A holistic approach to value-driven AI

The AI Canvas Methodology

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Executive Summary

The AI Canvas Methodology - a holistic approach to deriving value from Artificial Intelligence

Data and AI-based business models are transforming every industry. Early adopters of AI have gained significant financial returns [1], whereas those not implementing it risk falling behind significantly. But applying artificial intelligence and deriving value-driven business models from it are fundamentally different. Whereas many companies are showcasing singular and detached applications, implementing AI at the operational core of a company and letting it sustainably transform business models is far more complicated.

This challenge stems largely from the dynamic nature and inherent uncertainty of AI projects and integrating them into running businesses. Changes in external and internal requirements, data and technological infrastructure have major and often unpredictable effects on the success of a project. At the same time, existing processes and structures impact the implementability of and resulting returns from AI projects. Therefore companies need to plan and evaluate their AI activities holistically, which includes assessing all aspects of AI cases before implementing them.

In order to enable companies to develop a successful and sustainable approach to AI adoption, **Merantix Momentum** partnered up with the **Institute of Computer Science at the University of St. Gallen** to develop the **AI Canvas** - a strategic toolkit for companies to guide them through successful AI project evaluation, implementation and sustainable deployment.

The hierarchically structured framework addresses the described complexity drivers of AI projects and is divided into four main blocks which each play an essential role in planning and implementing AI initiatives:

Business

Understanding which underlying business case AI can and should fulfill to derive impactful and measurable value in line with the company strategy.

Organization

Integrating AI into the current organizational structure and ongoing processes to minimize friction and ensure continuous effectiveness of solutions.

Technology

Evaluating which data is needed to execute the respective cases and which technological capabilities and capacities are needed to support this.

AI Lifecycle

Designing AI models in a sustainable fashion and ensuring that ongoing value can be derived by integrating a continuous life cycle from the inception of AI implementation.

The AI Canvas is the first step to holistically approaching value-driven AI. It supports companies of various AI maturity levels, from those considering implementing their first use case to those scaling their existing AI implementation. This whitepaper provides an ideal starting point through an in-depth explanation of the four blocks of the AI Canvas and suggested courses of action. This is illustrated using case studies of how Merantix Momentum has enabled companies to successfully implement AI using the Canvas.

If you would like more information on our services, please do not hesitate to contact us at momentum@merantix.com.

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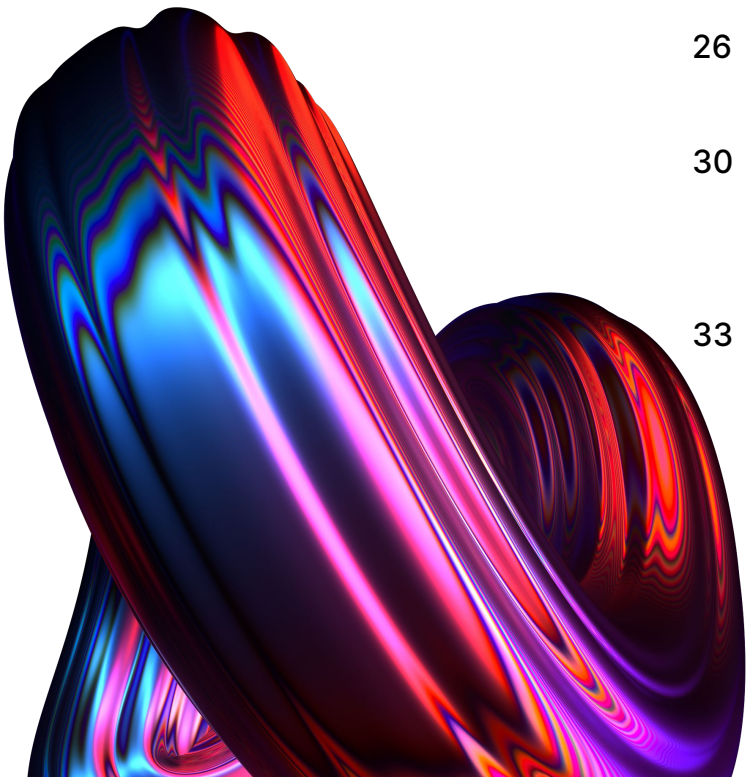
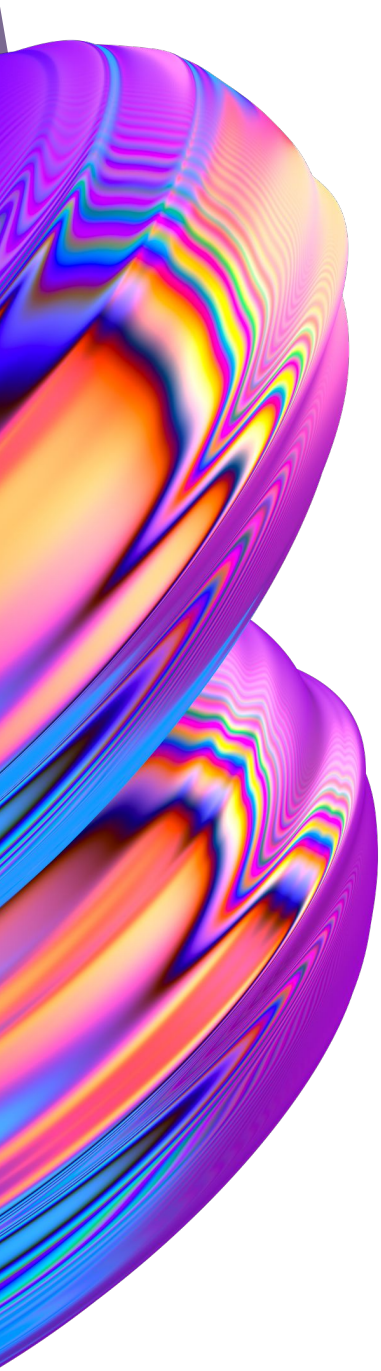


Preface



The 21st century is a truly transformational period as we are experiencing a digital revolution which is redefining almost all aspects of our lives. Artificial Intelligence (AI) is an immense value driver in these transformations; it is estimated that AI will add a staggering $15.7T [2] to the global economy before 2030 - that is approximately the size of China's GDP. We believe AI is an enabler. It is not there to replace humans, it is not there to solve every business problem. Instead, it will enhance human capabilities and provide them with safer and more efficient working conditions.

The adoption of AI by companies has been accelerating in recent years, from 37% of companies implementing AI in some form in 2019 [3] to 56% in 2021 [4]. Because of the fast-paced developments in AI technologies and their adoption, companies that come to the game later face significant competitive disadvantages which they may never be able to recover from. On the other hand, early adopters of AI have above average returns on investments in AI. According to research by Deloitte, 82% of early adopters have gained significant financial returns [1]. In light of this, it is essential for companies to act now to remain competitive in an economy increasingly shaped by AI.

