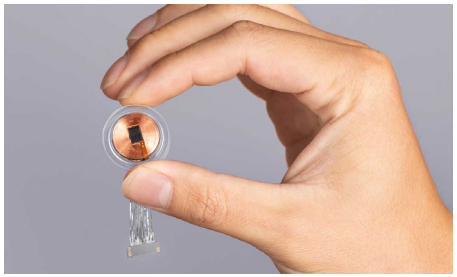
Taking cues from modern literature, Yuval Noah Harari says in his book, Sapiens, that unlike any other species, we unconsciously live in an imagined reality. This is because ages ago, “we have collectively elevated from an existence of survival to an existence of imagination and belief”. The result is the world that we live in today and take for granted. Concepts such as time, economics and society are mere fragments of our imagination and our unconscious belief in them as a race.

Today we are again making a conscious transition into new forms of reality that are virtual, or augmented or a mix of both. And we will soon find ourselves unconsciously living in the metaverse parallely to our human form of existence. In this new reality, we will have the capacity to live without all our shortcomings, carefully craft our identities and enhance our existence to be the best versions of ourselves. A world that would truly be “equal”. Virtually. However, the question here is, will it be human?

Future of digital technology

With every paradigm shift in human history, there are positives and negatives that shape the world from there on. The blistering pace of technological advancement poses a risk of failure to adapt for the entire human race as a collective. On one hand, the inevitable and mesmerising growth is the result of our aspirations of an older time, while on the other, its consequences are perhaps the measure of our practised apathy in areas we choose to turn a blind eye.

Research shows that the future of human civilization is at the brink of adopting an enhanced form of living made possible through Neural Technology[13] - finally uniting “man” and “machine” to the extent where they become, quite literally, interchangeable and synonymous terms. Neural interfaces are devices that interact with the nervous system. They are electronic devices placed on the outside or inside of the brain or nervous system to record or stimulate activity or both. Interfaces placed inside the brain or body are known as internal, invasive or implanted technologies, as opposed to external, non-invasive or wearable devices – often called brain-computer interfaces or BCIs[14]. It quite possibly marks the humble beginning of the Sci-fi Cyborg era, and in the words of Chris Toumazou, FREng FMedSci, FRS, co-chair, it seems as unreal as the smartphone did about 20 years ago. Which, in other words, would mean that they are not too far from being a reality. And taking an educated guess from the current research and development trends in the area, it’s no longer a question of “how”, but “how soon”.



→ Implantable brain–machine interface (BMI) developed by Neuralink Corporation[16].

→ A monkey plays "pong" using only its brain thanks to a Neuralink implant[17].

The neural age promises a world without human limitations. With our thoughts being the only touchpoint to a machine, the possibilities are indeed limitless. And so is the risk to our privacy. Nonetheless, it's perhaps worth the risk (in good humour) to exercise our apathy, just for a moment, to imagine what the world would look like tomorrow.

With neural technology, we would now communicate directly with others through our minds. A conversation in 15 years may quite well be device free. Telepathy may well be a norm of communication than just being a far-fetched concept from science fiction novels. It would be possible to enhance our learning to an extent where we can have access to information and be able to cognise it as it best suits us. It would be possible for the blind to see for the first time. The deaf to hear. Brain-Computer Interfaces (or BCIs) can transmit not only words, but also emotions and feelings[14] . We would no longer have to feel the longing for our loved ones when we are away.

In fact, speaking of travelling, it would be a long forgotten concept in itself because we can experience it all in our heads. The transition to this future state could be quite smooth indeed according to scientific speculation[15] (James, 2021). In the words of Elon Musk, founder of Neuralink on Neuralink Technology, it would be "sort of like a Fitbit in your skull with tiny wires that go to your brain".

13.
14.
15. The Royal Society, 2019. An Introduction to Neural Interfaces, London: The Royal Society.

    Tuğtekin, E. B., Dursun, Ö. Ö. & Uğur, S. Ş., 2020. Virtual Identity in Blockchain. IGI Global, 1(1), p. 26.
16. neuralink.com
17. bbc.com/news/technology-56688812

Back to basics

Taking the uncomfortable moment to reflect on the consequences of this future, it could mean our rejection of basic human skills. Perhaps a complete rejection of any form of physical activity because we can live in our minds and just do the bare minimum to ensure our bodies are kept alive. Basic human skills such as the ability to write, the ability to have a conversation and share moments in the physical world, would begin to be lost. Finally, to confront the beast, the biggest challenge of this promising future would be the assurance of basic human privacy.
The track record of companies (especially big-tech companies), so far in respecting human privacy, has been declining at the same pace as the growth of digital technology. We can only imagine the catastrophe when our thoughts are trusted with the "privacy policies" of such organisations. Nonetheless, today our curiosity outweighs our concerns and we would continue to move forward as a race as we always have.

→ Liziqi - Chinese video blogger known for creating food and handicraft preparation videos in her hometown of rural Pingwu County, Mianyang.

On a more pragmatic note, it would be safe to say that the advanced future will not be the only road to our "doom". Instead, the degree of adoption of digital technology would differ from place to place and from culture to culture. While some nations may see the future of their people in a thriving meta-verse, other ideologies may be slower to adopt this and find a middle ground. Some may even be as rudimentary and backward as we are today. The question here is, does our future offer the choice to live in any of the three realities? Does our future allow us to be "human" again?

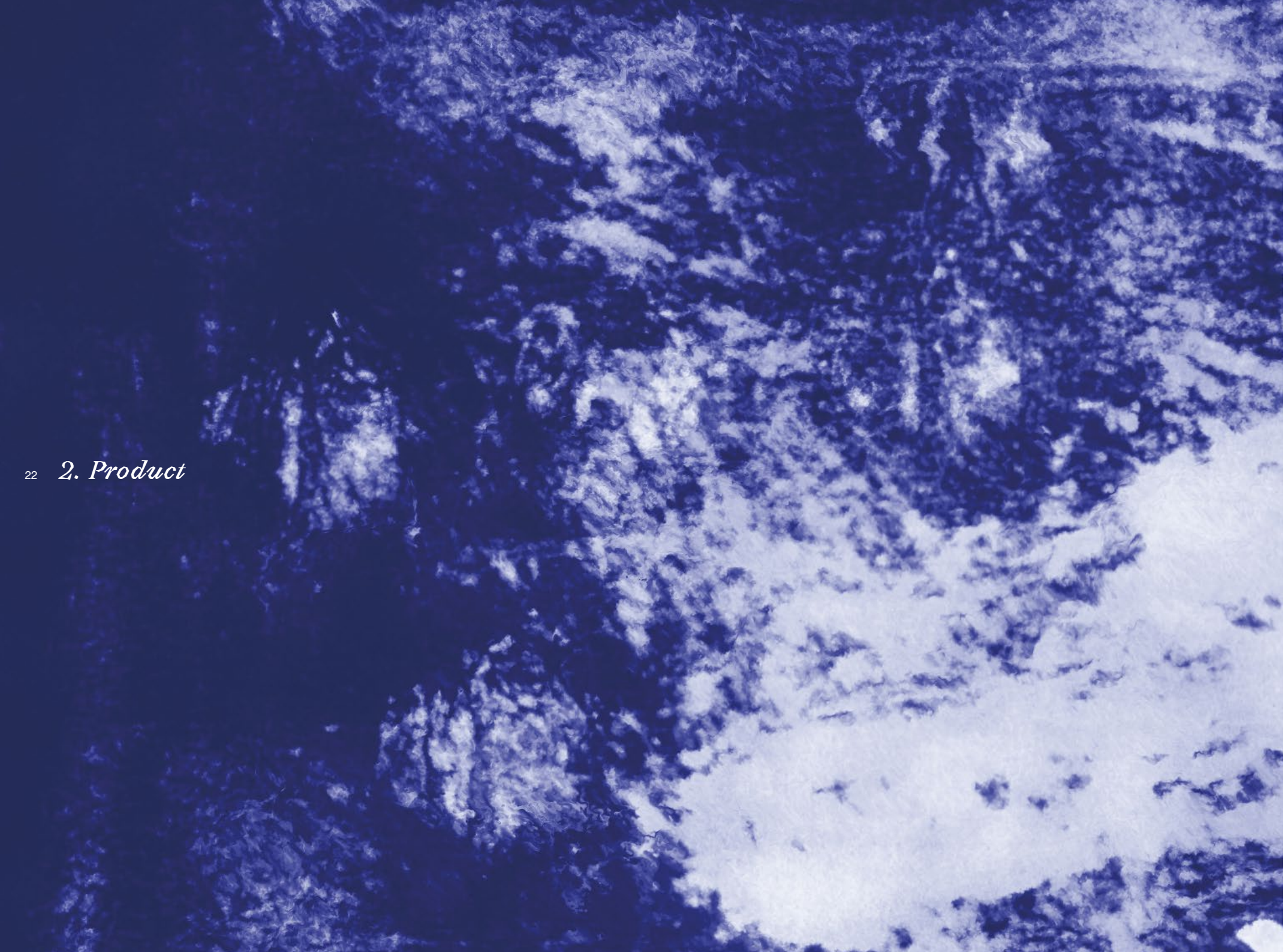
Taking cues from the present time, the popular Youtube content creator, Li Ziqi shows us that about 16 million people of the internet (who are her followers) aspire for a rural lifestyle which she narrates[18]. This is at a time when we haven't even scratched the surface of where we can be in the near future. In a world that is so advanced, would there be an "eject" button that will allow us to get back to basics if we wanted to? What would we need to know and learn in order to survive in a world which was "of-line" and would require us to be more physical? More human?

