



European Institute of  
Innovation & Technology



Boosting Digital Innovation and  
Transformation Capacity of HEIs in  
an Entrepreneurial ecosystem

# Design thinking

Dr Milena Rajić

Assistant Professor

University of Niš Faculty of Mechanical Engineering



Funded by the  
European Union



# Content

- Introduction
- Historical Background
- Principles and Key Stages of Design Thinking
- Application of Design Thinking
- Empirical Evidence and Case Studies
- Future Directions and Emerging Trends
- Conclusion





European Institute of  
Innovation & Technology

# INTRODUCTION

# 01



Funded by the  
European Union

# Introduction

## Definition and Overview of Design Thinking

- Design thinking is an innovative problem-solving approach that originated in the field of design but has now transcended disciplinary boundaries.
- It is a human-centered methodology that emphasizes empathy, collaboration, and experimentation to address complex challenges and generate creative solutions.
- Design thinking focuses on understanding user needs and perspectives, encouraging a holistic and user-centric approach to problem-solving.
- At its core, design thinking is a mindset that embraces curiosity, open-mindedness, and a willingness to challenge assumptions. It encourages individuals to think divergently, explore multiple perspectives, and cultivate a bias towards action.
- Rather than relying solely on analytical and linear thinking, design thinking integrates *creativity*, *intuition*, and practicality to arrive at *innovative solutions*.



# Introduction

## Definition and Overview of Design Thinking

- Design thinking follows a structured process that consists of several key stages.
- Although the exact stages may vary slightly depending on the source or context, a common framework includes
  - empathize,
  - define,
  - ideate,
  - prototype, and
  - test.
- These stages are not necessarily sequential and often involve iteration and revisiting previous steps as new insights emerge.



# How Air Jordan helped Nike fly high

- Before the Air Jordan line was introduced, Nike had a modest 18% share of the basketball shoe market.
- However, the Air Jordan brand quickly became popular among athletes and sneaker enthusiasts alike, and Nike's market share soared to 43% by 1987.



# Innovative Design

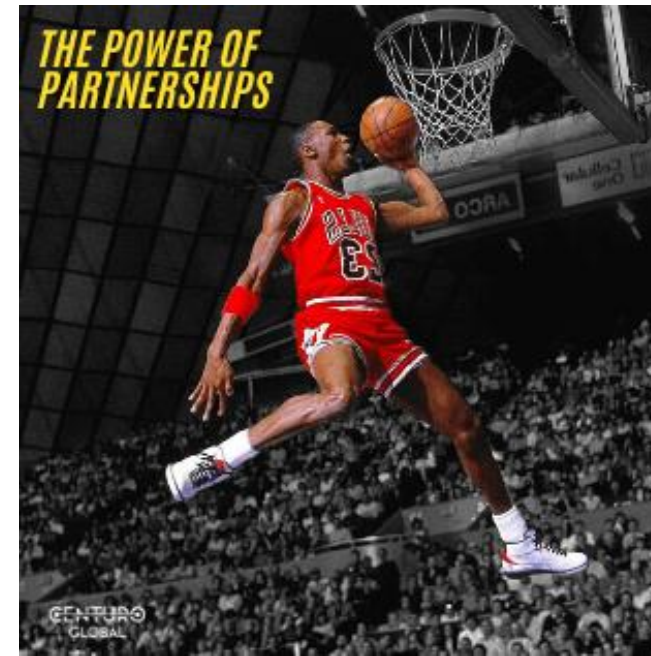
To create a shoe around the athlete.

To create a completely new business model.



## Strong partnership

- It was predicted \$3 million of sales of the Air Jordan in the first 4 years of the deal.
- Nike actually sold \$126 million in the first year alone.
- Michael Jordan went on to become arguably the greatest basketball player of all time, and off the field, he has also made \$1.3 billion to date from his deal with Nike, alone.





# DESIGN TODAY?

# Design became a tool of consumerism!



**DESIGN**

**DESIGN  
THINKING**



# Introduction

## Significance and Relevance of Design Thinking in Various Fields

- Design thinking has gained significant recognition and relevance across diverse fields due to its ability to foster innovation, address complex challenges, and create meaningful experiences.
- Its human-centered approach, emphasis on collaboration, and iterative problem-solving methodology make it applicable and impactful in various domains.
- The following sections highlight the significance and relevance of design thinking in key fields.



# Introduction

## Significance and Relevance of Design Thinking in Various Fields

### Business and Entrepreneurship:

- Design thinking has transformed the way businesses approach innovation and customer-centricity.
- By integrating design thinking into their processes, organizations can gain a deep understanding of customer needs, develop products and services that resonate with users, and create exceptional user experiences.
- Design thinking helps businesses uncover new opportunities, drive competitive advantage, and increase customer satisfaction.
- Notable companies like Apple, IDEO, and Airbnb have successfully utilized design thinking principles to revolutionize their industries.

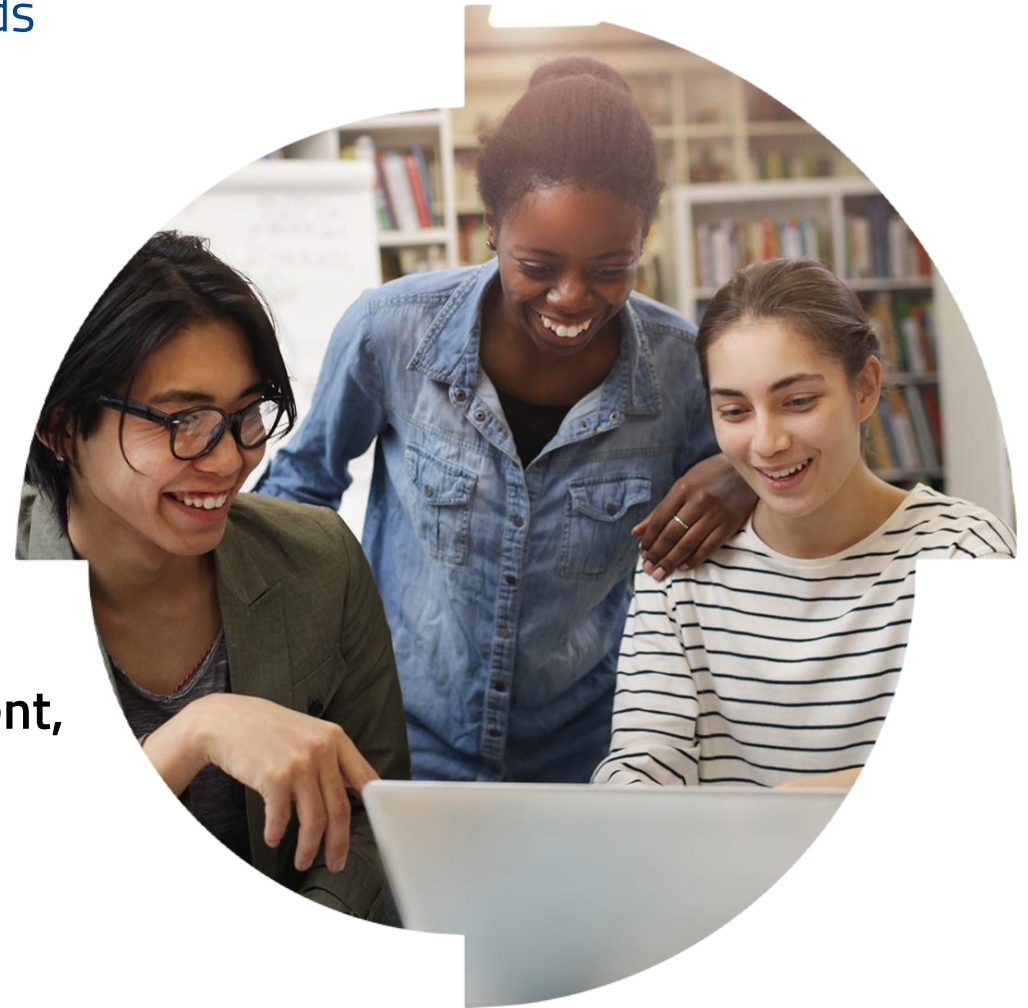


# Introduction

## Significance and Relevance of Design Thinking in Various Fields

### Education and Learning:

- Design thinking has proven to be a valuable tool in education, empowering students to become creative problem solvers.
- By incorporating design thinking principles into the curriculum, educators can foster critical thinking, collaboration, and empathy among students.
- Design thinking encourages students to approach challenges with an open mind, explore multiple perspectives, and iterate on their ideas.
- It promotes an active and experiential learning environment, nurturing essential skills such as creativity, empathy, and resilience.