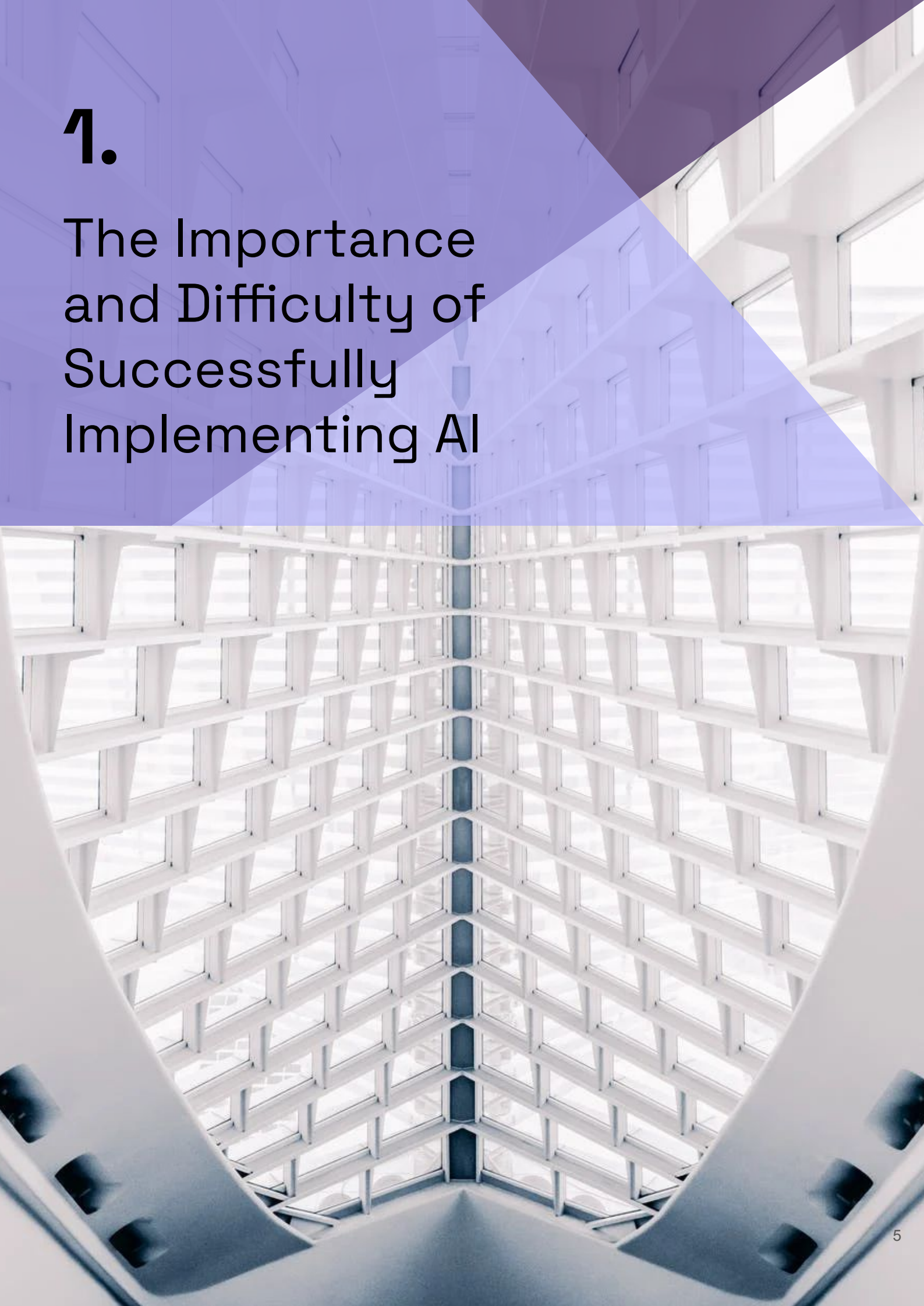
Yet, many companies struggle with effective AI implementation. They tend to develop multiple proof of concept projects but find themselves unable to move beyond this experimentation phase into commercial exploitation. Scaling AI in a company is challenging as such endeavors often require organizational changes to various departments and functions and a high degree of flexibility due to the developing nature of the technology.

To help companies overcome these challenges, Merantix Momentum partnered up with the Institute of Computer Science at the University of St. Gallen to develop a methodology for approaching the topic of AI with a focus on scalability - the AI Canvas. The AI Canvas is a strategic toolkit guiding companies through AI project ideation, implementation and sustainable deployment. It helps companies align on strategic priorities, identify any road-blocks, understand the data landscape and requirements while taking into account regulatory and ethical questions.

In the first section of this publication, we present the main challenges companies face when implementing and scaling AI, carefully selected based on our experience and conversations with companies. In the second section, we explain the AI Canvas and dive into each of its building blocks. In the third section, we present two case studies of how Merantix Momentum has enabled companies to successfully implement AI using the Canvas.

1.

The Importance and Difficulty of Successfully Implementing AI



AI is the defining competitive advantage of our century...

Over the last decade, research on artificial intelligence (AI) has progressed markedly. While in the early 2000s the industrial use of AI was constrained to specific technologies and domains like expert systems in the medical field, the technology has matured to be applicable in practically any industry.

The drivers of this development have been the usage of highly parallelized computing devices (GPUs), the availability of massive datasets, technology firms that invest heavily in the area (e.g. Google, Facebook, Amazon) and ever-advancing research all around the world.

The impact of this change is often compared to the impact of utilizing electricity during industrialization. And indeed we can observe many parallels between these two transformations. While during the industrialization period many mechanical tasks could be automatized through the help of machines, the use of AI may further shift the degree of automation that is possible in many fields.

Clearly, due to AI's enormous disruptive potential, this transformation presents both a singular opportunity as well as a great threat to companies who do not effectively leverage this potential. Those that understand and use the capabilities of this technology will hold a competitive advantage that might prove decisive for decades to come. The utilization of AI not only allows for gains in productivity, but also accelerates development significantly and widens the gap between competitors at increasing speed.

However, while companies' adoption of AI has been accelerating in recent years, few are able to effectively realize the technology's transformative potential. In our work with both national and international players we have identified three common scenarios:

Organizations that do not use AI at all	The potential impact of AI may be recognized universally but the path to implementation is still rocky for many organizations. The main issues they face are the lack of understanding of AI across all levels of the organization as well as the lack of talent to develop AI from inside of the organization.
Organizations that conduct isolated proof of AI concepts but fail to scale them	The AI journey in many companies typically starts with conducting proofs of concepts for one or multiple use cases. While this investment is important to educate teams and management on the potential of AI, the long-term business impact is oftentimes rather contained. This is due to the lack of an organizational setup for scaling AI and alignment between the proposed value of the project and the business goals of the organization.
Organizations that scale use cases, but fail to transfer knowledge across the organization	Leveraging AI in an efficient manner goes far beyond scaling individual use cases. For a truly efficient set-up, organizations have to think about how to create synergies, and share resources and knowledge across the whole organization.

...And many companies are not ready

From the issues raised above we can see that becoming fully AI-capable requires strategic planning and the right organizational setup.

However, current tools that support strategic planning and ideation are not readily applicable to AI setups.

While some approaches are sufficiently general to apply to nearly every strategic issue (for instance SWOT analyses), they do not help in identifying all necessary components of an AI strategy.

Notably we see four main peculiarities of AI implementation and scaling that render current solutions for strategic planning impractical:

Fast-paced technological development

Research and development in the field of AI increases rapidly as the AI market is expected to grow to a $126 billion industry by 2025 [5]. This requires stakeholders to constantly reevaluate their strategy and thus necessitates a very flexible tool.

The need for redefining, monitoring, and updating AI products

Dataset shift, changes in the environment, and the fast pace of AI development require an iterative approach to monitoring, defining, and updating AI products.