18. Ziqi, L., & Goaldthread (Directors). (2019). Exclusive Interview With Li Ziqi, China's Most Mysterious Internet Celebrity

The uncertain future of handwriting

The crisis we anticipate is the ability of future generations to re-learn the basic human skills to survive and thrive in a world disconnected from advanced digital technology and artificial intelligence. The challenge to create, access and share information and to learn and comprehend with our physical senses would be the "price" we would pay to ensure "true" privacy of our thoughts and the freedom of our minds. This scenario begs the question, how do people educate themselves with such life skills? What would be the role of Universities in the future for those who chose the path of humanising themself again? How may education in uncertain times help us physically manifest our existence again?

The uncertainty of the frightful yet exciting future also gives the opportunity to speculate over how we can ensure the privacy of our thoughts and memories. One such way is to imagine re-materialising the elements of the digital world in physical space and time. It is, in a sense, going backward in terms of evaluating its efficiency and effectiveness, but that is the point of it. It is not about perfection, but about the perfect imperfections that make us human.
It is a celebration of the human spirit in its purest form. Chaotic, flawed yet beautiful. "Human", hence precious.
In an ideal world, education would rekindle the human spirit by holding the hands of our future generation, helping them smoothly transition back into being human again.
It would help forge communities of those who have broken the shackles of the digital world and help preserve the sanctity and privacy of their thoughts, ideas and memories.



2. Product

MNEMEION

The narrative of this manifestation is a humble proposal of *mnemeion*, a “machine” that can help us preserve our thoughts, ideas and memories free from the constant angst of protecting them from a breach of privacy, theft or corruption. A machine that cannot be evaluated in terms of its “efficiency” or “performance”, but only be valued for its presence in an uncertain time, standing up for the privacy of our thoughts and memories. It is a monumental collage of our individual and collective minds, which fearlessly grows and changes as orchestrated by our creative human spirit. Pure. Flawed. Chaotic. Hence human.

Concept

Mnemeion is the result of our collective speculation as a team. It is an exploration of the possibility of human existence with complete detachment from digital technology in a world which is consumed by it. It is an expression of an extremity for a time which will not be able to appreciate its relevance from a pragmatic lens. Conventional parameters of evaluation such as efficiency and effectiveness are not applicable in this case. Instead, it holds a sculptural value that embodies the need to preserve and protect our thoughts, ideas and memories. Consisting of container units or “memory boxes”, the machine is a monumental collage of our minds, unique to each of us. It doesn't have any defined form. It cannot be mass produced, but be co-created or orchestrated by our individual discretion.

Composition

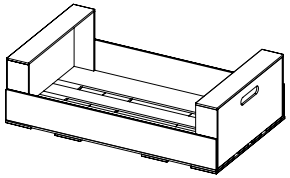
Inspired by the movement of Arte Povera[19], the product repurposes timber boxes as the fundamental building blocks of this machine. The boxes are differently sized and shaped. They also differ in weight, permeability and in terms of their locking, opening and closing mechanisms. Their physical characteristics are symbolic of our thoughts. For instance, heavy, fragile, or precious.

19. Poor art — An artistic tendency which, rejecting the cultural values linked to an organized and technologically advanced society, aims at the recovery of action, of the contingent, of the archetype as the only possibility of art.
The term was coined by the critic G. Celant on the occasion of the exhibition held at the La Bertesca gallery in Genoa(1967) on the use of poor, 'anti-artistic' materials like rags, papier-mâché, etc

    Souce: Treccani. (2019, 12 12). Poor Art. Retrieved from Treccani: https://www.treccani.it/enciclopedia/arte-povera/

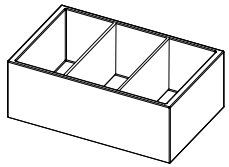
As a general method of categorisation, there are five types of these boxes:

Fruit box



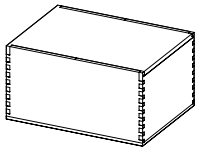
Fragile and temporal
Representing the unimportant or passing thoughts and memories.

Chipboard box



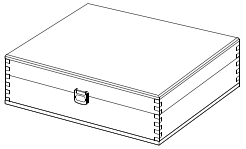
The compartement
Representing thoughts which have found a temporary place in our mind and are ready to be assessed.

Slider box



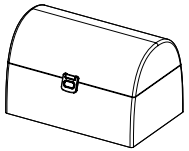
The filter
Thoughts and memories that are being evaluated and analyzed.

Hinged box

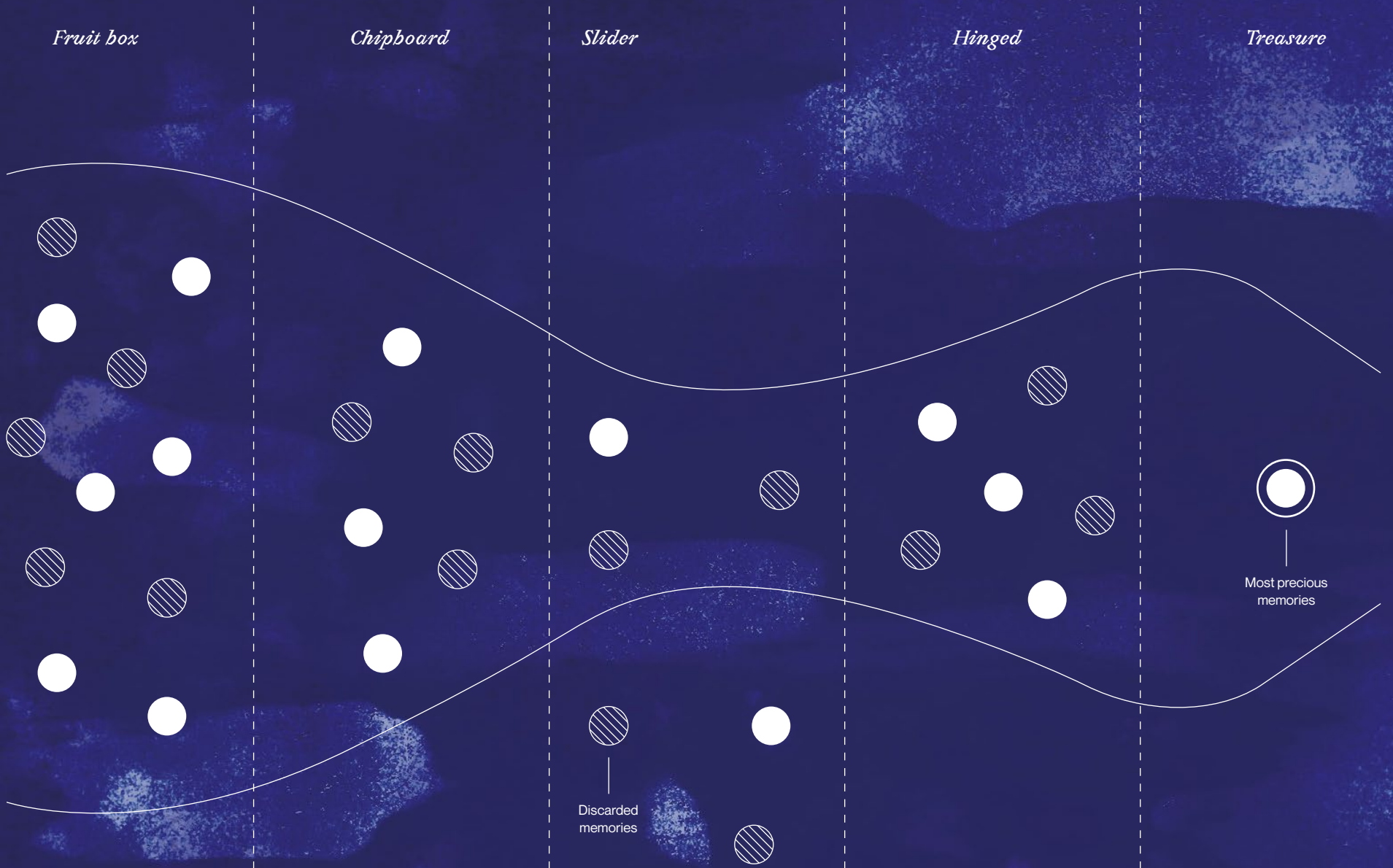


The recollection
These thoughts have found a permanent place in our mind and we remember them when we want to.

Treasure chest



The treasure chest
These are the everlasting eternal memories that are very personal to us.