# Introduction

## Significance and Relevance of Design Thinking in Various Fields

### Healthcare and Service Delivery:

- In the healthcare sector, design thinking offers a fresh approach to improving patient experiences, transforming service delivery, and enhancing medical outcomes.
- By applying design thinking principles, healthcare professionals can gain a deeper understanding of patients' needs, preferences, and pain points.
- This knowledge enables the development of patient-centric solutions, such as user-friendly medical devices, efficient workflows, and empathetic care environments.
- Design thinking also supports the co-creation of healthcare services with patients, ensuring that their perspectives are incorporated into the design process.



# Introduction

## Significance and Relevance of Design Thinking in Various Fields

### Social Innovation and Public Policy:

- Design thinking has been instrumental in driving social innovation and addressing complex societal challenges.
- By engaging stakeholders, including marginalized communities, in the design process, design thinking helps identify and address underlying social issues effectively.
- It enables the creation of inclusive solutions that improve the lives of individuals and communities.
- Governments and public policy organizations have increasingly embraced design thinking as a means to develop citizen-centric policies and services, fostering participatory governance and social transformation.





# Introduction

## Significance and Relevance of Design Thinking in Various Fields

### Technology and User Experience (UX) Design:

- Design thinking plays a vital role in technology development, particularly in the field of user experience (UX) design.
- By employing design thinking principles, UX designers can deeply understand user needs, preferences, and pain points.
- This understanding informs the creation of intuitive interfaces, seamless interactions, and delightful experiences.
- Design thinking helps bridge the gap between technological capabilities and user expectations, ensuring that technology is designed with the end-users in mind.





European Institute of  
Innovation & Technology

# HISTORICAL BACKGROUND

# 02



Funded by the  
European Union



# Historical Background

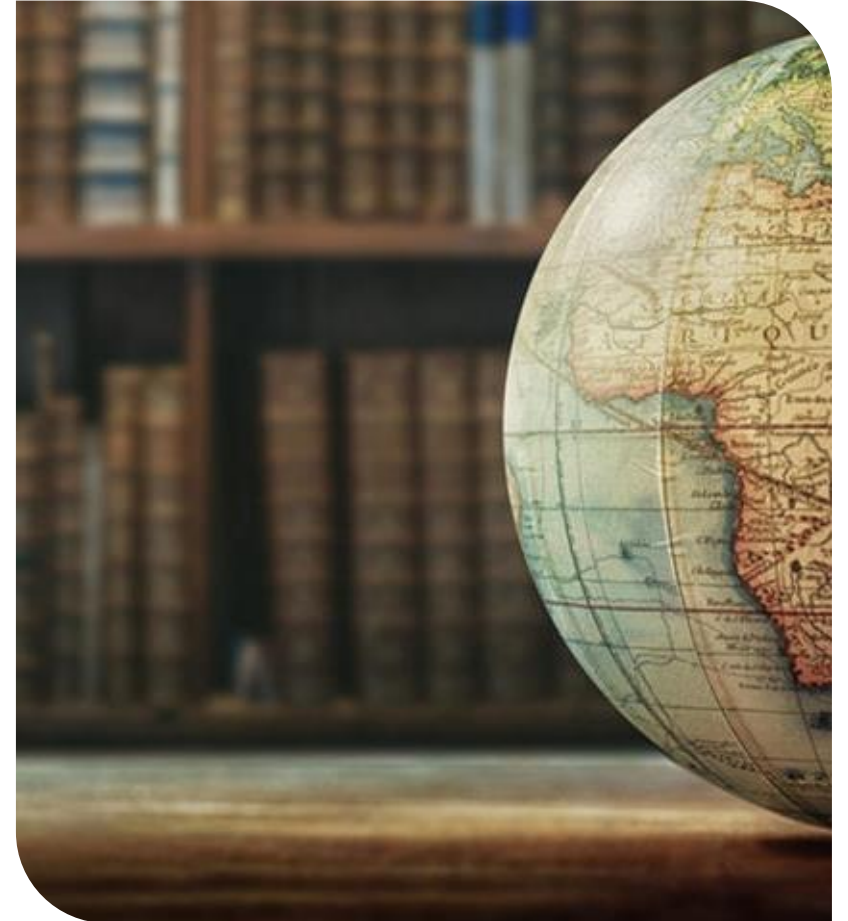
- The historical roots of design thinking can be traced back to the early 20th century, with the emergence of the design discipline and its influence on problem-solving and innovation.
- However, it was in the latter part of the 20th century that design thinking as a formalized approach began to take shape.
- The following sections provide an overview of the historical background and key milestones in the development of design thinking.



# Historical Background

## 1. Early Influences:

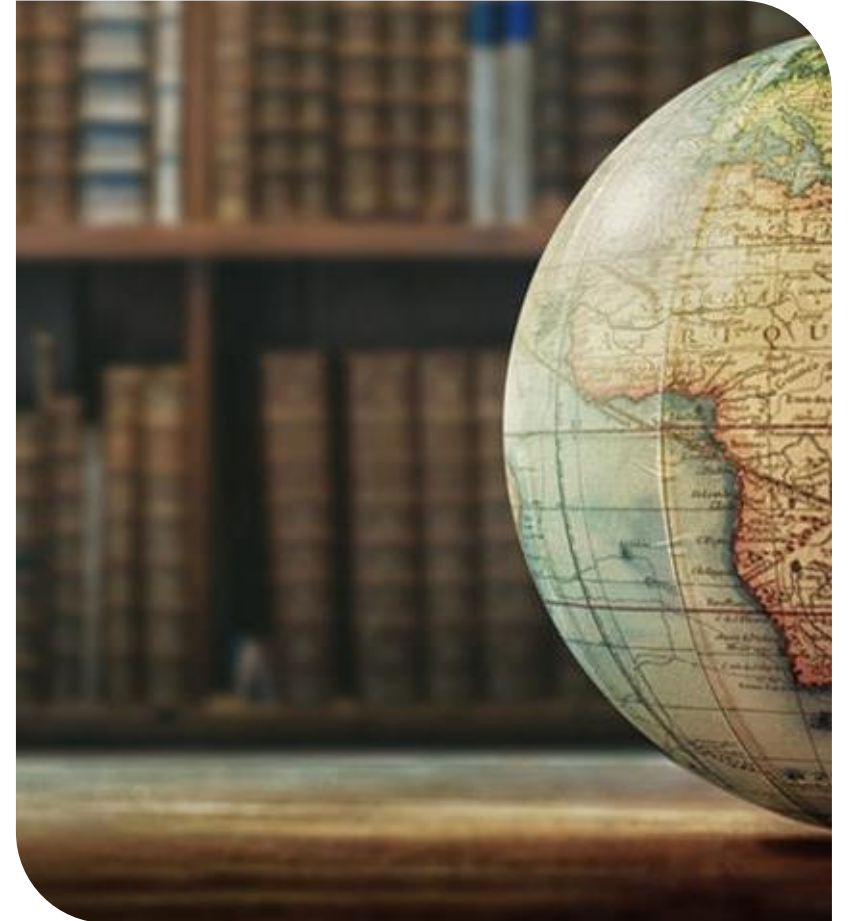
- Design thinking draws inspiration from various disciplines and movements that contributed to its foundation.
- The field of design itself, encompassing industrial design, architecture, and graphic design, played a vital role in shaping design thinking.
- The Bauhaus movement, founded by Walter Gropius in Germany in 1919, emphasized the integration of art, craft, and technology, fostering a holistic approach to design.
- The philosophy of the Bauhaus movement laid the groundwork for the interdisciplinary nature of design thinking.