Uncertainty of AI projects

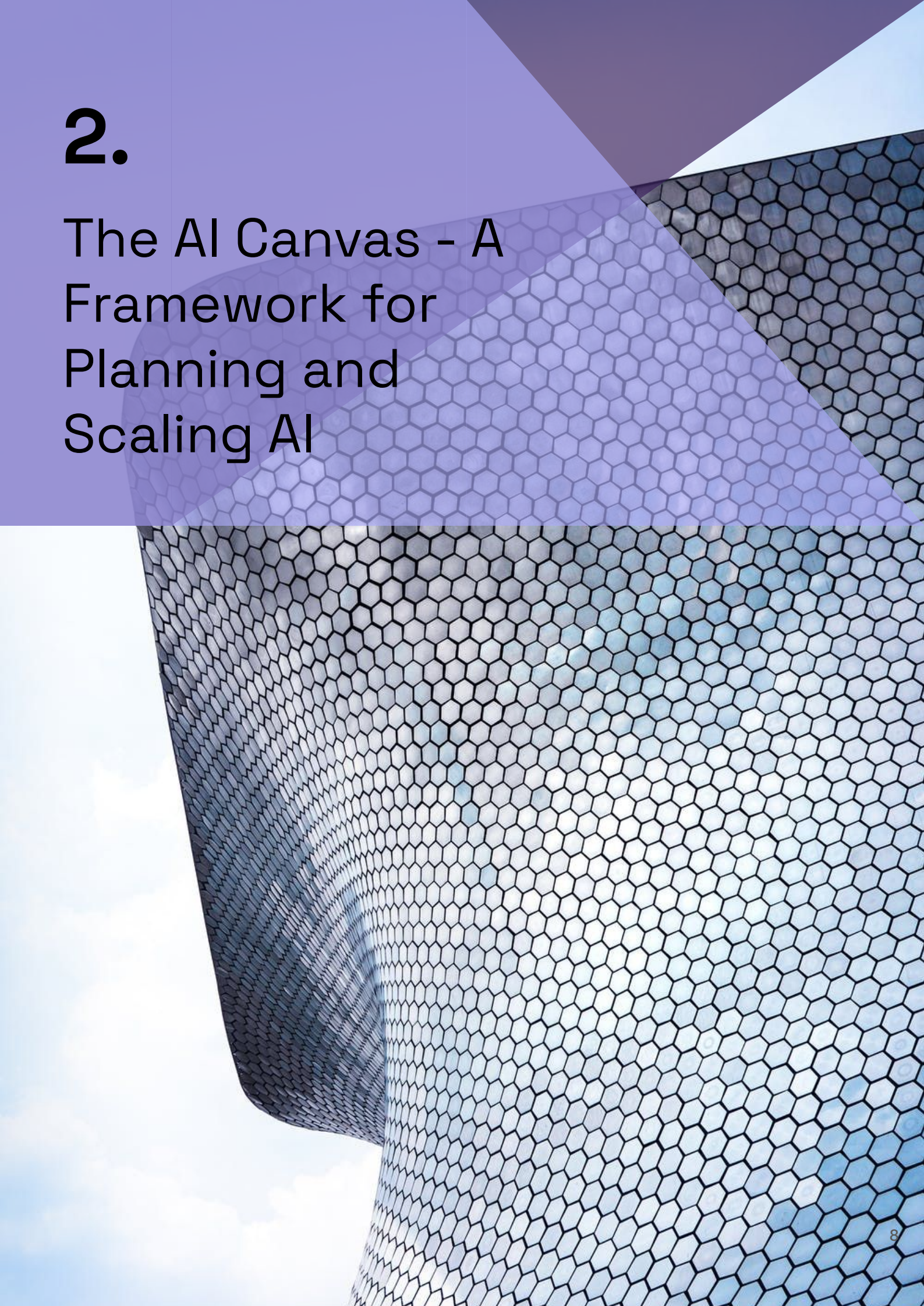
The planning of projects that involve AI is significantly complicated by the inherent uncertainty of AI projects. Internal and external requirements, changes in the data or infrastructure have large and often unforeseeable impacts on the outcome of a project. It is therefore necessary to develop an understanding of all those factors and integrate them into high-level strategic planning.

The need for a horizontal setup and understanding of AI

In contrast to other technologies, AI is a topic that touches upon nearly every aspect of a business. It is therefore necessary to develop a broad understanding and horizontal setup for implementing AI. Classical business cases are often conceptualized in isolation which is reflected in an equally narrow perspective in tackling these cases.

2.

The AI Canvas - A Framework for Planning and Scaling AI



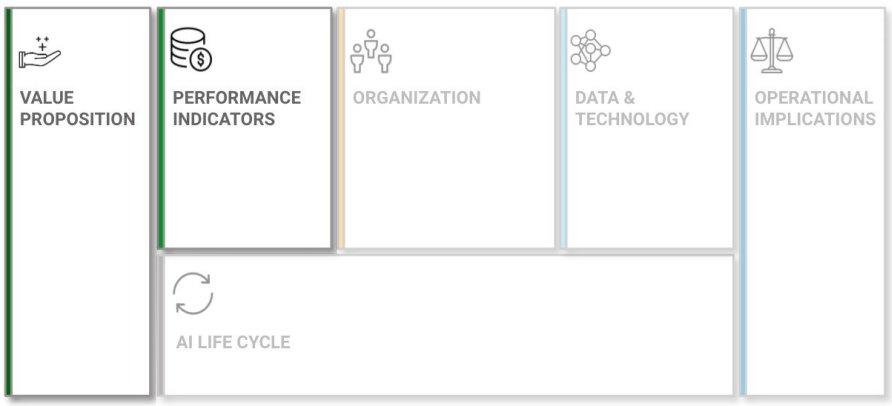
The AI Canvas - Deriving Business Value from AI

The AI Canvas is a strategic toolkit to guide companies through AI project implementation and sustainable deployment. It serves as a planning tool for developing, implementing, and scaling AI use cases as well as for developing long term AI strategies. Thereby, it aids companies in addressing the difficulties outlined in the previous section.

This chapter explains the building blocks of the AI Canvas. It is split into sections based on the four main areas (Level 1) of considerations when implementing AI. First, the Business block will be covered, and the Technology block will be explicated afterwards.

Each of these are broken down into two further sub-blocks, reaching Level 2. After they are covered, the Organization Block is explained and finally, the AI Life Cycle Block.

Each of these larger building blocks and their sub-blocks are divided even further into smaller block elements on Level 3. These small blocks provide the detailed aspects that should be considered when implementing AI projects and scaling them, and practical guidance for how to go about this. In the following, each of these is elaborated upon, including questions to answer for each small block, and a suggested format for answering these questions.



The Business Block

The business block enables companies to assess their needs, forming the foundation for an AI based value proposition. It further aids with monitoring and measuring success of the business case.

Value Proposition

1.1 Problem

This building block is about defining the underlying challenge to be addressed - be it an AI solution targeting a specific business area or a more holistic approach to organizational AI transformation.

Especially with regard to AI, it is of great importance to understand exactly what challenge you want to solve, derive an estimate of the problem's size, the value of its resolution and how well it can and must be solved with the help of technology. Additionally, it is crucial to understand the current workflow and existing pain points in order to determine what type of AI solutions can be applicable.

Sample questions to answer within this block:

- What is the problem?
- What is the current workflow? What are the pain points in this workflow?
- How much is it worth to solve this problem?
- What is the size of the problem?
- Have you already tried solving this and how?
- Are there other problems that could use a similar solution?

Format	Problem & use case ideation workshop with the goal of delivering a prioritized use case list

1.2 User/Customer

The user building block defines the different groups of people or departments that will use and benefit from the AI solution.

Knowing which use cases are of high priority, relevant internal and external users should be identified. Knowing the users is crucial to understanding what the solution will look like, what kind of outcomes it needs, and how it can be integrated into the current workflow. The identified users will be involved in the scoping and development of the solution, according to their respective characteristics and importance.

Sample questions to answer within this block:

- Who are the types of users? What is their workflow?
- How coherent/different are the user groups?
- How will they interact with the solution?
- If the product is to be sold externally, what are the customer segments? What are their characteristics?

User journey development workshop with the goal of identifying main user pain points	Format

Value Proposition

1.3 Products/Services

The product & service block defines a concrete AI solution by drawing upon the assessment of the pain points and main user journeys.

In addition to responding to user needs, successful AI products or services also require the specification of key functionalities in the form of parameters. This exercise is to ensure that the proposed solution correctly resolves the underlying issues, particularly in terms of the required and desired value creation and the potential strategic importance.

Sample questions to answer within this block:

- What are the defining functionalities?
- What scale is required to derive the envisioned value?
- How central is this product to your business?
- What will the interaction between human & technology look like?

Format	Scoping session to identify the desired functionalities and value the solution should deliver

1.4 Partners

The partner block identifies internal and external partners crucial to AI development.

In order to fully understand how AI will be introduced to the company, it is crucial to identify internal and external partners. Internal partners must be identified to ensure their buy-in or to enable the design of the application. AI solutions often require collaboration with specific partners who can provide essential key resources or activities that substantially enable and influence their development. Examples of these include data collection, data labeling, etc.