Fruit box
Chipboard
Slider
Hinged
Treasure
Discarded memories
Most precious memories

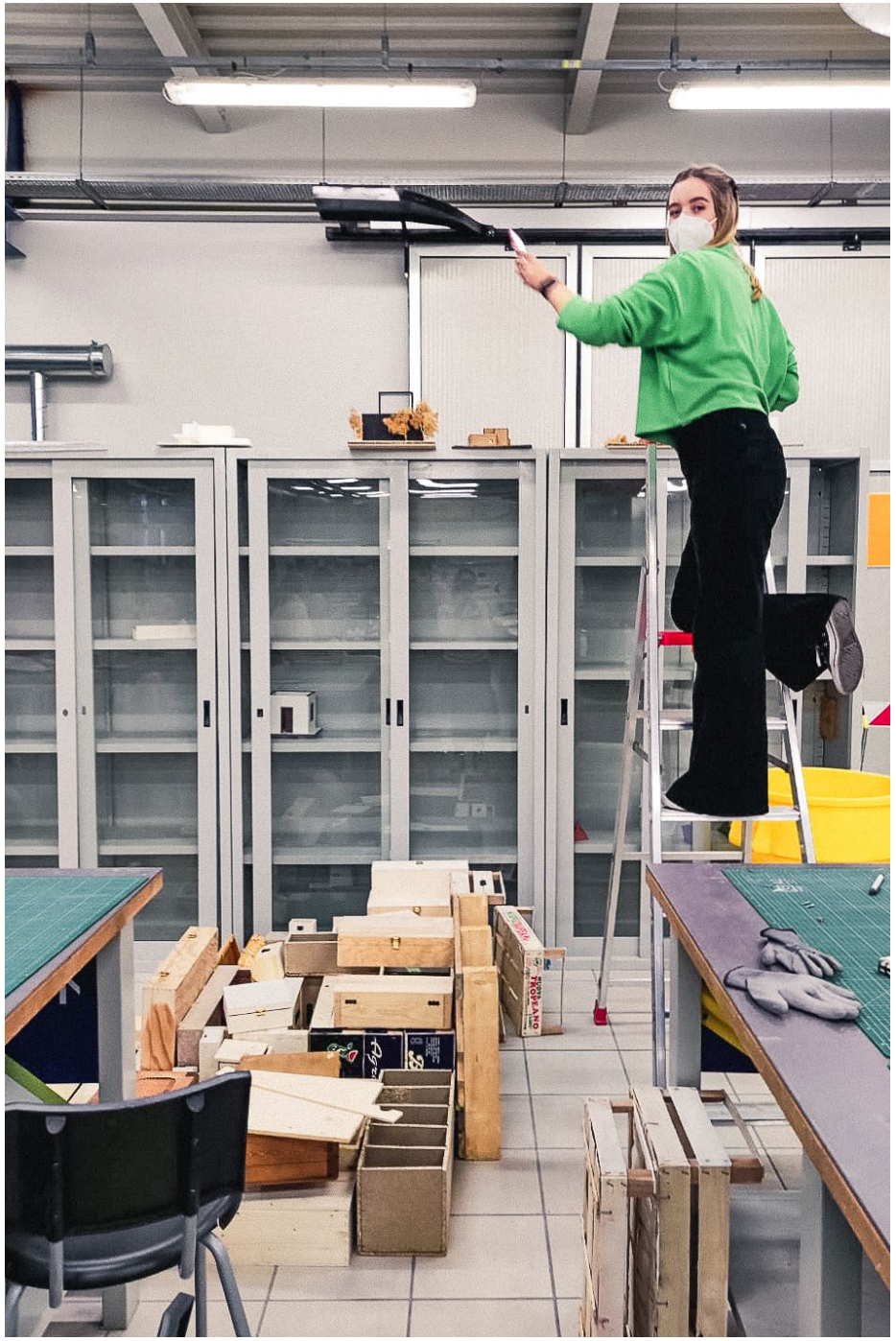
The “machine” henceforth emerges from the ground by the discretion of the user and it *grows* with every thought, memory or idea that finds its place in it. It is intended to be a *monument* celebrating fearless expression of the *human spirit* where one is in absolute control of what's most precious and personal to them.
Their *thoughts*, their *memories* and their *ideas*.

Prototyping process

→ First attempt of composition of the machine

→ Before proceeding in the building process we sanded the surface of one of the boxes in order to have visual consistency


NUOVA TROPEANO



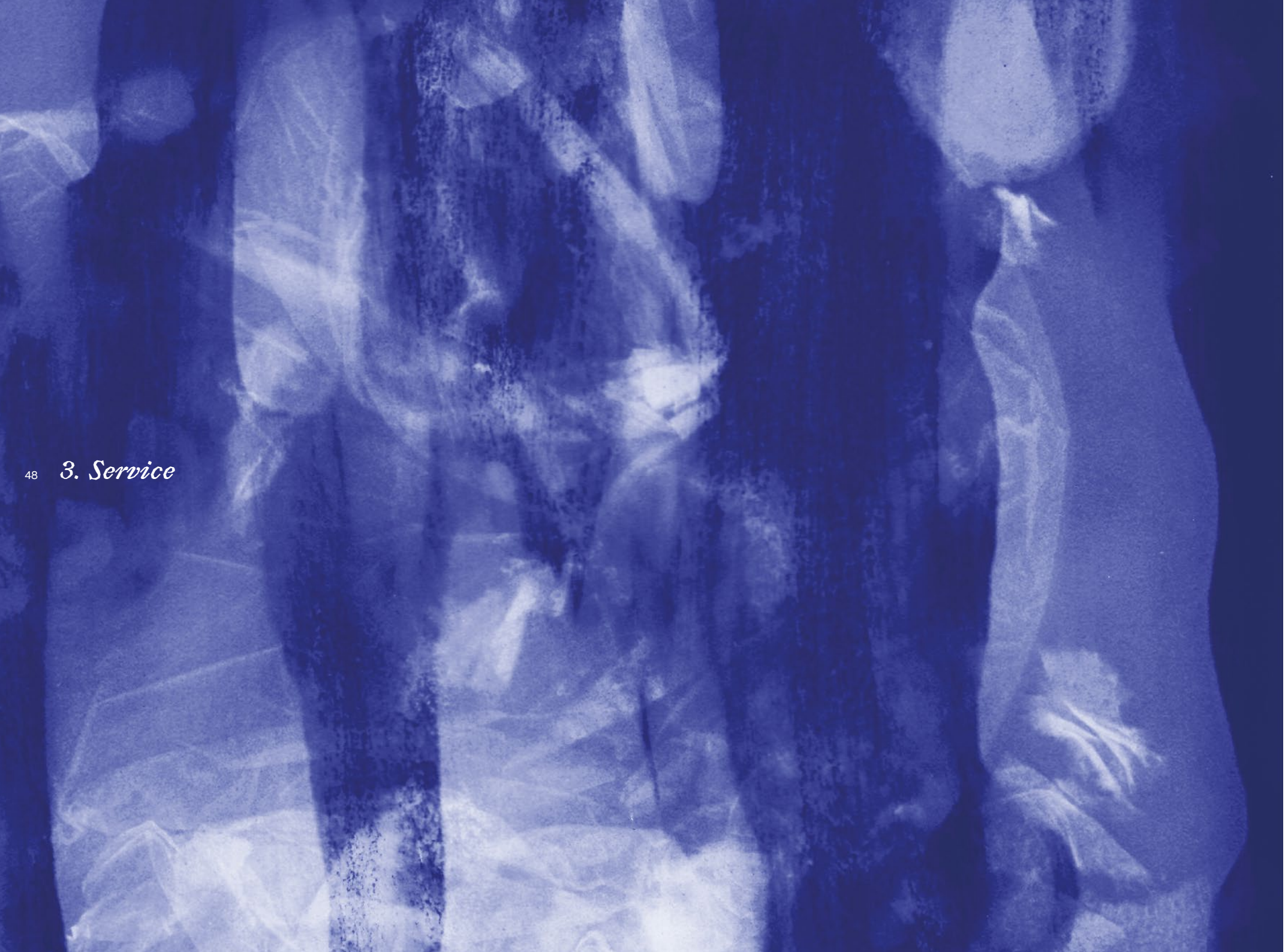
Final model


mnemeion
mnemeion


mnem
mnemeion


emeion


Hello!
This is my first
on mnemeion
I'm



3. Service

AIM AND ACTORS

Since the concept behind *mnemeion* is to bring a renewed value to the practice of handwriting, the service is aimed to directly support this process.In fact, the service develop beside two main use cases of the product:

→ Community based, where the final *product*, as a result of a dedicated university course, becomes a semi-permanent installation enjoyable by everyone during a special event.

→ Private, where the *product* become a personal and private tool to store information through handwriting.

Community based

Mnemeion proposes itself as a mediator between local cultural institutions (such as Triennale) and universities in order to set up an event focused on the practice of handwriting and its value, where the product acts as main catalyst.