# Historical Background

## 2. The Design Methods Movement:

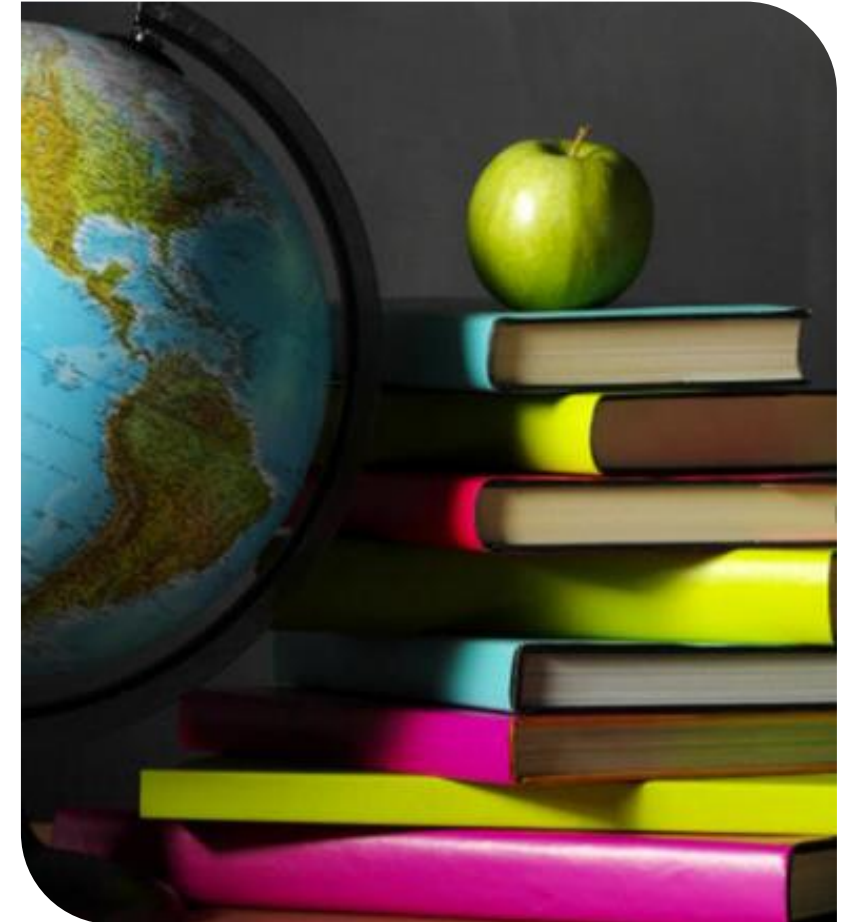
- In the mid-20th century, the design methods movement emerged as a response to the need for systematic approaches to problem-solving in design.
- Pioneers like Christopher Alexander, Horst Rittel, and Herbert Simon explored methodologies and frameworks to support design processes.
- Notably, Horst Rittel introduced the concept of "wicked problems" in the 1960s, highlighting the unique challenges posed by complex, ill-defined problems that require creative solutions.



# Historical Background

## 3. Stanford University and IDEO:

- Stanford University's d.school (Hasso Plattner Institute of Design), founded in 2005, played a crucial role in popularizing design thinking.
- The d.school integrated design thinking principles into its curriculum, offering courses and workshops that emphasized empathy, collaboration, and prototyping.
- David Kelley, a professor at Stanford and founder of the renowned design firm IDEO, became a prominent advocate for design thinking and its application in various domains.
- IDEO, known for its human-centered design approach, became an influential proponent of design thinking through its innovative projects and thought leadership.



# Historical Background

## 4. Tim Brown and IDEO's Influence:

- Tim Brown, the CEO of IDEO, played a significant role in advancing the practice of design thinking and popularizing it globally.
- In his book "Change by Design" (2009), Brown articulated the principles and processes of design thinking, emphasizing its potential to drive innovation and tackle complex challenges.
- IDEO's design thinking methodologies and success stories, such as the design of the first computer mouse for Apple, further solidified design thinking as a powerful problem-solving approach.

“ Design Thinking is a human centred approach to innovation that draws from the designer’s toolkit to integrate the **needs of people**, the **possibilities of technology**, and the **requirements for business success**. ”

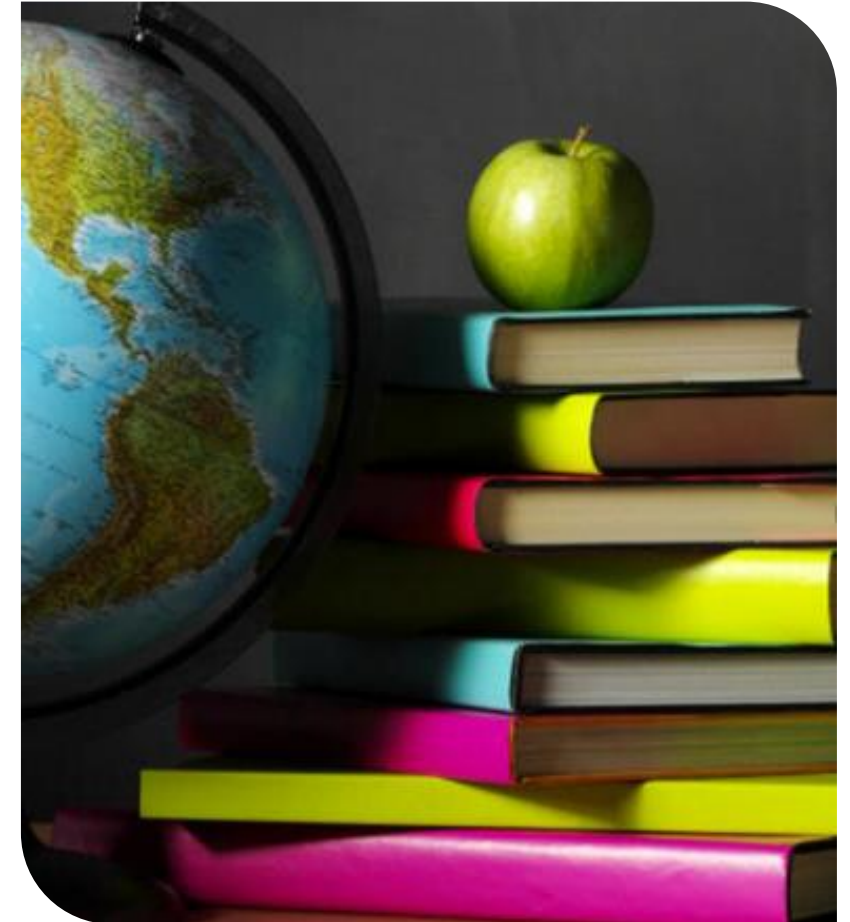


**Tim Brown**

# Historical Background

## 5. Expansion and Adaptation:

- Design thinking's popularity expanded beyond the realm of design, finding relevance in diverse fields such as business, education, healthcare, and social innovation.
- Its adaptability and effectiveness in addressing complex problems and fostering innovation led to its adoption by organizations and institutions worldwide.
- Today, design thinking has become a prominent approach to problem-solving, influencing both academic research and practical applications.







European Institute of  
Innovation & Technology

# PRINCIPLES AND KEY STAGES OF DESIGN THINKING

# 03



Funded by the  
European Union

# Principles and Key Stages of Design Thinking

- Design thinking is not just a process or a set of tools; it is a mindset and a set of guiding principles that shape the approach to problem-solving and innovation.
- Design thinking encourages individuals and teams to embrace a specific mindset characterized by empathy, curiosity, collaboration, and a bias towards action.
- The following are key principles and characteristics that define the mindset of design thinking:



# Principles and Key Stages of Design Thinking

## 1. Human-Centered Approach:

- Design thinking places the needs and experiences of people at the core of the problem-solving process.
- It emphasizes understanding the perspectives, aspirations, and challenges of the end-users or stakeholders.
- Design thinkers develop deep empathy for the users, seeking to understand their needs, motivations, and emotions.
- This human-centered approach ensures that solutions are relevant, meaningful, and resonate with the intended audience.



# Principles and Key Stages of Design Thinking

## 2. Embrace Ambiguity and Complexity:

- Design thinkers thrive in situations characterized by ambiguity, complexity, and uncertainty.
- Rather than seeking to simplify or avoid complex problems, they embrace the inherent challenges and use them as opportunities for creativity and innovation.
- Design thinking encourages reframing problems, exploring multiple perspectives, and uncovering hidden insights that can lead to breakthrough solutions.