Sample questions to answer within this block:

- Who are your internal partners? Who do you need to get internal buy-in?
- Who do you need to support us in designing and building the product?
- Who can help you with data collection?
- Which key resources are you acquiring from internal/external partners?
- Which key activities do partners perform?

User story development workshop with the goal of identifying internal and external partners affected by and contributing to the process	Format

Performance Indicators

2.1 Financial and non-financial returns

The financial and non-financial return block focuses on setting up important KPIs and assessing related commercial risk.

It is important to formulate project-specific KPIs to ensure that the AI solution is appropriately managed during its conception as well as sustainably deployed and maintained thereafter. These KPIs should accurately reflect what the solution is intended to achieve and how this generated value relates to the core value proposition of the business as a whole. With AI solutions, such objectives often range from financial goals to non-financial goals such as time to market, customer satisfaction level, ESG, carbon footprint etc.

Sample questions to answer within this block:

- What are the overarching goals you are trying to achieve?
- What could be indicators for progress towards these goals?
- Which of these indicators are measurable and practical as KPIs for project progress and success?

Format	Workshop to ideate, identify and rank the most relevant KPIs

2.2 Investment

The investment block dives deep into the necessary up-front and long-term costs that a company needs to invest when introducing AI.

When calculating the costs of AI solutions, various dimensions must be taken into account. In this context, one must consider the cost implications for each stage of the project (PoC, scaling, organizational level). For each step, different costs arise from both human and capital resources for data integration, technology and human resources development. These investments need to be assessed and understood.

Sample questions to answer within this block:

- What are the cost implications for creating value and scaling value?
- How much do you need to budget for a) data integration, b) technology, c) people development?
- How long does the integration take and when can you expect financial returns?

Project scoping with the execution team (internal or external). Focus is to understand the major investment categories (data, compute, model development), the cost drivers for each category and the respective uncertainty.	Format

Sample Case Business Block - Retail

Input - Request for engaging with the customer

Merantix Momentum partnered with a B2C retail company selling through its e-commerce and offline store, but with no real personalisation for the customer. For this they wanted to utilize AI, but had to first specify the business case.

Problem

The outcome of the first session was that they were essentially struggling to target their interactions and outreach to the customer. This was a large problem for marketing, because it limited customer's engagement with the brand/company, and due to the huge customer number, this issue could not feasibly be solved manually.

User

The main users having the problem were the marketing and sales department. They would need a personal profile of preferences for each customer in an accessible format to target them. Another group were the in-store staff, who could also utilise this information.

Product

The product was defined to be a collaborative filtering-based recommender engine which, based on existing and ongoing customer data, would create an individual profile of preferences for each customer to allow sales to target them directly.

Partners

The most important partners identified internally were the sales and marketing team as well as the data infrastructure team, providing and managing access to the customer data needed in the solution

Financial and non-financial returns

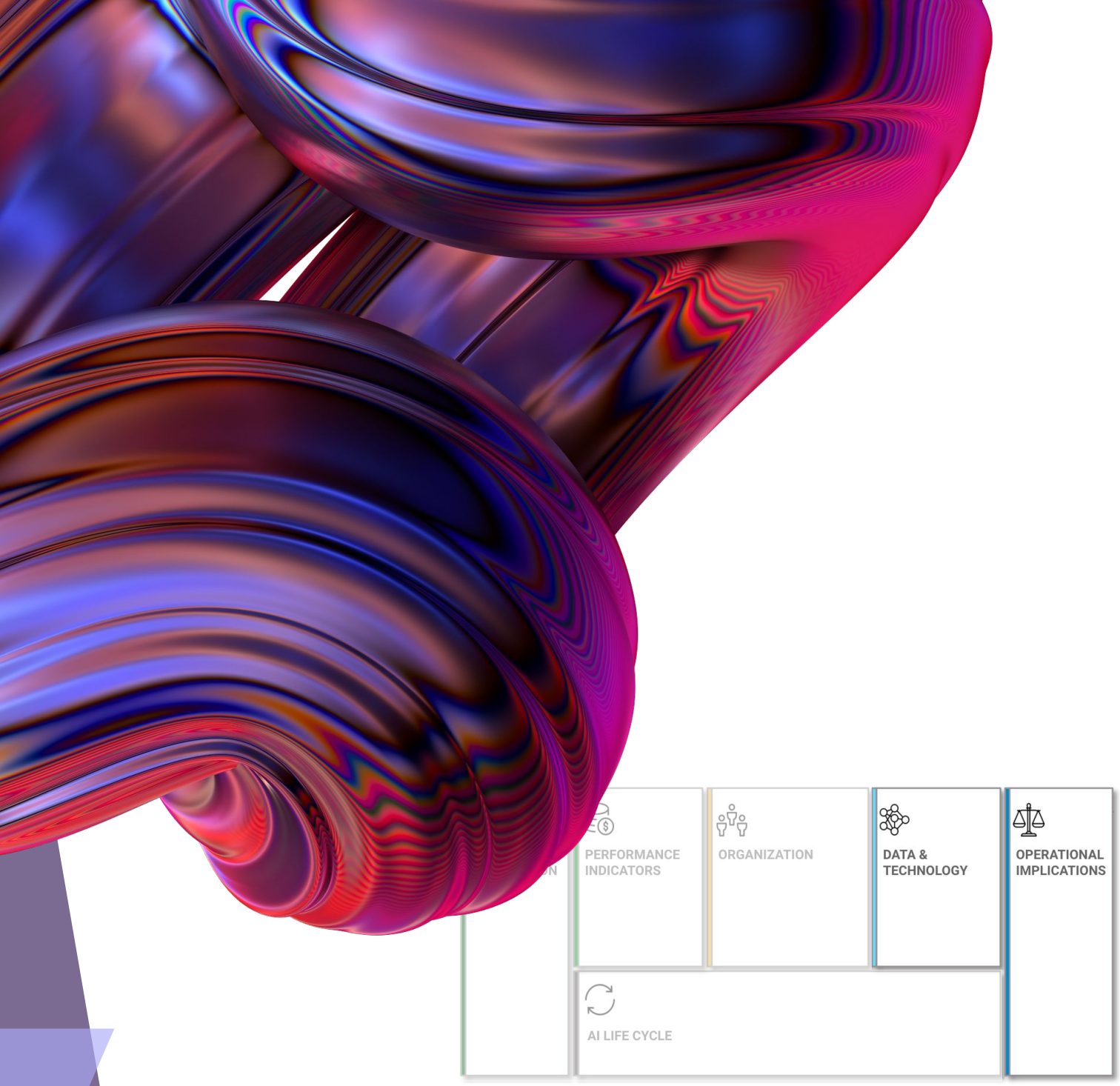
Despite not producing direct efficiency savings or revenue by itself, it was determined that the solution would greatly improve sales and marketing interactions, as well as increase customer interest and engagement and drive revenue through product recommendations.

Investment

Based upon the product feature detailing, an investment plan containing the overall costs (data acquisition, model design, system integration...) and duration was designed. Additionally, cost drivers like update rate, access points and interfaces were detailed out.

Output - Detailed business case for an AI recommender system

After working through the business block of the **AI Canvas Methodology**, Merantix and its partner had a clear understanding of the business purpose of the proposed application. This meant which problem it was to solve, which features it would need for that, who would have to be involved and how the investment and returns would look. From here, the next step was to go into technological detailing of the solution.



The Technology Block

Data and technology are the core enabling factors for applying AI. Being able to analyse and understand them and their limitations, as well as choosing the right framework to operate them, guarantees value from AI in the long run.

Data & Technology

3.1 Data

The data building block assesses data needs and necessary infrastructure.

Data can be considered to be the lifeblood of AI. It is the necessary ingredient of any Machine Learning solution and is thus the most important asset of an AI-enabled company. Companies have to implement data governance principles that provide a common interface for accessing and using data throughout the organization and assess the data availability, characteristics, specification etc.