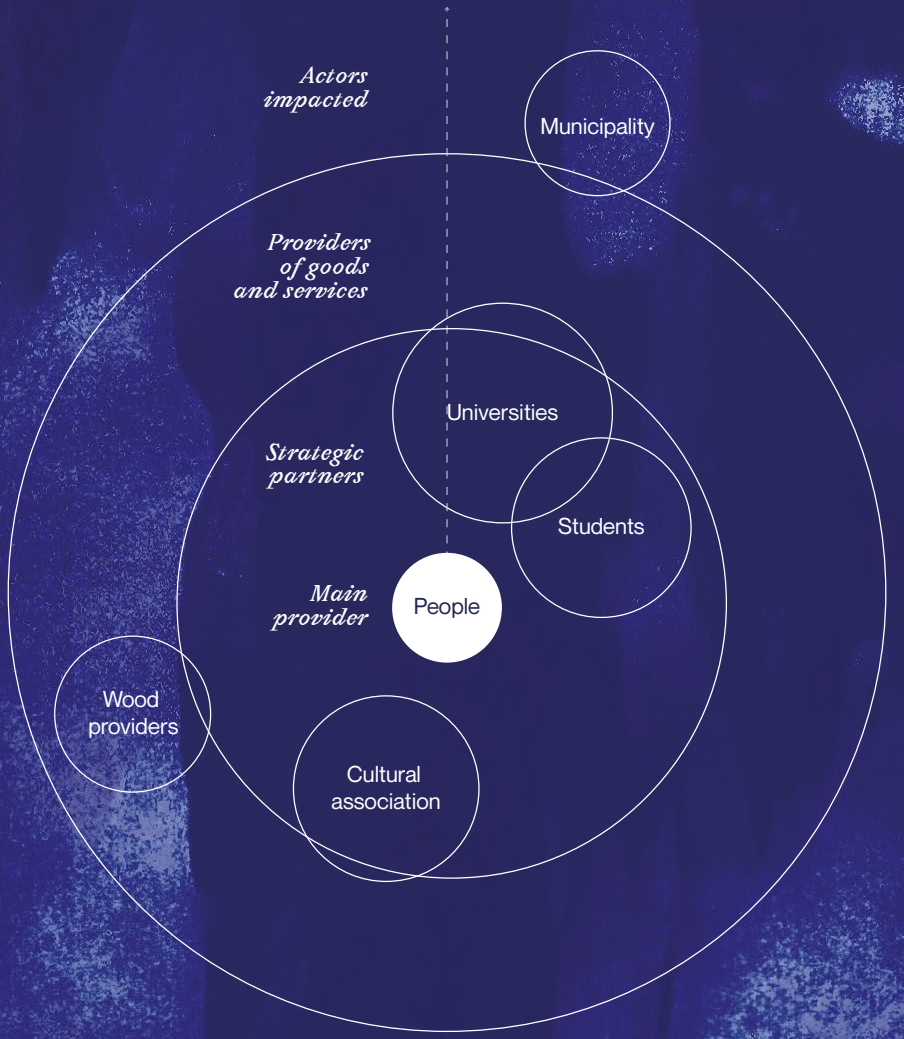
During the event people will be able to interact with the installation by storing messages, ideas, thoughts and memories handwritten on pieces of paper inside the boxes, while they'll also be able to open and consult the messages left inside the other boxes. Conferences and seminars will be also planned as side events in order to create more awareness about the theme of handwriting.

The role of the university will be to hold a special course with the aim to let students design the machine and assemble the product, as well as to contribute to plan and communicate the main event. The event planning will be assisted, from a financial and organisational point of view, also by the involved cultural institution. Other than a mediator between this two main actors, mnemeion will also put in contact the university and the wood provider in order to get all the needed material.

Private

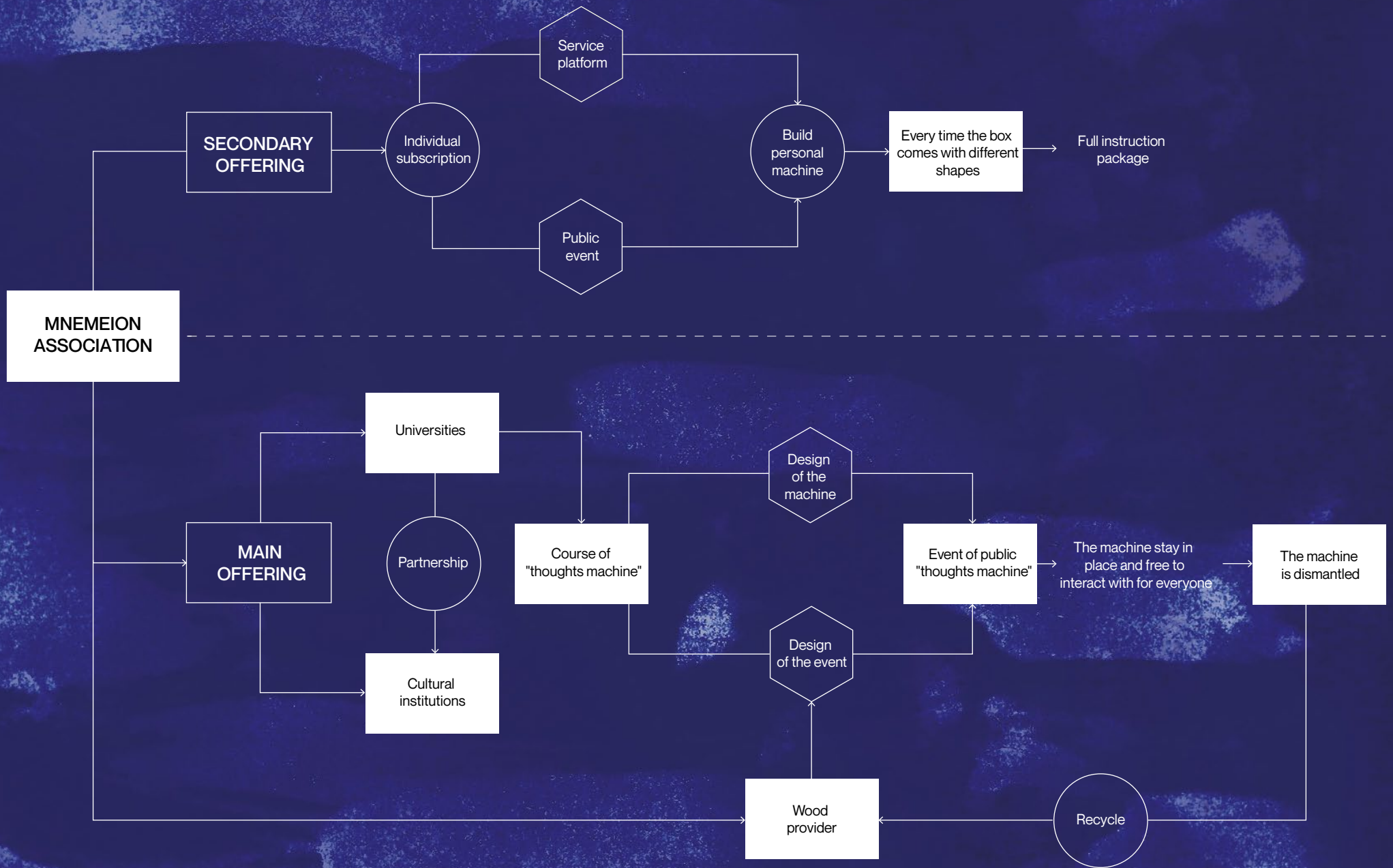
After either taking part in the main event or after getting in touch with the communication campaign, people can also decide to start building their own personal machine.
They can do so by activating a subscription programme which allows them to periodically receive a box to fill in with their thoughts and memories.They will gradually compose their machine putting together the boxes.

Each box will be thematic and will contain dedicated material and tools to guide the user through the process by enhancing handwriting in its different techniques.



→ Stakeholder map

OFFERING MAP



PRODUCT LIFE CYCLE

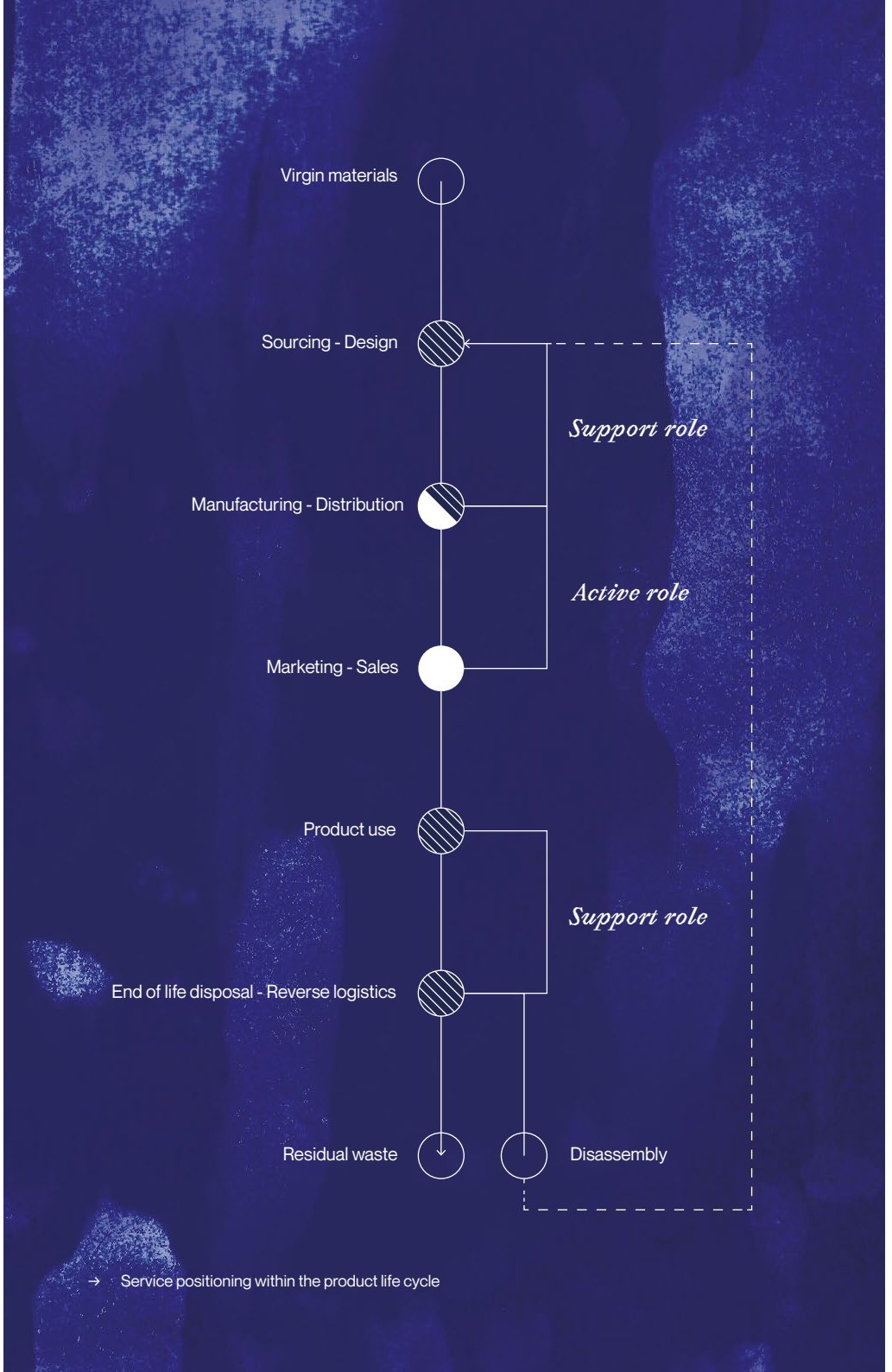
To better understand how the product and the service interact and work together within the mnemeion product-service system, it is necessary to point out where the service action is placed along the whole product life cycle. The service offered by the mnemeion association develops over several phases of the life cycle, assuming both a support and active role.