# Principles and Key Stages of Design Thinking

## 3. Iterative and Experimental Mindset:

- Design thinking acknowledges that the path to a successful solution is rarely linear.
- It embraces an iterative and experimental approach, understanding that multiple iterations and prototypes are necessary to refine ideas and uncover insights.
- Design thinkers are comfortable with failure as a learning opportunity, using feedback and testing to refine and improve their solutions.
- This iterative mindset allows for constant learning, adaptation, and improvement throughout the design process.



# Principles and Key Stages of Design Thinking

## 4. Collaborative and Multidisciplinary Teams:

- Design thinking emphasizes the power of collaboration and diversity of perspectives.
- It encourages multidisciplinary teams composed of individuals with different backgrounds, expertise, and viewpoints.
- By bringing together diverse perspectives, design thinkers can leverage the collective wisdom and creativity of the team to generate innovative ideas and solutions.
- Collaboration fosters empathy, cross-pollination of ideas, and a shared ownership of the problem-solving process.



# Principles and Key Stages of Design Thinking

## 5. Creative Problem-Solving:

- Design thinking embraces creative and imaginative thinking as a means to solve problems.
- Design thinkers employ a range of creative techniques such as brainstorming, visualization, mind mapping, and analogical thinking to generate a wide variety of ideas.
- They explore multiple solutions and challenge assumptions, seeking to uncover novel and unexpected approaches.
- Design thinking encourages a "what if" mindset that explores possibilities beyond conventional thinking.



# Principles and Key Stages of Design Thinking

## 6. Bias Towards Action:

- Design thinking emphasizes the importance of taking action and prototyping ideas early in the design process.
- Design thinkers believe in learning by doing and understand that tangible prototypes and experiments can provide valuable insights and feedback.
- Rather than getting stuck in analysis paralysis, design thinkers take calculated risks, embracing a bias towards action and learning through rapid experimentation.





# Principles and Key Stages of Design Thinking

## 7. Embrace Continuous Learning:

- Design thinking promotes a culture of continuous learning and improvement.
- Design thinkers value feedback, both from users and other team members, and use it as a basis for iteration and refinement.
- They are open to new ideas, insights, and perspectives, actively seeking to expand their knowledge and skill set.
- Design thinkers embrace a growth mindset, recognizing that every challenge presents an opportunity to learn and improve.



# Integrative Thinking

**DESIRABILITY**

**VIABILITY**



**FEASIBILITY**



# STARTS WITH HUMANS



**What human needs?**

**What makes life easier?  
More enjoyable?**


**What makes  
technology useful?**





# BUT THAT IS MORE THAN GOOD ERGONOMICS

# LEARNING BY MAKING



**INSTEAD OF THINKING  
WHAT TO BUILD**





**BUILDING TO THINK**

# PROTOTYPES SPEED UP THE PROCESS

Impact of prototyping on the speed of innovation:

1. Time-to-Market
2. Iteration Speed
3. Decision-Making Time
4. Stakeholder Engagement
5. Resource Utilization



# FROM CONSUMPTION TO PARTICIPATION



**CONSUMPTION**



**PARTICIPATION**

**PARTICIPATORY SYSTEMS** refer to frameworks, processes, or platforms that enable and encourage active participation, collaboration, and engagement of individuals or groups in decision-making, problem-solving, or governance processes.

These systems aim to include diverse perspectives, foster democratic principles, and enhance collective decision-making.



# Overview and Explanation of Each Stage in Design Thinking

Design thinking follows a structured process consisting of several key stages: **Empathize, Define, Ideate, Prototype, and Test.**

While the exact sequence and emphasis may vary, these stages provide a framework for approaching complex problems and fostering innovative solutions.

The following is an overview and explanation of each stage:

## 1. Empathize:

The empathize stage is all about gaining a deep understanding of the users, their needs, and their experiences. Design thinkers engage in activities such as observation, interviews, and immersive research to empathize with the users and develop empathy towards their perspectives. The goal is to uncover insights, motivations, pain points, and latent needs. By empathizing with users, designers can gain a holistic understanding of the problem space and lay the foundation for user-centered solutions.

# Overview and Explanation of Each Stage in Design Thinking

## 2. Define:

In the define stage, designers synthesize the information gathered during the empathize stage to define the core problem or opportunity. They analyze and make sense of the research findings, identify patterns, and distill key insights. This stage involves reframing the problem statement in a human-centered manner, considering the needs and aspirations of the users. Design thinkers create personas, develop problem statements, and map user journeys to define the problem space clearly. The goal is to gain a shared understanding of the problem and align the team's efforts towards addressing it effectively.

## 3. Ideate:

During the ideate stage, designers generate a wide range of ideas without judgment or constraints. This stage is characterized by divergent thinking, where the goal is to explore as many possibilities as possible. Design thinkers employ brainstorming sessions, mind mapping, sketching, and other creative techniques to encourage a free flow of ideas. They leverage the insights gained from the empathize and define stages to generate innovative and novel solutions. The ideate stage encourages wild ideas, encourages looking beyond conventional thinking, and explores alternative approaches to solving the problem.

# Overview and Explanation of Each Stage in Design Thinking

## 4. Prototype:

The prototype stage involves transforming selected ideas from the ideate stage into tangible representations. Prototypes can take various forms, ranging from low-fidelity sketches and storyboards to physical models or interactive digital prototypes. The goal is to create a minimum viable representation of the proposed solution that can be shared and tested with others. Prototyping allows designers to visualize, communicate, and gather feedback on their ideas. It helps bridge the gap between abstract concepts and tangible experiences, enabling stakeholders to better understand and engage with the potential solution.

## 5. Test:

In the test stage, designers put the prototypes and ideas in front of users to gather feedback and insights. They observe user interactions, conduct usability tests, and collect data to validate assumptions, refine the design, and inform subsequent iterations. The goal is to assess the viability and desirability of the solution, identify areas for improvement, and ensure that it meets the needs of the users effectively. Testing provides valuable feedback that guides design refinements and iterates towards a more user-centered solution. It helps designers make informed decisions based on real-world insights.

# Overview and Explanation of Each Stage in Design Thinking

- It is important to note that design thinking is not necessarily a linear process, and the stages are not always sequential.
- Design thinkers often cycle back and forth between stages, iterating and refining their understanding, ideas, and prototypes as new insights emerge.
- This iterative nature allows for flexibility, adaptation, and continuous improvement throughout the design process.
- By following this structured process, design thinkers can foster creativity, collaboration, and innovation.
- Each stage contributes to the overall goal of understanding user needs, defining the problem space, generating ideas, prototyping solutions, and validating them through testing. Together, these stages form a comprehensive approach to problem-solving and innovation, ensuring that solutions are user-centered, viable, and impactful.



# Importance of Iteration and Feedback in Design Thinking

- Iteration and feedback play a crucial role in the design thinking process, driving continuous improvement, learning, and the development of innovative solutions.
- Design thinking recognizes that the first solution or idea may not be the best or most effective, and that refinement through iteration and feedback is essential.
- The following are key reasons why iteration and feedback are of utmost importance in design thinking:

## 1. Refining and Improving Solutions:

Iteration allows designers to refine and improve their solutions based on feedback from users, stakeholders, and testing. By incorporating feedback, designers can identify areas for improvement, address shortcomings, and enhance the usability and desirability of their solutions. Iteration helps bridge the gap between initial ideas and the final solution, ensuring that it evolves into a more refined and effective outcome.

# Importance of Iteration and Feedback in Design Thinking

## 2. Validating Assumptions:

Through iteration and feedback, design thinkers can test and validate their assumptions. By observing how users interact with prototypes and gathering feedback, designers can gain insights into whether their assumptions about user needs, preferences, and behaviors hold true. This process enables designers to challenge and refine their initial assumptions, ensuring that the solution is grounded in real-world insights and aligns with user expectations.

## 3. Learning and Exploration:

Iteration provides opportunities for designers to learn and explore alternative ideas and approaches. By continually refining and iterating on their solutions, designers can push the boundaries of creativity, challenge existing conventions, and explore new possibilities. The iterative process encourages designers to experiment, take risks, and embrace a mindset of continuous learning and growth.

# Importance of Iteration and Feedback in Design Thinking

## 4. Adaptation to Changing Requirements:

Design thinking recognizes that requirements and circumstances may evolve throughout the design process. Iteration allows designers to adapt and respond to changing needs, constraints, and insights. By regularly reviewing and refining their solutions based on feedback, designers can ensure that the final outcome remains relevant and aligned with the evolving context.