Sample questions to answer within this block:

- How much data do you have?
- What is the data structure and quality?
- What are the data sources?
- Is there bias in the data?
- Is data accessible through a common interface or individual silos?
- Are processes in place to ensure compliance with data privacy and regulations?

Format	Data assessment workshop to understand existing data and further requirements

3.2 Technology

The technology building block looks into the available technologies and sustainable software development.

AI technology and research currently moves at a very fast pace. To keep up with that speed and benefit from it means building technology in a scalable, modular way. Implementing Machine Learning solutions may incur a large hidden technical debt. Committing to reducing this debt and identifying it early on ensures the technological stability of an organization.

Sample questions to answer within this block:

- What are the AI capabilities?
- What degree of maintenance is needed?
- What frameworks can be used?
- What hardware platforms can be used?
- Have common practices been established for the whole company?
- Are systems modularized so that they can be reused?

Development of a technology scorecard specific to the client	Format

Operational Implications

4.1 Governance & Compliance

The governance and compliance block addresses the internal framework for monitoring the AI application and its implications.

Because of the novelty of AI software, it is crucial for any newly developed applications to be embedded in a strong internal governance mechanism ensuring oversight and accountability for the model. This means that companies have to clearly, reliably and transparently document how and by whom the applications will be overlooked and how the compliance with ethical and legal maxims is ensured.

Sample questions to answer within this block:

- Can you pinpoint accountability?
- Who is liable for the AI software?
- How is your AI supply chain set-up?
- Who owns the generated content?
- Have processes been established to enable oversight and guarantee compliance?

Format	Governance and accountability outline showing the embedding of the application into current company compliance structures

4.2 Regulation

The regulation block addresses further regulatory challenges and ethical concerns.

Lawmakers are starting to explicitly regulate the use of AI. General regulations (for instance GDPR) and the need to fulfill certification requirements may pose further external restrictions on the implementation of AI. This is inherently linked to the technology that powers a solution, since traceability and reproducibility are essential features that allow us to understand and explain the decisions of AI systems.

Sample questions to answer within this block:

- What requirements for explainability are needed? Are you able to fulfill these requirements?
- Are there any ethical concerns?
- Is there a complete list of regulations that affect IT, data, AI across all of the company?

AI documentation package - precompiled list of documents that can be used to record the behavior of AI systems to ensure traceability and reproducibility	Format

Operational Implications

4.3 Safety

The safety block addresses questions related to assuring that AI models are safe to deploy and do not cause harm or damage.

While we have a general and intuitive understanding of the safety and accuracy a human operator may provide, this is in general not true for AI systems. To build a safe AI system, robustness of the model has to be tested and it has to be documented thoroughly.

Sample questions to answer within this block:

- Has continuous monitoring and evaluation of AI models been set up?
- Do requirements for the documentation of the expected results of the AI model exist?
- What are the worst possible effects a deviation/failure of a model could have?
- How robust is the model?

Format	Risk analysis for all modes of failure and potential effects as well as mitigation and avoidance strategies

4.4 Security

The security block addresses platform security and assures that AI software is safe from external attacks or manipulations.

In addition to general IT security, AI systems allow for additional attack vectors. Building a secure AI system comprises protection against data leakage and adversarial attacks.

Sample questions to answer within this block:

- Are processes in place for identifying potential targets of attackers in the AI infrastructure?
- Did you ensure platform security?
- Did you ensure access control?
- Did you ensure model updates?

Exposure analysis for all points of entry or adversary as well as mitigation and avoidance strategies like access controls and hosting	Format

Sample Case Business Block - Dental Analysis

Input - Use case idea for detecting caries on dental scans

Merantix Momentum partnered with a dental scan company to develop an algorithm for automatically detecting caries and classifying it by type. This would support dentists in their work and increase efficiency and reliability of scan interpretations.

Data

It was determined that a labeled data set containing at least 2.000 images would be necessary. The data would have to be labeled by multiple experts to ensure reliability of labels as ground truth. Initial assessments of bias and balance were also concluded.

Technology

The technology used was based upon the client's existing technology and utilised available company know-how as well as possible. For example, a Rest API interface with the company's systems and remote development of the training infrastructure were selected.

Governance & Compliance

A detailed accountability map for the solution was developed, governing responsibilities for the monitoring and validation of model outputs. Additionally, an escalation framework was designed for cases of hazardous results or deteriorating model performance.

Regulation

Regulatory frameworks around usage of healthcare data and AI applications were analysed. As a result, a strong GDPR compliant data management framework was conceptualized and a roadmap to classification and regulatory approval of the model was designed.

Safety

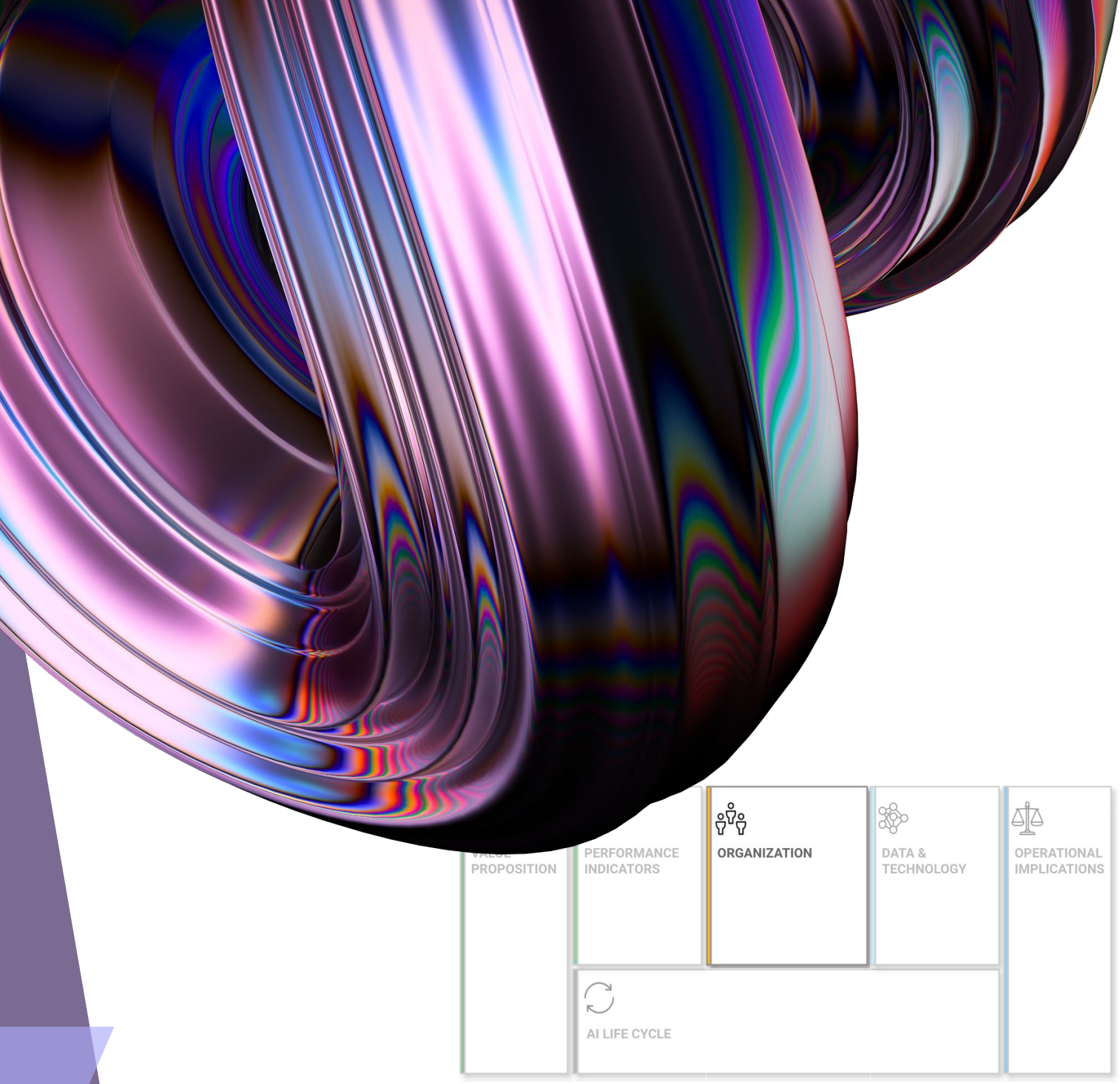
Model output implications and resulting worst case scenarios were discussed and key risk drivers were determined. As part of the governance framework, mitigation strategies for key risks were ideated.