Support role

During the *Sourcing - Design* and *Manufacturing - Distribution* phases *mnemeion* acts as intermediary between the various actors involved within the design process, starting from the collection of wood used to build the boxes - and thus the final product- to the support needed for the setting up of the project launch event (including the dismantling of the *product* during the *Reverse logistics* phase at the end of the event).

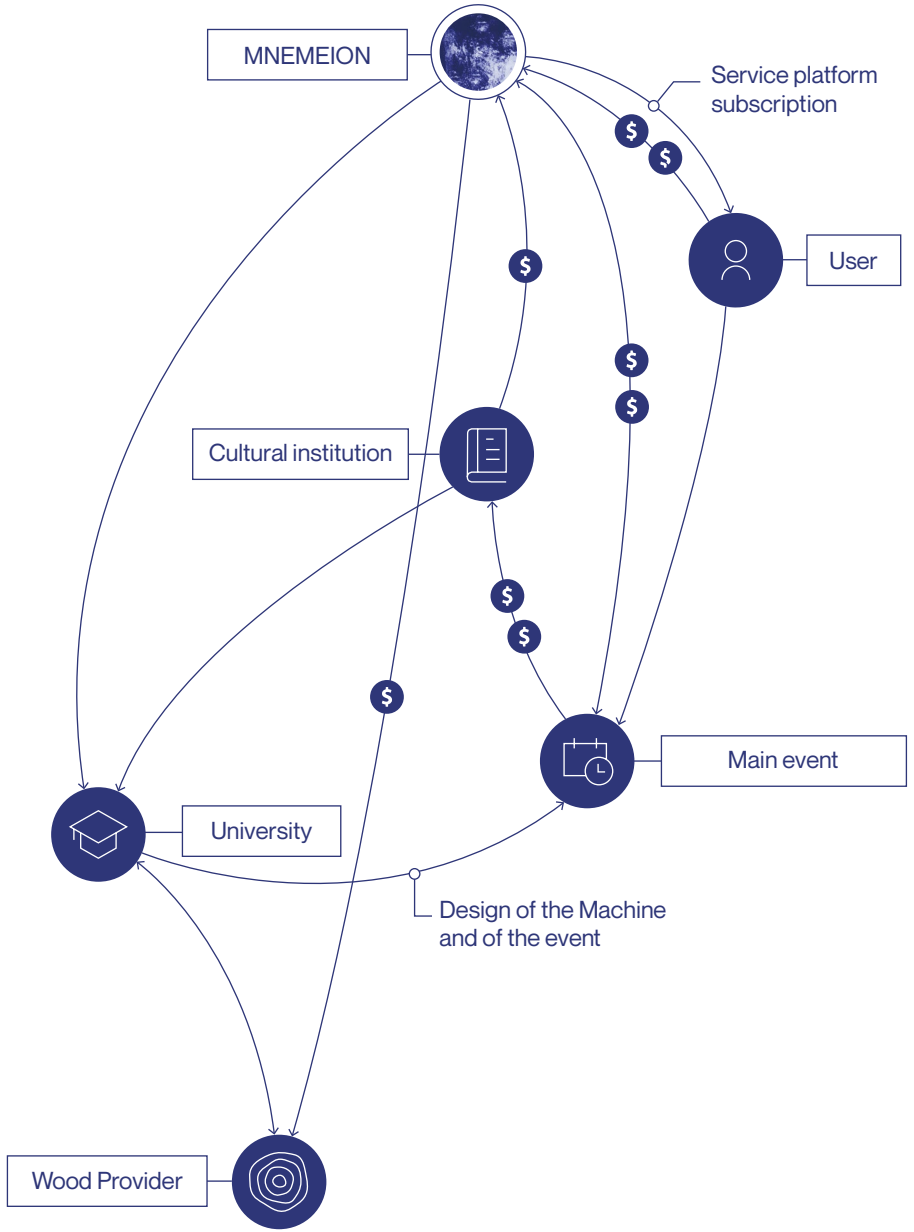
Active role

Mnemeion assume a more active role during the mid phases of *Marketing - Sales* and *Product use.* During this stages the association is involved in the promotion campaing of the brand and of the subscription programme. In the same way is directly engaged in dealing with the delivery of the boxes to the subscribed users.



→ Service positioning within the product life cycle

SYSTEM MAP


MNEMEION
Service platform subscription
User
Cultural institution
Main event
University
Design of the Machine and of the event
Wood Provider


mneme

USER EXPERIENCE

Persona

Paola Ricci

Personal informations

Age: 25
Gender: Female
Education: Marketing Managment
Location: Milan, Italy

> *Handwriting will help me express my emotions, feel part of history and gain basic value and individuality*

Story

Paola is a first-year student at the Marketing Management programme. She never used a real pen and paper. She usually uses her phone to take notes. She thinks it's fast, easy and simple. But Paola believes that pen and paper can never be replaced. She often finds herself that the introduction of writing into the curriculum will help to express her emotions more, feel part of history and gain value in communication.

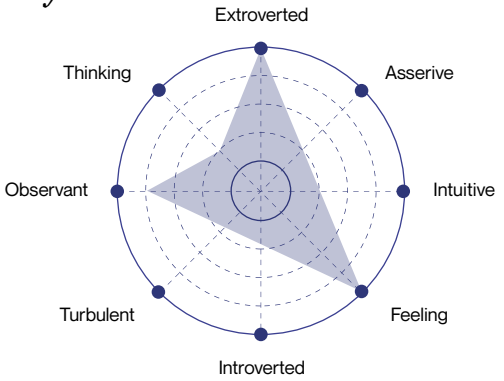
Pain points

- → Spending a lot of time on the computer and phone
- → Lost of a manual process in reality
- → It is difficult to find people interested in writing

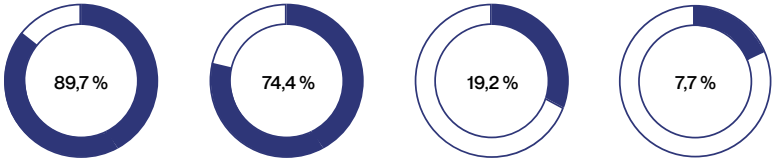
Need & Goals

- → A sense of reality in the technology world
- → Cool, new and exciting experience
- → To find own individual handwriting

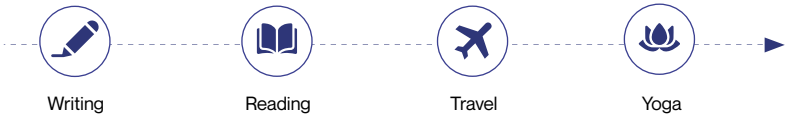
Personality



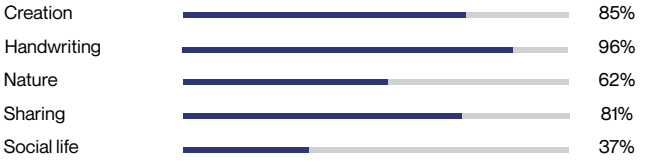
Digital interaction



Hobbies & Interests



Motivations



Customer journey map

STAGE	PRE SERVICE		SERVICE - primary		SERVICE - secondary		
	DISCOVERY	ATTENDANCE	WRITES & STORES	REGISTRATION	RECEIVING	SIMULATION	
ACTION	Paola gets to know about the opening event of Mnemeion	She goes to the mnemeion event and gets to know the brand	She starts writing down some memories and puts them in a box.	After actually understanding the value that memories have, Paola decides to subscribe to the platform to build her own personal memory library.	She receives the first boxes from oranisation. She also receives instructions on how to better create her own machine.	Using the simulator provided by the company, she experiments with various configurations	
TOUCHPOINT	internet, mobile	event	pen, paper, boxes	internet	boxes, instructions	internet	
QUOTES	"Who wonders what this is all about? "	"Oh wow! What are all those boxes for? "	"It's great to be surrounded by people who also like writing and sharing their impressions"	"I think I'm going to sign up! I'd like to have something similar at home."	"Yeah, my boxes have finally arrived. I think I've found a perfect place for them!"	"It's a good thing they created this site... I was going crazy trying to create an ideal configuration."	
EMOTION	curious	intrigued	engaged	positive	excited	relieved	