## 5. Collaboration and Co-Creation:

Iteration and feedback foster collaboration and co-creation among team members, stakeholders, and users. By sharing prototypes and gathering feedback, designers can engage stakeholders in the design process and create a sense of ownership and involvement. Collaboration and co-creation help ensure that diverse perspectives are considered, leading to more inclusive and impactful solutions.

# Importance of Iteration and Feedback in Design Thinking

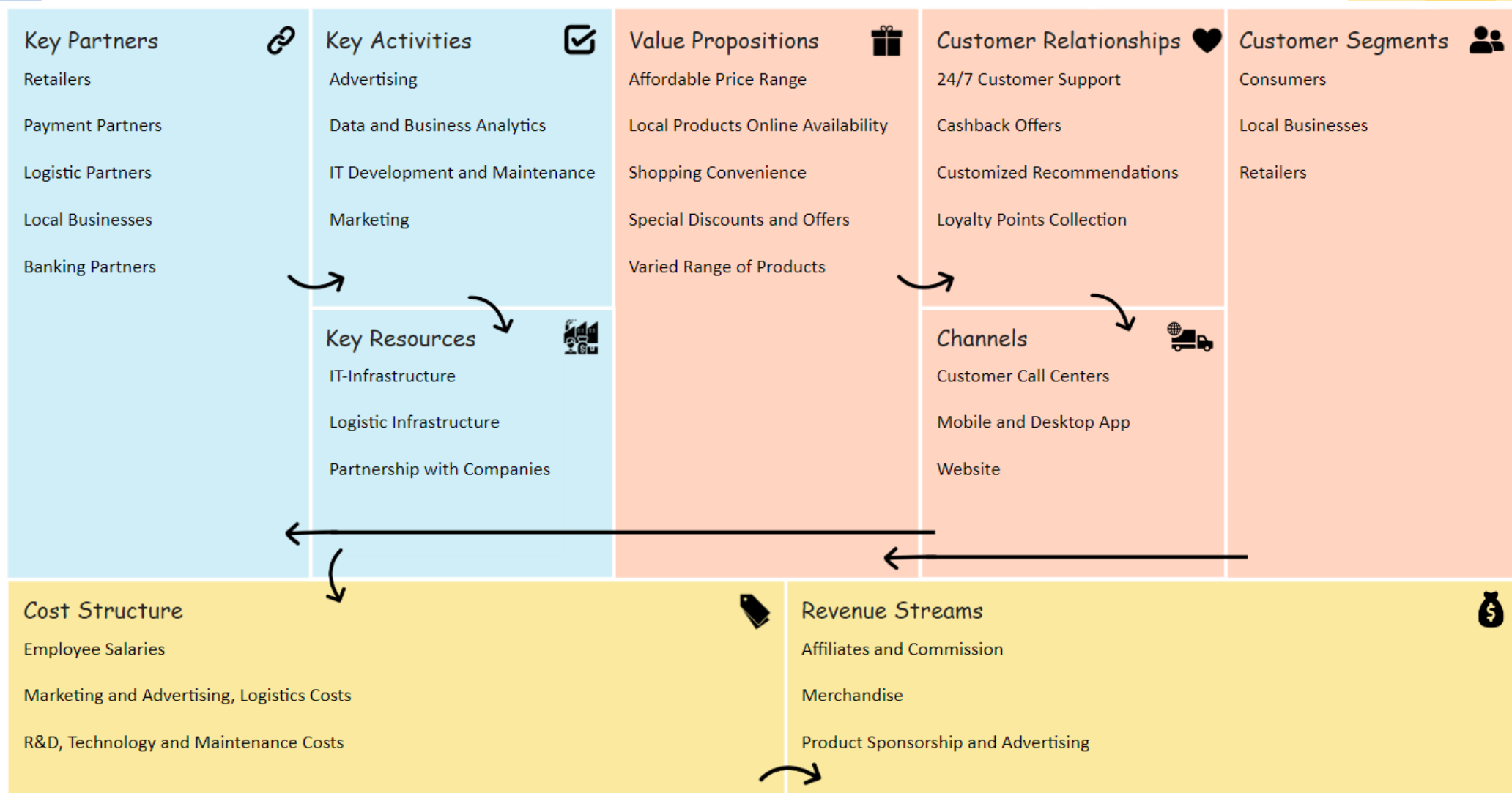
## 6. Reducing Risk:

Iteration and feedback help mitigate risks associated with design decisions. By testing and gathering feedback early in the process, designers can identify and address potential issues or concerns before investing significant resources in implementation. Iteration reduces the risk of developing solutions that do not meet user needs or fail to achieve the desired outcomes.

## 7. Continuous Improvement and Innovation:

Design thinking promotes a culture of continuous improvement and innovation. Iteration and feedback enable designers to refine, adapt, and innovate based on real-world insights and user feedback. This iterative approach allows for the development of more effective, user-centered, and innovative solutions that address the evolving needs and preferences of users.

# Design Thinking, Business Model Canvas





European Institute of  
Innovation & Technology

# APPLICATION OF DESIGN THINKING

# 04



Funded by the  
European Union

# Application of Design Thinking

## Design Thinking in Business and Entrepreneurship:

- Design thinking has gained significant traction in the business and entrepreneurial world due to its ability to drive innovation, enhance customer experiences, and solve complex problems. Here are some key applications of design thinking in business and entrepreneurship:
- 1. Customer-Centric Product and Service Design:** Design thinking emphasizes understanding and empathizing with customers' needs and preferences. By applying design thinking principles, businesses can develop products and services that are aligned with customer expectations, resulting in improved user experiences and increased customer satisfaction.
  - 2. Problem-Solving and Innovation:** Design thinking encourages a creative and iterative approach to problem-solving. It helps businesses identify unmet needs, uncover new opportunities, and generate innovative solutions. By challenging assumptions and exploring multiple perspectives, design thinking enables businesses to break through conventional thinking and drive meaningful innovation.



# Application of Design Thinking

## Design Thinking in Business and Entrepreneurship:

- Design thinking has gained significant traction in the business and entrepreneurial world due to its ability to drive innovation, enhance customer experiences, and solve complex problems. Here are some key applications of design thinking in business and entrepreneurship:
- 3. Designing User-Friendly Interfaces and Experiences:** Design thinking plays a crucial role in designing intuitive and user-friendly interfaces for digital products and services. By placing the user at the center of the design process, businesses can create interfaces that are visually appealing, easy to navigate, and provide a seamless user experience.
  - 4. Designing Business Processes:** Design thinking can be applied to redesign and optimize business processes. By analysing and understanding the pain points and inefficiencies within a process, businesses can use design thinking to identify opportunities for improvement, streamline operations, and enhance productivity.





# Application of Design Thinking

## Design Thinking in Education and Fostering Creativity:

- Design thinking has become increasingly relevant in the field of education as a means to foster creativity, critical thinking, and problem-solving skills among students. Here are some applications of design thinking in education:
- 1. Project-Based Learning:** Design thinking provides a framework for project-based learning, where students engage in hands-on, real-world problem-solving. By following the design thinking process, students learn to define problems, ideate solutions, prototype, and test their ideas, fostering creativity and innovation.
  - 2. Cultivating Empathy and Collaboration:** Design thinking encourages students to develop empathy for others and collaborate in teams. By incorporating design thinking into educational settings, students learn to appreciate diverse perspectives, communicate effectively, and work collaboratively to address complex challenges.



# Application of Design Thinking

## Design Thinking in Education and Fostering Creativity:

- Design thinking has become increasingly relevant in the field of education as a means to foster creativity, critical thinking, and problem-solving skills among students. Here are some applications of design thinking in education:
- 3. **Enhancing Learning Environments:** Design thinking principles can be applied to create dynamic and engaging learning environments. By involving students in the design of their physical and digital learning spaces, educators can promote ownership, creativity, and a sense of belonging, which can positively impact students' learning experiences.
- 4. **Developing Entrepreneurial Mindsets:** Design thinking provides a foundation for developing entrepreneurial mindsets among students. It encourages students to identify opportunities, take risks, and develop innovative solutions to problems. By integrating design thinking into entrepreneurship education, students can develop the skills and mindset necessary to navigate the complexities of the business world.