Security

A risk map and infringement model for the application were outlined, detailing possible areas of adversarial attacks and data leakage. Similar to the safety block, mitigation approaches were ideated and implemented into the technical design and setup of the system.

Output - Sound technical outline for a caries classification model

The output of the technical block offered a holistic overview of how the AI model would look, which data it would use and how compliance, safety and security would be ensured through governance. This output allows the technical team to design the model structure and begin building features or elements.



The Organization Block

The organization block assesses how AI use cases are to be integrated into running processes and how an effective environment for AI development and scaling can be built. It also highlights which cultural and structural change should be initiated

Organization

5.1 Structural setup

Organizations can choose different internal setups for their AI efforts such as centralized, decentralized, or hybrid setups.

AI is the next disruptive general technology and thus requires a novel approach to leading and operating organizations. AI initiatives often face organizational barriers that prevent them from scaling, such as rigid culture, lack of knowledge, or talent. Because of these challenges, companies tend to struggle to move past isolated proofs of concept and scale projects to company-wide programs. Therefore, to build an AI-first company, leadership must consider which organizational setup is most conducive to AI development, who makes decisions about AI projects and infrastructure, and which roles are necessary.

Sample questions to answer within this block:

- Do you have/want to have a centralized, decentralized, or hybrid structure?
- How do you set up an internal knowledge sharing platform?
- Which AI-related competencies does your organization have?
- What new roles do you need to introduce in interdisciplinary teams?

Format	Workshop evaluating how AI activities are to be pursued, which departments/ roles they interact with and how they are to be embedded into the current organization

5.2 Development

The development block focuses on various ways of educating the company about AI.

One of the main barriers in AI adoption in companies is the lack of knowledge and weak communication about the technology. AI implementation requires management and workforce to have a deeper understanding of current AI technologies, their possibilities and limitations. In order to develop a successful AI solution, you need technical knowledge as well as business understanding. It is therefore crucial to educate employees about the benefits, risks, and value of AI systems.

Sample questions to answer within this block:

- Who do you need to educate about AI?
- What is the best format to educate employees and management about AI?
- Shall you do this internally or with external help?

Conceptualization and development of an education program on AI for relevant stakeholders	Format

Sample Case Business Block - Semiconductors

Input - Desire for a strategic vision on AI competencies

Merantix Momentum supported a semiconductor manufacturing company with setting up a full AI operation model for them to ideate, validate, prototype and develop AI use cases internally and with external support.

Structural Setup

In the initial phase, structures and processes were derived, defining how AI innovations were to be ideated, validated and executed within the organisation. This included the roles and responsibilities to be covered within the company.

The main structural elements included an AI Innovation Funnel and Validation stage, allowing effective and efficient ideation, evaluation, validation and testing of the AI ideas.

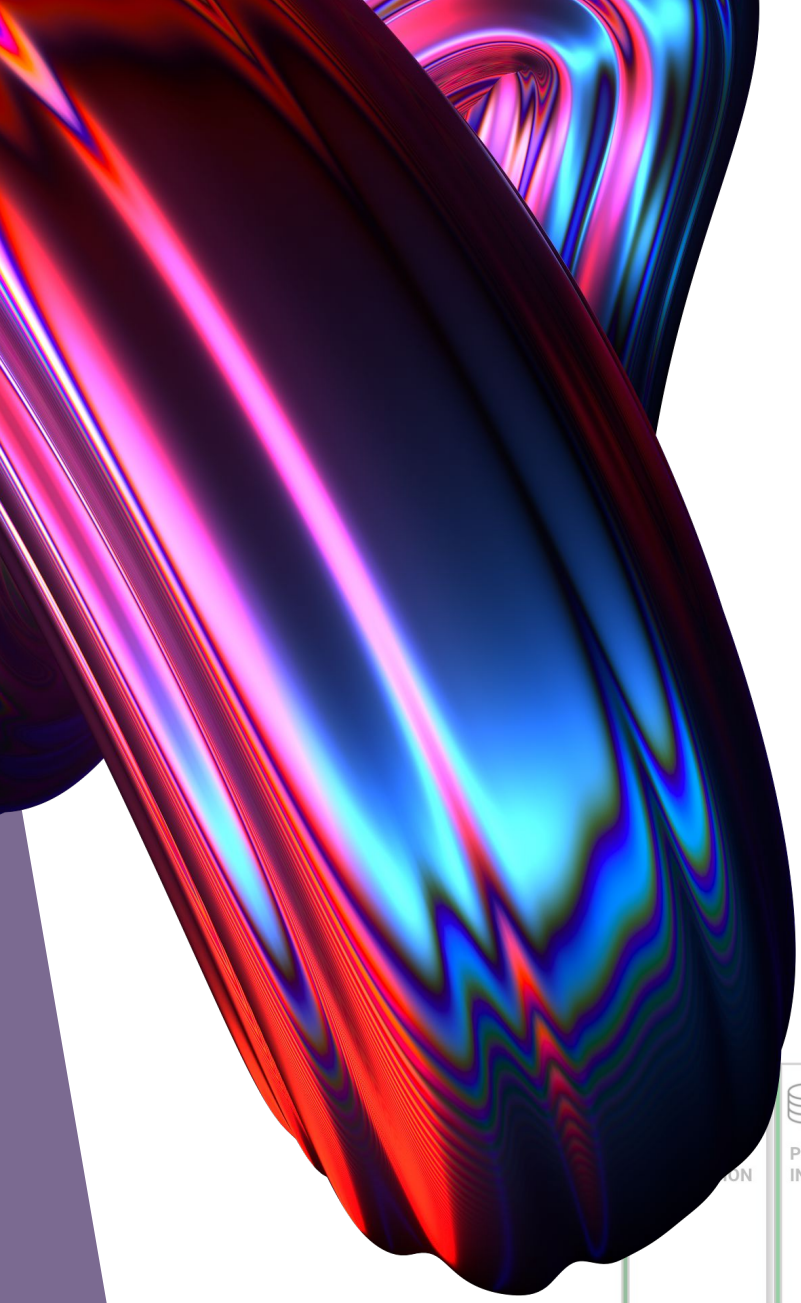
Development

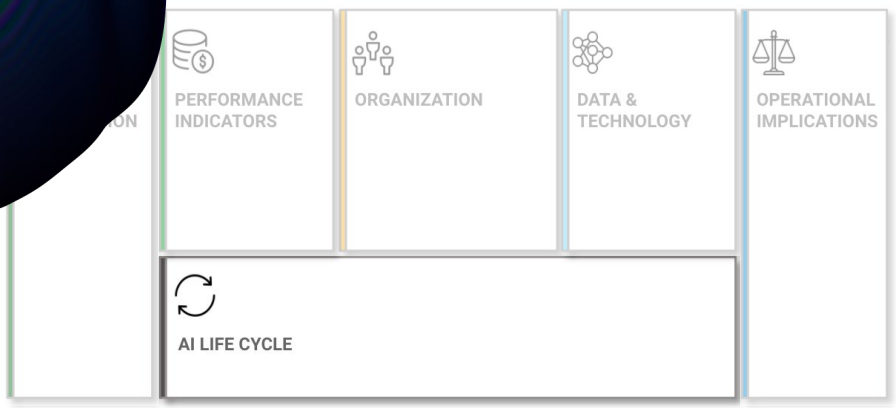
In order to sustainably embed the AI activities into the company, significant initial training was needed to develop understanding of and acceptance for the technology and a development methodology.