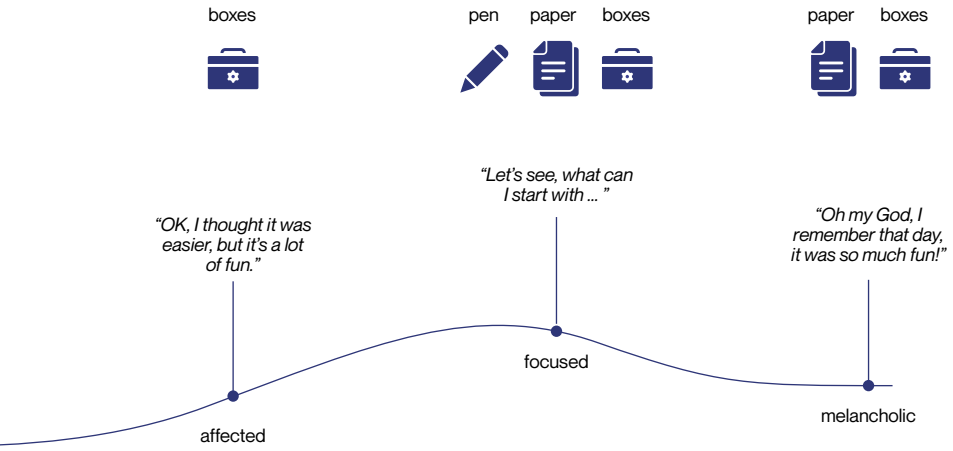
POST SERVICE

CONSTRUCTION | WRITES & STORES | REMEMBERING

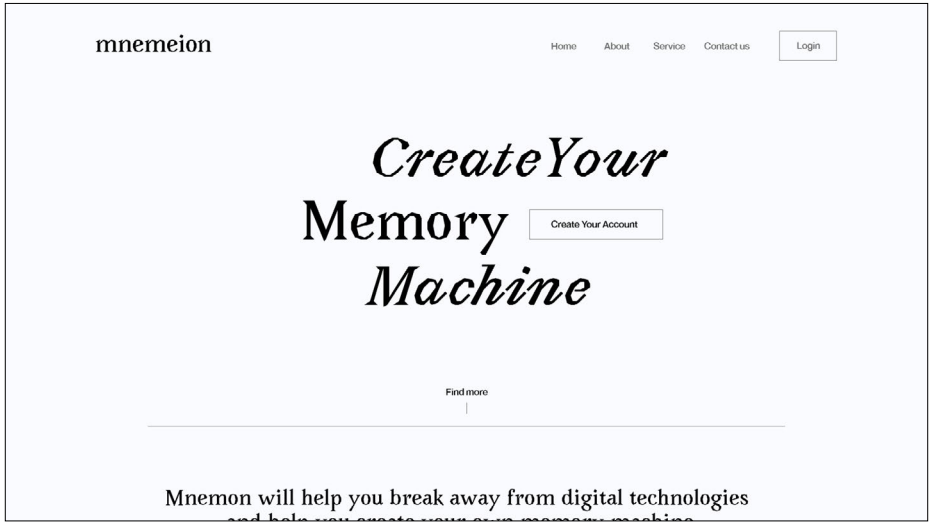
After deciding on a configuration she likes, she starts to put the different boxes together. You can also do this by following the tips in the instructions

She starts writing down her memories by hand, which she then places in the different boxes.

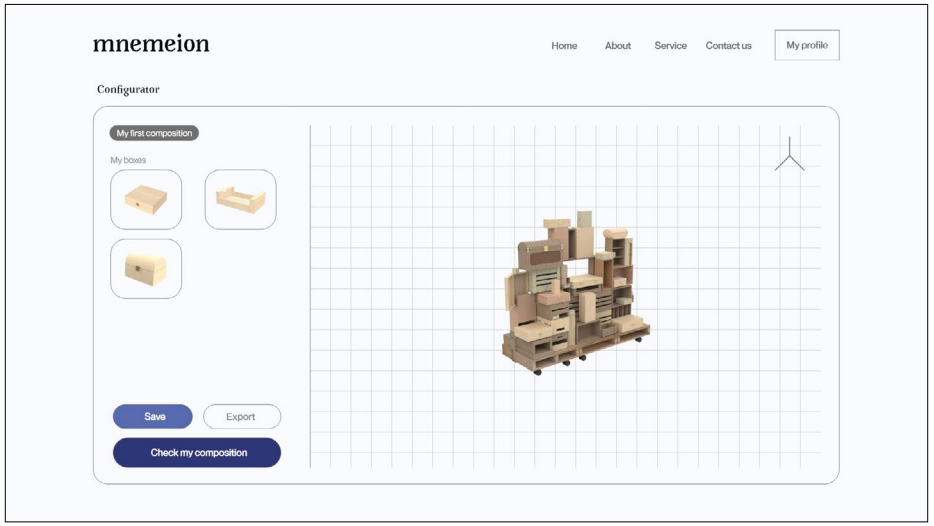
Every now and then Paola takes one of her memories and rereads it.



Service platform



→ Landing page - from here people can discover more about the project and proceed with a subscribtion



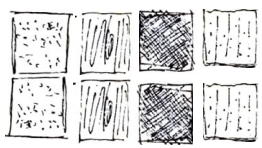
→ Configurator page - people can try to virtually combinate the boxes they received before building the physical machine

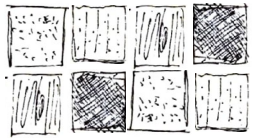
GUIDELINES

Visual and geometric rules

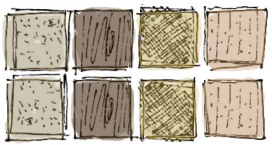
You can play with your imagination by creating the configuration that best represents you. Observe the boxes, their shape, their size, their mechanisms, their color.

→ Play with different materials: combine the different textures as you prefer.

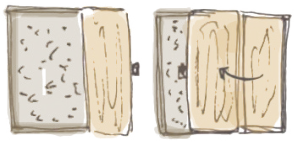




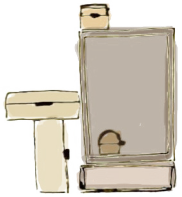
→ Have fun matching colors: wood is not only brown! Look at the different shades and combine them.

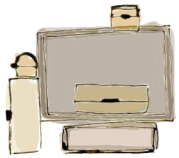


→ Don't be limited by the mechanisms: who says a box can only be opened one way? Be creative by using the mechanisms in different ways. Make the different mechanisms interact with each other



→ Challenge the dimensions: don't just overlap the boxes, have fun creating different configurations





Assembly rules

The boxes you will receive will all be made of wood. However, you must be careful, not all wood is the same!
Depending on the type of box you receive, you should use different methods, so we will give you some advice.

→ The quickest way to join the boxes together is to screw them together. Sometimes you will need to replace the screws with glue, sometimes you will need to use both!

→ Wood often breaks when screwed, to avoid this you can first drill holes in it.

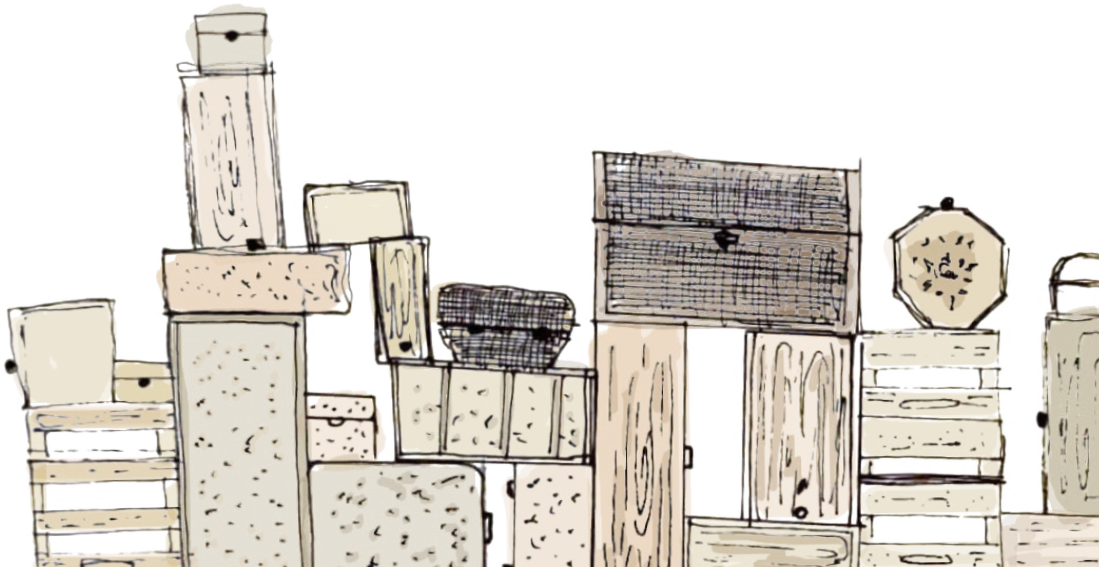
Functional rules

All the boxes will have to be opened so that you can insert your memories and keep them. Before assembly, make sure that you can easily interact with all the boxes.

→ One tip, assemble them open so that you can check the spaces for interaction

→ Sometimes you could put a shim (like a piece of wood) under the boxes to ensure that all the boxes open

→ It will be necessary to reinforce the structure with pieces of wood where it is most fragile.