# Application of Design Thinking

## Design Thinking in Healthcare and Improving Patient Experiences:

- Design thinking has gained traction in the healthcare industry as a means to improve patient experiences, enhance care delivery, and drive innovation. Here are some applications of design thinking in healthcare:
- 1. Patient-Centered Care:** Design thinking places the patient at the center of the healthcare experience. By applying design thinking principles, healthcare providers can gain insights into patients' needs, preferences, and emotions, allowing them to design care processes and services that are more responsive, personalized, and empathetic.
  - 2. Redesigning Healthcare Spaces:** Design thinking can be used to redesign healthcare spaces, such as hospitals and clinics, to create more welcoming and comfortable environments for patients. By considering factors such as wayfinding, aesthetics, and patient flow, design thinking can enhance the overall patient experience and improve outcomes.



# Application of Design Thinking

## Design Thinking in Healthcare and Improving Patient Experiences:

- Design thinking has gained traction in the healthcare industry as a means to improve patient experiences, enhance care delivery, and drive innovation. Here are some applications of design thinking in healthcare:
- 3. Co-Creation of Solutions:** Design thinking involves engaging stakeholders, including patients, in the co-creation of healthcare solutions. By involving patients, healthcare providers, and other stakeholders in the design process, design thinking facilitates the development of solutions that address their specific needs and preferences, resulting in improved healthcare outcomes.
  - 4. Innovation in Healthcare Delivery:** Design thinking fosters a culture of innovation within healthcare organizations. It encourages healthcare professionals to identify and address challenges, explore new care models, and develop novel solutions to improve patient care and outcomes. By applying design thinking principles, healthcare organizations can drive meaningful innovation and transform the delivery of healthcare services.



# Application of Design Thinking

## Other Domains and Industries where Design Thinking is Applied:

- Design thinking has found applications across various domains and industries beyond business, education, and healthcare. Some notable areas where design thinking is applied include:
  - 1. Government and Public Policy:** Design thinking can be utilized in government and public policy to develop citizen-centric services, improve public spaces, and enhance community engagement. It enables policymakers to empathize with citizens, design inclusive policies, and involve stakeholders in decision-making processes.
  - 2. Social Innovation and Non-Profit Sector:** Design thinking is applied in social innovation and non-profit sectors to address complex social and environmental challenges. By understanding the needs and aspirations of communities, design thinking helps develop sustainable solutions that have a positive impact on society.



# Application of Design Thinking

## Other Domains and Industries where Design Thinking is Applied:

- Design thinking has found applications across various domains and industries beyond business, education, and healthcare. Some notable areas where design thinking is applied include:
  - 3. Urban Planning and Architecture:** Design thinking principles are used in urban planning and architecture to create livable cities and design buildings that meet the needs of residents. By involving stakeholders, including community members, in the design process, design thinking helps create urban spaces that are inclusive, sustainable, and responsive to the needs of the people.
  - 4. Product Design and Industrial Manufacturing:** Design thinking is widely used in product design and industrial manufacturing to create user-centered and innovative products. By understanding user needs, preferences, and behaviors, design thinking helps develop products that are intuitive, aesthetically pleasing, and provide an exceptional user experience.





European Institute of  
Innovation & Technology

# EMPIRICAL EVIDENCE AND CASE STUDIES

# 05



Funded by the  
European Union

# Empirical Evidence and Case Studies

## Case Studies and Examples Showcasing Successful Implementation of Design Thinking:

- Several organizations have successfully implemented design thinking methodologies to drive innovation and achieve meaningful outcomes. Here are a few notable case studies and examples:
- 1. IDEO and the Apple Mouse:** IDEO, a renowned design consultancy, collaborated with Apple to design the first Apple mouse. Through an iterative design process, IDEO developed a user-friendly and visually appealing mouse, revolutionizing the computer industry and setting the stage for Apple's design-centric approach.
  - 2. Airbnb:** Airbnb utilized design thinking to transform the travel and hospitality industry. By empathizing with travellers and homeowners, Airbnb created a platform that offers unique and personalized accommodation experiences. The company's focus on user-centered design and continuous iteration contributed to its rapid growth and market disruption.





# Empirical Evidence and Case Studies

## Case Studies and Examples Showcasing Successful Implementation of Design Thinking:

- Several organizations have successfully implemented design thinking methodologies to drive innovation and achieve meaningful outcomes. Here are a few notable case studies and examples:
- 3. Procter & Gamble:** Procter & Gamble (P&G) adopted design thinking principles to drive innovation in its product development process. P&G's "Connect + Develop" initiative encouraged collaboration with external partners and consumers to co-create new products. This approach led to the development of successful products like Swiffer and Febreze.



# Empirical Evidence and Case Studies

## Impact and Outcomes Achieved through Design Thinking Initiatives:

- Design thinking initiatives have demonstrated various positive outcomes and impacts across different sectors. Here are some common impacts achieved through design thinking:
  - 1. Enhanced User Experiences:** Design thinking puts the user at the center, resulting in improved user experiences and satisfaction. By empathizing with users, organizations can design products, services, and processes that better meet their needs, ultimately leading to increased customer loyalty and advocacy.
  - 2. Innovation and Differentiation:** Design thinking promotes a culture of innovation and helps organizations differentiate themselves in the market. By focusing on user insights, organizations can develop unique and innovative solutions that stand out from competitors, driving business growth and market success.



# Empirical Evidence and Case Studies

## Impact and Outcomes Achieved through Design Thinking Initiatives:

- Design thinking initiatives have demonstrated various positive outcomes and impacts across different sectors. Here are some common impacts achieved through design thinking:
- 3. Problem Solving and Decision Making:** Design thinking offers a structured framework for problem-solving and decision-making. By employing user research, prototyping, and iterative testing, organizations can make more informed decisions and develop solutions that effectively address complex challenges.
  - 4. Organizational Transformation:** Design thinking can drive organizational transformation by fostering a more collaborative, user-centric, and innovative culture. Organizations that adopt design thinking methodologies often experience improved teamwork, increased creativity, and a greater willingness to embrace change.





European Institute of  
Innovation & Technology

# FUTURE DIRECTIONS AND EMERGING TRENDS

# 06



Funded by the  
European Union

# Future Directions and Emerging Trends

## Advances in Technology and Their Influence on Design Thinking:

- Advances in technology are reshaping the way design thinking is applied and expanding its possibilities. Here are some ways technology is influencing design thinking:
  - 1. Digital Tools and Prototyping:** Technology has enabled the development of digital tools and software that facilitate rapid prototyping, visualization, and collaboration. Virtual reality (VR), augmented reality (AR), and 3D printing are revolutionizing the prototyping process, allowing designers to test and iterate on ideas more efficiently.
  - 2. Data-Driven Design:** Big data, analytics, and machine learning are providing designers with deeper insights into user behavior, preferences, and trends. Designers can leverage data to inform decision-making, personalize user experiences, and identify patterns and opportunities for innovation.
  - 3. Design for AI and Automation:** As artificial intelligence (AI) and automation become more prevalent, design thinking will play a crucial role in human-centered design for AI systems. Designers will need to consider ethical implications, user trust, and the integration of AI into user experiences.



# Future Directions and Emerging Trends

## Integration of Design Thinking with Other Methodologies and Frameworks:

- Design thinking is increasingly being integrated with other methodologies and frameworks to create synergies and enhance problem-solving capabilities. Here are some integration possibilities:
  - 1. Agile and Lean:** Design thinking can be combined with agile and lean methodologies to create a more iterative and responsive approach to product development and project management. The integration allows for rapid experimentation, feedback loops, and continuous improvement.
  - 2. Design Sprint:** The design sprint methodology, popularized by Google Ventures, combines design thinking with time-boxed sprints to quickly develop and test ideas. Design sprints are intensive workshops that bring together multidisciplinary teams to tackle complex challenges within a short timeframe.
  - 3. Service Design:** Service design focuses on designing end-to-end experiences across multiple touchpoints. By integrating design thinking with service design, organizations can create holistic and seamless experiences that consider both digital and physical interactions.