This consisted of an AI crash course for all relevant stakeholders, as well as a definition of current existing talent, capacities and needs for respective supportive functions within the organisation or through external support.

Output - AI coordination center with the company

The output of the organizational block was a clear structure for how AI activities were going to be structured in the company, and which processes would support them in ideation and development. It laid the groundwork for a strategic AI setup, enhancing the company's AI activities and organization.



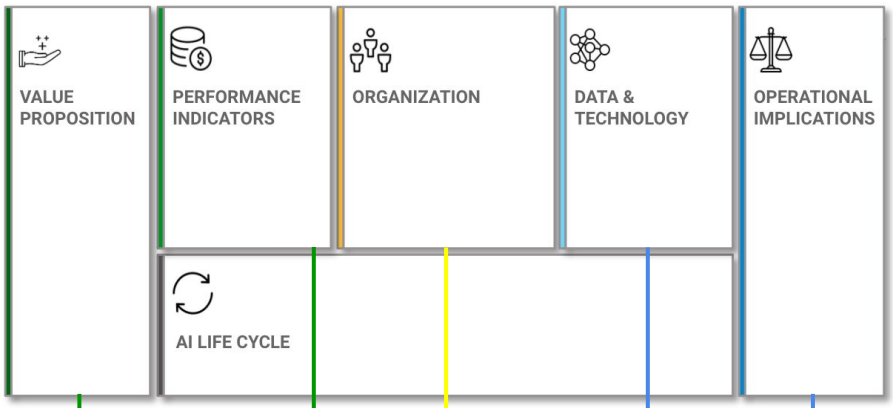


The AI Life Cycle Block

Keeping the long-term integration of the AI solution into the business in mind whilst designing it is crucial for ensuring sustained value. The AI Life Cycle block helps evaluate this and conceptualize the ongoing utilization of the AI model.

AI Life Cycle

Artificial Intelligence is an ever-changing, ever-evolving field of technology. Therefore, a once conceptualized solution or approach can quickly become obsolete. Having the continuous evolution and long-term goal of AI across all blocks of the AI Canvas in mind when conceptualizing the initial approach is paramount to sustained value creation.



6.1 Business

Scoping, planning and measuring RoI of AI products is a continuous process that has to be done in accordance with progress on the technological side of the life cycle.

6.3 Organization

Organizations have to actually live the designated processes, and continuously monitor the system and its function within the business and organisation. Also the roles and responsibilities related to AI are to be regularly re-evaluated.

6.2 Technology

With new requirements, shift in data distribution and other external effects, models might change or need to be updated, requiring constant monitoring and reevaluating of the data and technology in usage.

This shows that the building blocks of the AI Canvas should not only be considered when first implementing or scaling AI, but also need to be continuously looked at, even when a company is a seasoned AI adopter.

From Ideation to AI Life Cycle

The AI Life Cycle is the final stage in the development of an AI solution. For an idea to progress to this stage, the technical feasibility should first be tested through a Proof of Concept (PoC), after which the value add of the solution is determined through the creation of a Minimum Viable Product (MVP). Each of these stages involves iterative development and preparation for the AI Life Cycle stage, where the technology, business case and organizational processes are continuously re-evaluated.

Idea

PoC

Goal of the PoC - Demonstrating the technology

The goal of a PoC is to demonstrate that the technical assumptions you have made throughout your ideation process hold true. At the end, you want to be sure that the way you envision your product or solution to work is feasible.

Defining the right **scope of of a PoC** is tricky. It should only be a testing rig for proving core technical ideas, but all core aspects that will become critical later on must be covered.

Out of scope for a PoC are all features beyond core concepts, like those pertaining to acceptance or customer/user satisfaction. They should be included in later phases.

MVP

Goal of the MVP - Proving the solution adds value

The goal of the MVP phase is to determine if your idea is adding business value for the issue at hand and is functional for users. Here, you test applicability and gather valuable feedback for the final product development. To maximize impact, the MVP should be developed as quickly and cheaply as possible.

The **scope of an MVP** should include all core features relevant to solution delivery and be capable of being provided to users to test implementability. The degree of integration for the features is reduced to a functional minimum to ensure cost-sensitivity.

Out of scope for an MVP are non-crucial components relating to areas like aesthetics or integration. These are postponed to product delivery.

Product

Making the leap to a product

After having validated your MVP with users and stakeholders, it is ready to be translated into a real product. At this point, the innovation cycle is completed and the idea is transferred into the AI Life Cycle.

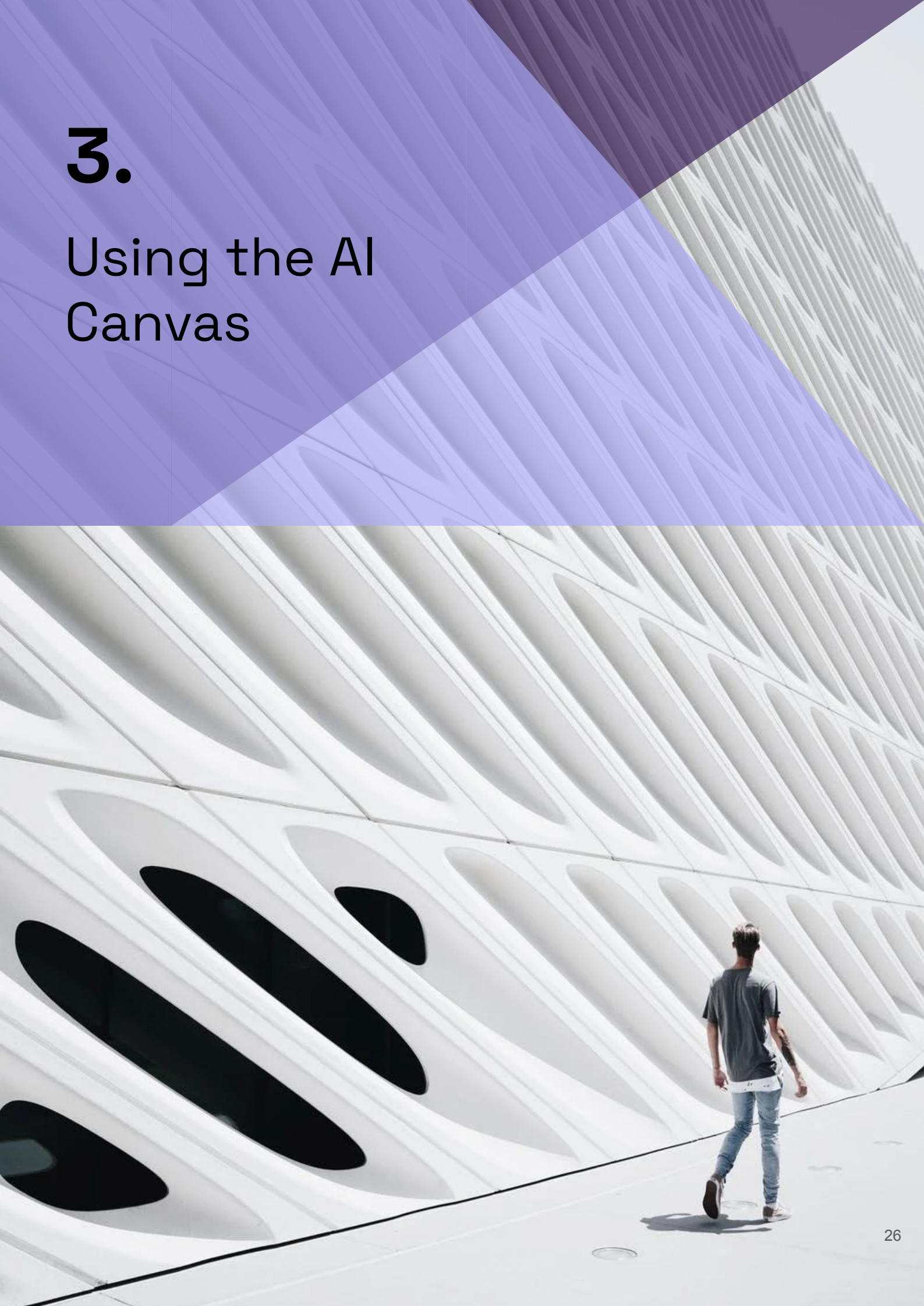
AI Life Cycle

Entering the AI Life Cycle

The AI Life Cycle encompasses the final product stage in which operations and continuous development become an ongoing cycle. The idea has now become a fully integrated and functional solution. At this stage, development, operations, model maintenance (training, deployment, evaluation, retraining) and management become crucial elements to ensuring continuous delivery of the solution. They should be regularly re-evaluated by looking at all Canvas blocks.