4. Brand and communication

BRAND

Brand name

In general, memory is “the capacity, common to many organisms, to keep a more or less complete and lasting trace of the external stimuli experienced and of the relative responses”. In particular, with reference to human beings (in whom this function reaches the highest level of organisation), the term indicates both the capacity to retain traces of information relating to events, images, sensations, ideas, etc. that have been experienced and to recall them when the original stimulus has ceased, recognising them as states of consciousness that have passed, and the contents of the experience itself as they are recalled, and the set of psychological and neurophysiological mechanisms that allow information to be recorded and subsequently recalled.

The time of memory and remembrance is subtracted from spatio-temporal determinations, it expands in an enchanted suspension. The Italian words “ricordo” and “ricordare” derive from the Latin *recordari*, a learned term corresponding to “to put back into the heart (cor)” a thought, an image, a face, with a movement of tenacious resistance to time, as suggested by the prefix re- indicating a reversal of direction.

Mneme in Greek is memory, but also remembrance and, by metonymy, alludes to which enables us to remember something else, such as a tombstone in memory of a deceased person, or the gift of a poem which guarantees the imperishable memory of a loved one. The numerous Greek verbs of remembering also derive from the root *mne, each with its own semantic nuance: *mimnesko* is remembrance shared and prompting memories in others, while its middle form *mimneskomai* indicates primarily personal remembrance.

A subtle distinction in the process of memory is suggested by the Platonic myth of Theuth about the birth of writing. In the *Phaedrus*, writing is presented as "medicine for memory (*mneme*)"[20]. *Mneme* is thus for Plato personal memory, prompted by listening and patiently built up over time and writing would guarantee the care of an elaborate memory, which corresponds to a profound experience, to vital knowledge.

20. Phaedrus, 274e-275a; Plato (370 a.C.), Phaedrus.

In line with this, we wanted our brand name to evoke a concept of memory: hence *mnemeion*.
Mnemeion (from Greek τό μνημεῖον), belongs to the neuter grammatical gender and literally means “memory”. In fact, since in the Greek language the neuter is typical of nouns referring to inanimate objects, the term has a double meaning: on one hand it refers to the recollections that are present in our memory and to the remembrance of moments that have taken place during our lives, while on the other hand it refers to the monument, an object whose ultimate purpose is to make people remember someone or some event.

Therefore, we wanted to give our project a name that captured the essence of our product: a sculptural value that embodies the need to preserve and protect our thoughts, ideas and memories.

Vision

Embracing the beauty of the physical and analog world through basic human activities.

Mission

Provide human beings different components to build their own Memory Machine where to safely store their personal and most intimate thoughts and memories.

→ Brand statement

For *human beings* who need *handwriting* to achieve a renewed relationship with their inner humanity, *mnemeion* is the solution that uses the activity of writing as a mean of securing people’s thoughts by providing them the components to build their own manually interactive *Memory Machine* that allows them to reconnect with their *mind* and *intimacy*.

IDENTITY

Logo

For the design of the logo we wanted to take up the concept of handwriting. Therefore, it was decided to focus on the design of a logotype instead of a logomark, avoiding any type of pictograms. The font used is unconventional and refers to the inaccuracies of handwriting.
In addition it was decided to keep it dynamic: next to the black and white versions the logo can also use as background the textures adopted as main visual of the brand (mainly for digital use). Moreover, for printed materials can be marked by the use of a stamp.

→ Logotype variations

mnemeion

mnemeion

mnemeion
6,5cm

mnemeion
4,5cm

mnemeion
2cm

→ Logotype dimensions

X
mnemeion

→ Tolerance area

Colours

The colors chosen refer to the world of paper and writing. This is reflected not only in the shades chosen but also in the names.

black
hex #000000
rgb 0 0 0
cmyk 75 68 67 90

ink blue
hex #2F3678
rgb 47 54 120
cmyk 8 95 18 6

indigo
hex #5769AF
rgb 87 105 175
cmyk 74 63 0 0

paper white
hex #F9FBFF
rgb 249 251 255
cmyk 2 0 0 0

Typography

As a display font for titles and for the logotype it has been chosen the serif font *Avara* from *Velvetyne*[21]. The marked and squared edges of its letters remind the inaccuracies and the roughness of an handwritten stroke. Moreover, its *Bold Italic* version recall a calligraphy font thanks to ligatures between most of the glyphs.

To create balance and contrast with the *Avara*, we choosen the *Neue Montreal* from *Pangram Pangram*[22], as a clean and very readable grotesk font. With its *Regular* and *Medium* variations, it has been used for the main texts.

→ Display and title font

Avara Bold

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
(.,:;?!£$&@*) 01234567890

Avara Bold Italic

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
(.,:;?!£$&@) 01234567890*

→ Texts font

Neue Montreal Regular

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
(.,:;?!£$&@*) 01234567890

Neue Montreal Medium

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz
(.,:;?!£$&@*) 01234567890

21. velvetyne.fr/fonts/avara
22. pangrampangram.com/products/neue-montreal

Anthotype

As our project revolves around themes related to the world of analogue, we wanted to take this concept up again for the development of the visual identity. In particular, we referred to a process taken from the world of photography, the anthotype. This is specifically a photographic process that exploits the photosensitivity of certain plants.
In our case, we created an emulsion based on alcohol and turmeric; the alcohol enables the turmeric pigment - curcumin - to be isolated from the solid component.

Once the pigment has been filtered out, the resulting solution is distributed on a photographic sheet. At this point, some objects are placed on the sheet to create the desired texture. Once exposed to the sun light, the UV rays react chemically with the solution, fading the color, while the parts of the sheet covered by objects, and therefore not directly exposed to the light, will remain the yellow color given by the curcumin. After a few days, the resulting sheet is immersed in a solution of water and bicarbonate, which chemically changes its color from yellow to red. The process ends with the drying of the sheet.

This process has allowed us to obtain abstract images, which are therefore unclear for choice, in order to create a veil of mystery and arouse intrigue. In addition, it was decided to vary the color of the sheets by means of a digital process, from red to blue. The color blue, as also expressed in the previous paragraphs, recalls the world of writing, recalling the color of ink.
The combination of the two factors, texture and blue coloring, is intended to evoke, albeit in a composed manner, the idea of ink stains falling on paper.

→ Anthotype process - the turmeric based photosensitive solution is distributed on a paper sheet.

5. Annex

DUILIO FORTE'S ATELIER VISIT

The meeting with the Swedish-Italian architect Duilio Forte was an important step in our project. Indeed, before the final development of our concept, we went to the Forte atelier, located in an urban area of Milan. Surrounded by eight-legged horses and doors with twisted locks, we found ourselves immersed in a fantasy world. Visiting Duilio's workshop and being able to see all his projects was very stimulating and professionally enriching for us. We also had the opportunity to present and discuss to him the ideas behind our project, and it was precisely this dialogue that gave shape to our ideas. We set up a small workshop session with him in which we took some boxes from his laboratory and putting them together and making them look the way we pleased. The meeting this artist and his experience was the starting point for our prototyping process.

→ Sauna ArkiZoic - one of Duilio's works realized during the Salone del Mobile di Milano in 2008