# WHY DO WE NEED DESIGN THINKING?

---



# CHANGE

---







# CHANGE

---

**new alternatives, new ideas**





**How we keep ourselves healthy?  
How we educate ourselves?  
How we keep ourselves secure?**

---

Our existing solutions are simply becoming

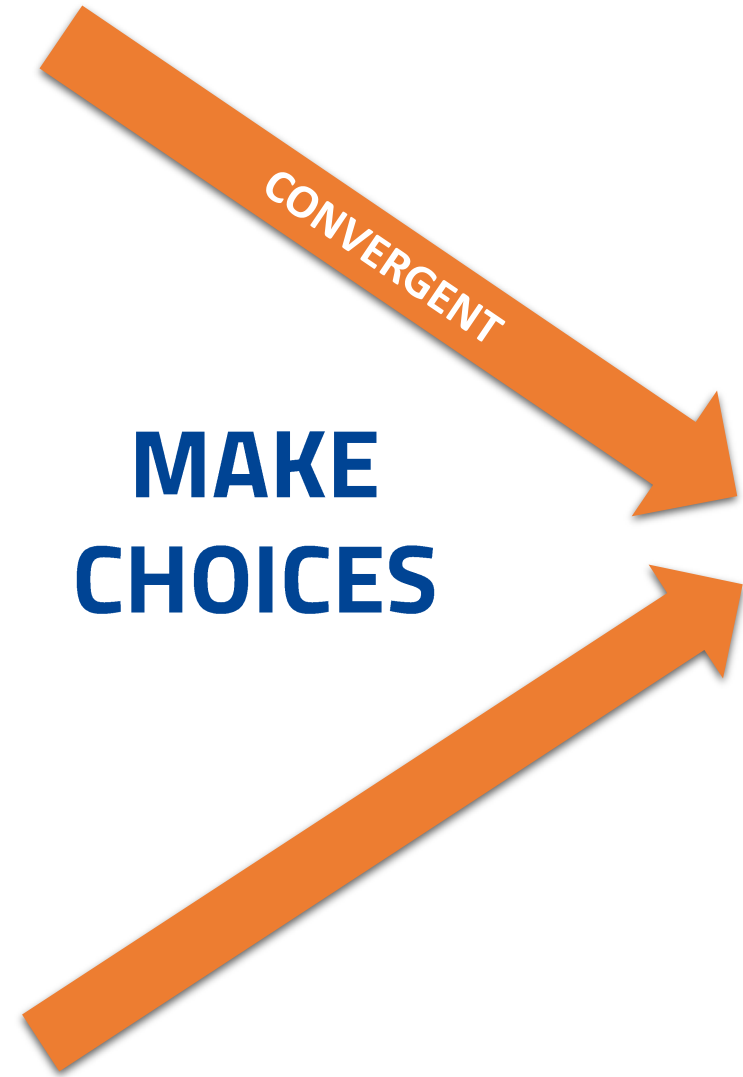
**OLD**

**NON-USABLE**

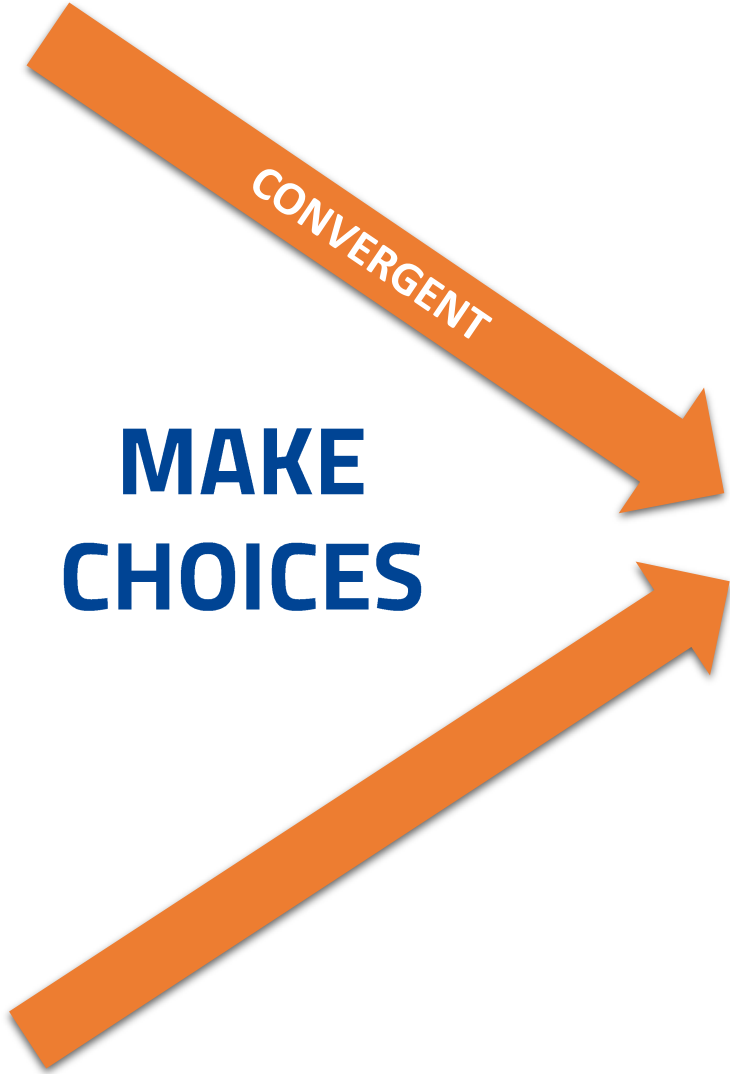
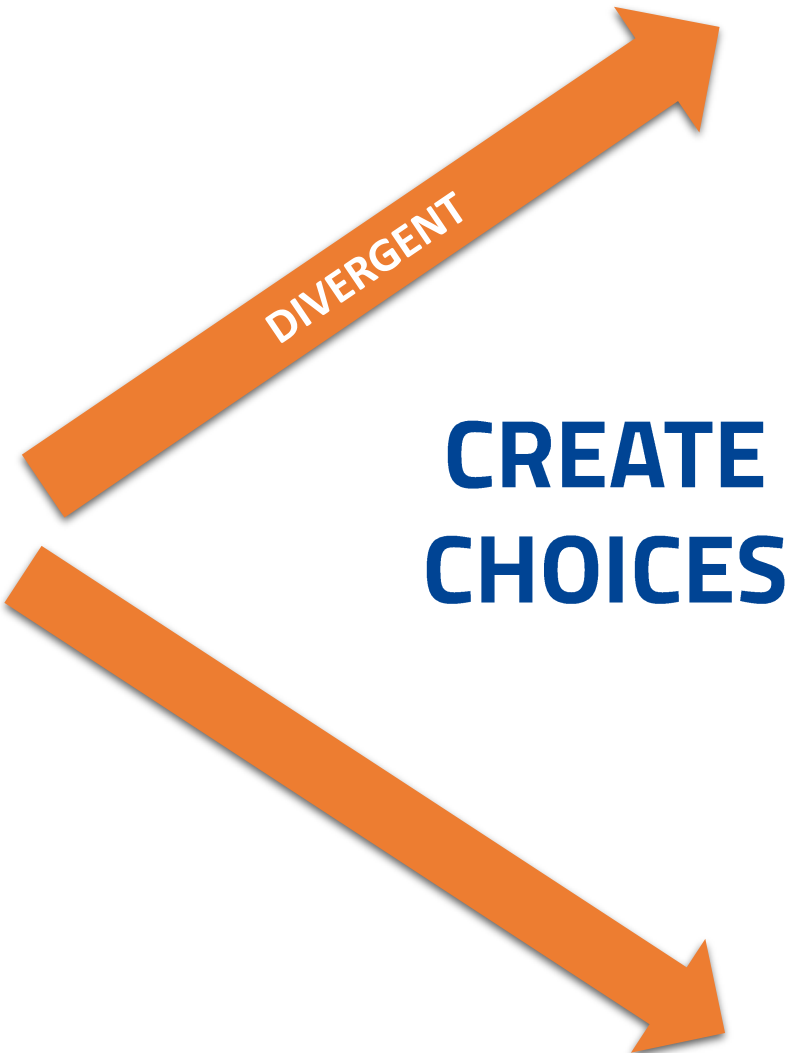
---

**OBSOLETE**

# REDESIGN THE WHOLE PROCESS



# REDESIGN THE WHOLE PROCESS



**WHAT IS THE  
QUESTION THAT  
WE'RE TRYING TO  
ANSWER?**

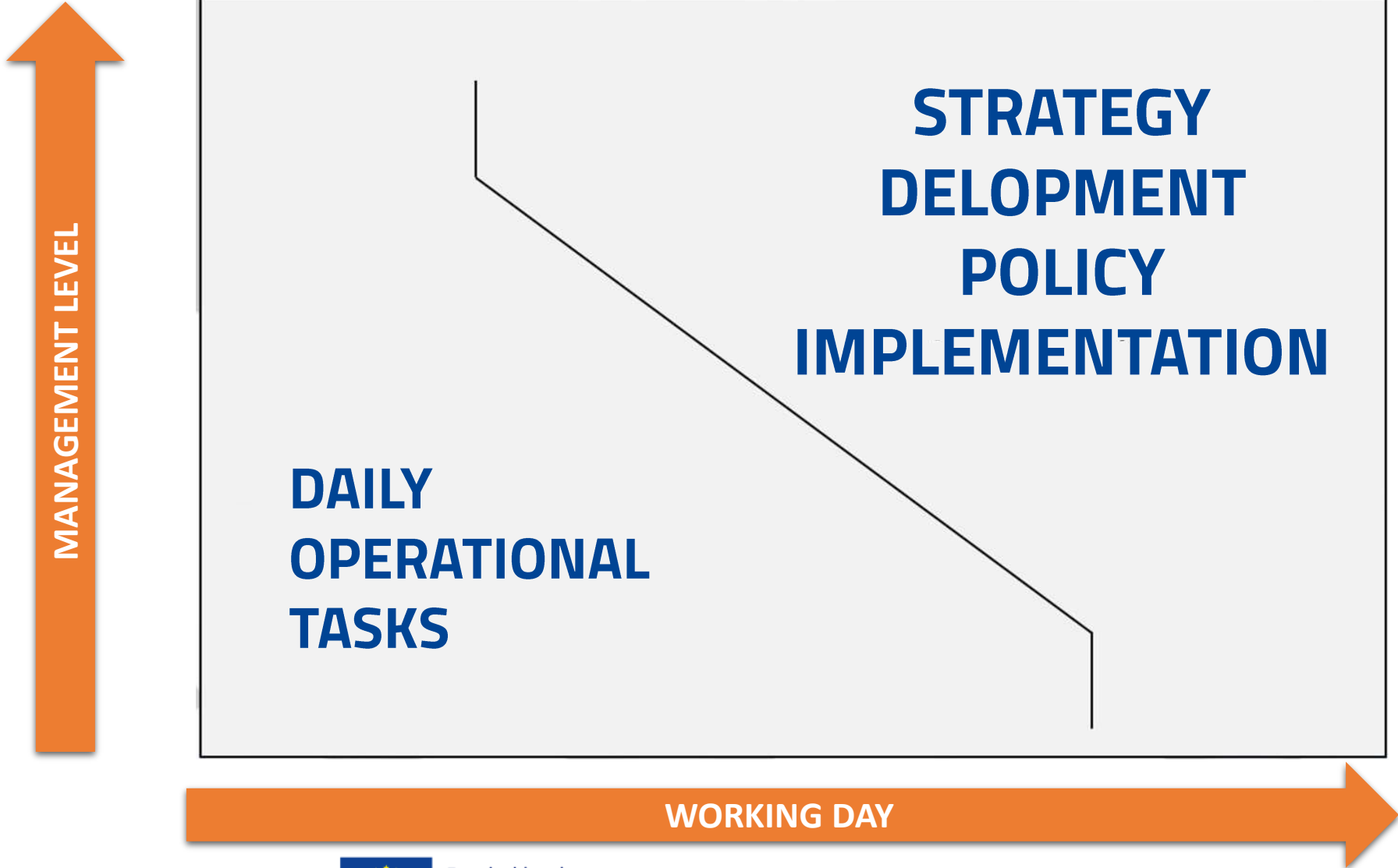
**WHAT IS THE  
PROBLEM THAT  
WE ARE TRYING  
TO SOLVE?**

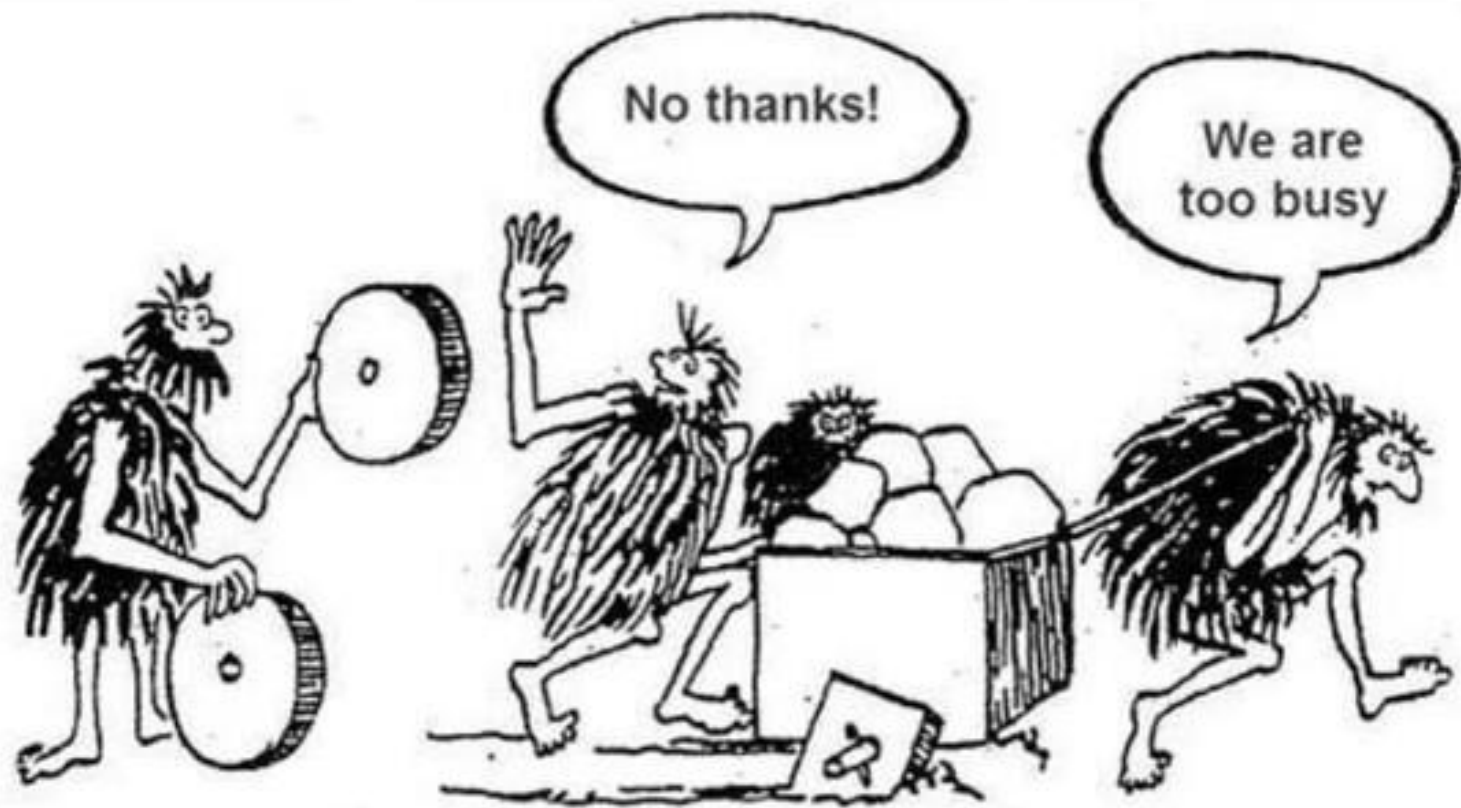
# DESIGN IS TOO IMPORTANT TO BE LEFT TO DESIGNERS

Tim Brown, TED Speech



# REDESIGN THE WHOLE PROCESS







European Institute of  
Innovation & Technology

# CONCLUSION

# 07



Funded by the  
European Union

# CONCLUSION

- The World Economic Forum forecasts that by 2025 'creativity' will be in the top-three most important skills for future jobs.
- The global exports of creative goods represented US\$524 million in 2020, while world exports of creative services reached US\$1.1 trillion.\*





# CONCLUSION

**The first step is to start asking the right questions**

# Thank you!



Email: [milena.rajic@masfak.ni.ac.rs](mailto:milena.rajic@masfak.ni.ac.rs)