→ One of the Duilio's atelier rooms

→ Outcome of a quick prototyping session with Duilio

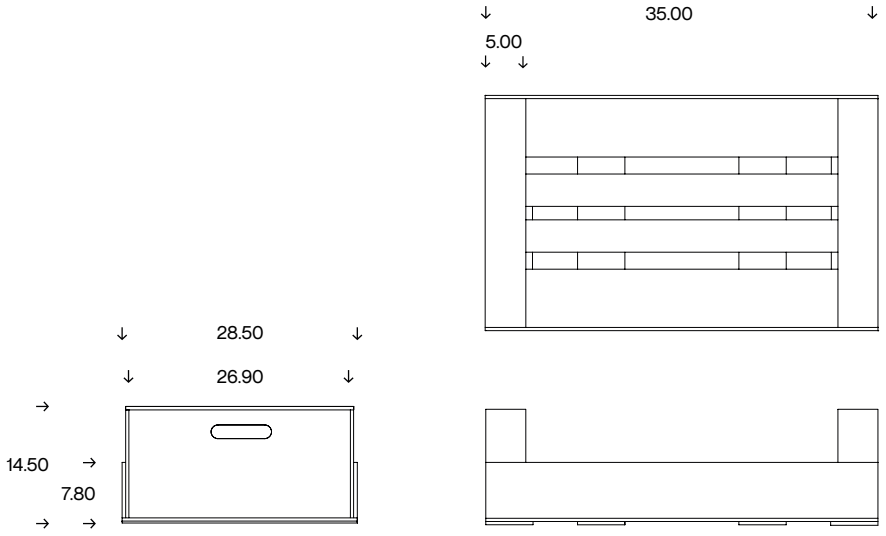
COMPONENT LIST

number	lenght (cm)	height (cm)	depth (cm)	ready made	to sand	material	opening mechanism
1	10.5	35.0	10.0	Y	Y	plywood	hinge opening
2	20.5	35.0	10.0	Y	Y	plywood	hinge opening
3	10.5	32.0	10.3	Y	Y	plywood	hinge opening
4	14.1	38.3	13.5	Y	Y	plywood	nail closure
5	14.5	43.3	15.0	Y	Y	plywood	hinge opening
6	20.5	35.0	10.0	Y	Y	plywood	hinge opening
7	27.0	19.0	36.0	Y	Y	plywood	slide opening
8	30.0	35.0	10.5	Y	Y	plywood	hinge opening
9	7.6	8.5	8.1	Y	Y	plywood	slide opening
10	18.0	31.5	12.2	Y	N	bamboo	hinge opening
11	25.0	31.5	12.2	Y	N	wood	hinge opening
12	21.0	37.0	9.5	N	N	chipboard	always open
13	21.0	37.0	9.5	N	N	chipboard	always open
14	26.5	44.6	12.2	N	N	chipboard	always open
15	9.5	30.1	10.5	N	N	chipboard	always open
16	9.5	30.1	10.5	N	N	chipboard	always open
17	20.0	50.0	20.0	N	N	chipboard	always open
18	25.5	40.0	14.6	N	N	chipboard	always open
19	26.5	44.6	12.2	N	N	chipboard	always open
20	18.3	33.3	9.0	Y	Y	plywood	hinge opening
21	51.0	31.3	9.0	Y	Y	plywood	hinge opening
22	20.5	35.0	10.0	Y	Y	plywood	hinge opening
23	10.7	34.7	10.0	Y	Y	plywood	hinge opening
24	27.0	18.0	35.5	Y	Y	plywood	nail closure
25	25.0	10.9	17.0	Y	Y	plywood	always open
26	12.0	8.9	7.8	Y	Y	wood	hinge opening
27	21.8	9.0	11.0	Y	Y	plywood	hinge opening
28	39.5	12.0	28.0	Y	Y	plywood	always open
29	49.0	14.0	29.0	Y	Y	plywood	always open
30	49.0	10.0	29.5	Y	Y	plywood	always open
31	49.5	18.0	29.5	Y	Y	plywood	always open
32	49.0	19.0	29.5	Y	Y	plywood	always open

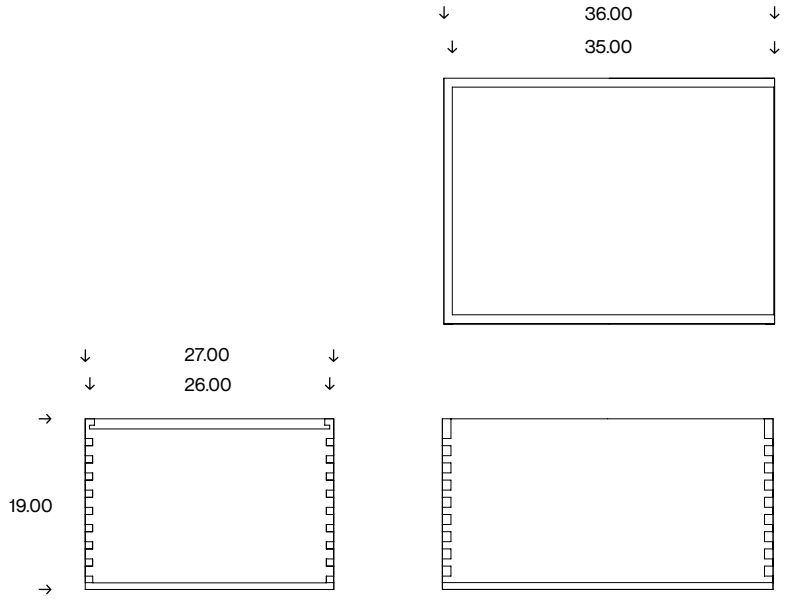
number	lenght (cm)	height (cm)	depth (cm)	ready made	to sand	material	opening mechanism
33	20.0	8.0	20.0	Y	Y	plywood	hinge opening
34	17.0	6.5	17.0	Y	N	wood	hinge opening
35	13.8	5.2	13.8	Y	N	wood	hinge opening
36	20.0	5.0	10.0	Y	N	wood	drawers
37	20.0	5.0	10.0	Y	N	wood	drawers
38	35.0	25.0	7.0	N	N	wood	always open
39	25.0	15.0	4.0	N	N	plywood	always open
40	11.5	27.4	11.5	Y	N	plywood	interlocking lid
41	29.2	-	15.5	Y	Y	plywood	always open
42	39.0	28.5	13.5	Y	Y	plywood	always open
43	50.0	28.5	4.0	Y	N	plywood	always open
44	49.0	28.5	14.0	Y	N	plywood	always open
45	49.0	28.5	15.0	Y	N	plywood	always open
46	49.0	28.5	14.0	Y	N	plywood	always open
47	49.0	28.5	10	Y	N	plywood	always open
48	49.0	28.5	19	Y	N	plywood	always open

TECHNICAL DRAWINGS

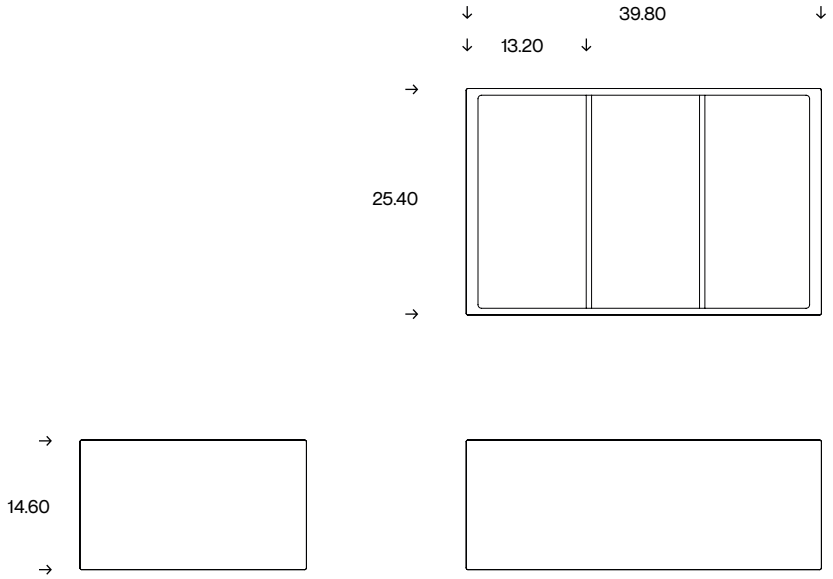
Fruit box



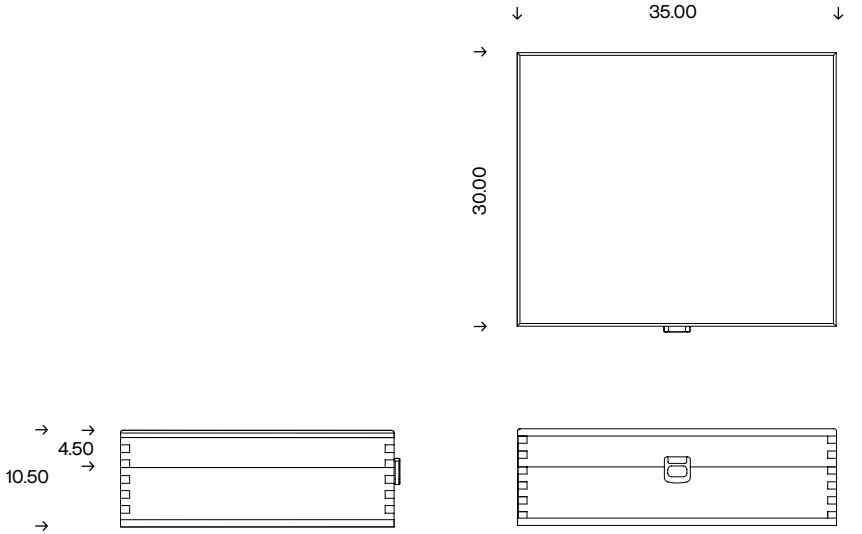
Slider box



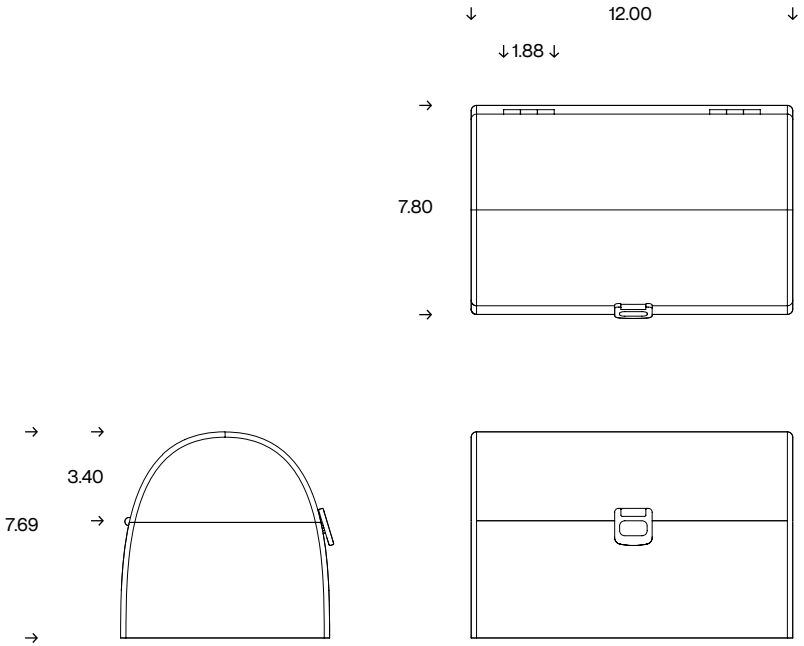
Chipboard box



Hinged box



Treasure box



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