3.

Using the AI Canvas



How to Use the AI Canvas - Evaluating Use Cases

The AI Canvas is first and foremost used for ideating and evaluating AI use cases. While the Business and Technology blocks are most relevant to planning an individual use case, it should be remembered that it will later be subject to scaling and ultimately, become part of the organizational setup. Hence, it is advisable to go through each sub-block of the Canvas and answer the questions detailed in Section 2 - examples given below - with people from various functions and departments relating to the respective block.

Starting with the idea of adopting an AI solution, you go through each Canvas sub-block:

Value Proposition
Determining a problem to solve, the solution's core functionalities, benefits and its users and partners.

- What is the current workflow and what are its pain points?
- What are defining functionalities to generate value and who would use it?

Performance Indicators:
Determining relevant KPIs for measuring and evaluating projects progress and success (ROI, Investment Case)

- What are your overarching goals?
- How can these be measured?
- Which KPIs are to be tracked?
- What are the cost implications?

Data & Technology
Evaluating data quality and creating a data acquisition strategy. Choosing the tools and frameworks for implementing and maintaining the AI solution.

- How much (quality) data do you have?
- What are the AI solution's capabilities?
- What existing frameworks can be used?
- Which capabilities will be needed?

Operational Implications
Evaluating internal AI governance processes. Understanding how to manage regulatory, ethical, safety and security challenges.

- Who is liable for the AI software?
- How robust is the model?
- Did you ensure platform security?

Additionally, across all use cases you evaluate company integration and life cycle implications...

Organisation
Designing an effective environment for developing and scaling AI by combining existing structures and processes with new purpose-built ones.

- What AI-related competences does your organization have?
- Who do you need to educate about AI?

AI Life Cycle
AI projects require an iterative approach to implementation, monitoring and improvement. This need for re-evaluation should be considered during planning throughout all blocks.

...resulting in a fully assessed and outlined application generating value through AI and a road to implementation.

How to Use the AI Canvas -

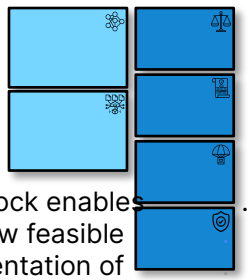
Comparing and Prioritizing AI Applications

As part of the use case ideation and evaluation, you will likely devise several possible AI applications. The AI Canvas also helps with identifying the use cases with the highest potential and thus deciding which application idea(s) to prioritize. The matrix below shows how this can be done using insights from the Business and Technology blocks.

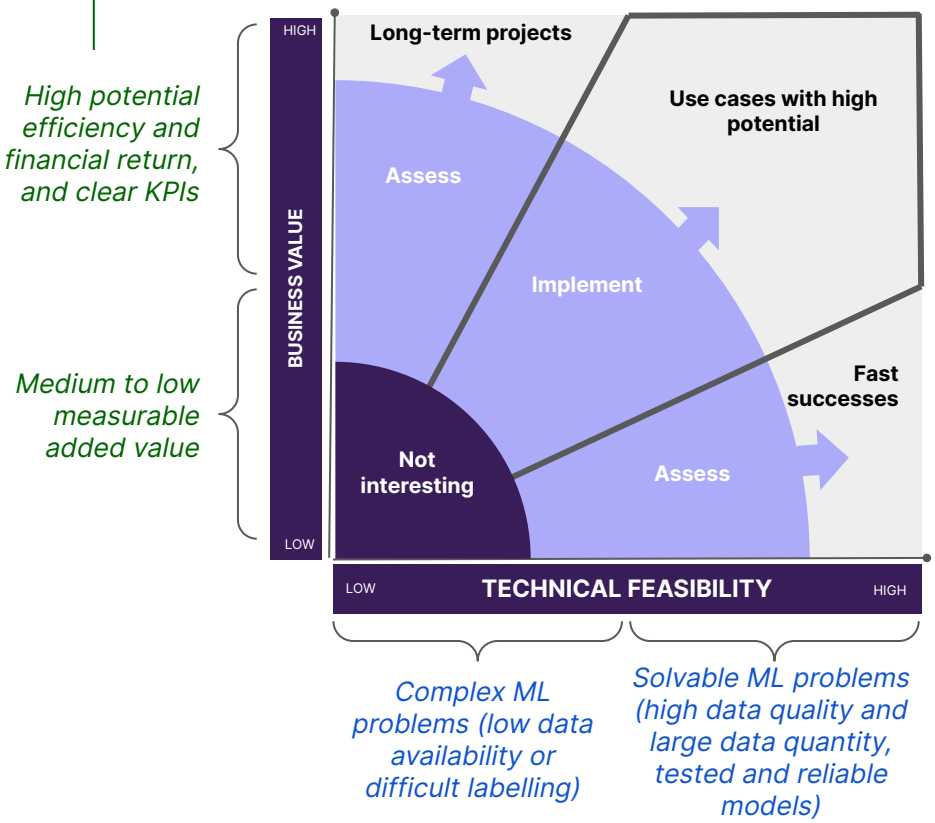
Business

The Business block enables you to identify how much invest and how much resulting business value the implementation of each use case idea could bring.

Technology



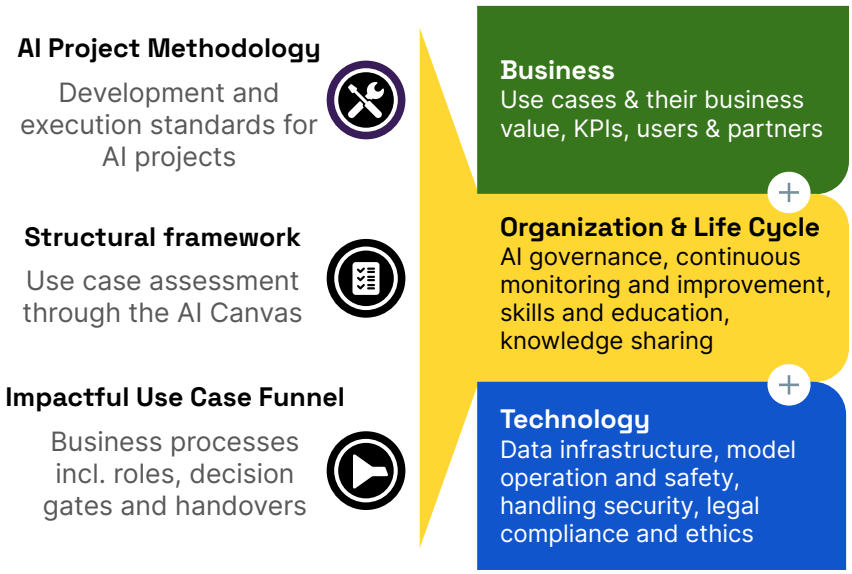
The Technology block enables you to understand how feasible the technical implementation of the solution is, in terms of available data, the difficulty of training, monitoring and securing the model, as well as the impact of regulatory and ethical issues.



How to Use the AI Canvas -

Roadmap to Implementation and Scaling

Hitherto, use cases have been ideated and validated through the AI Canvas, particularly the Business and Technology blocks. To realise the expected business value and technological feasibility, organizational structures must be purposefully developed for AI adoption and continuous improvement. The AI Canvas, particularly the Organization and Life Cycle blocks, guides organizations on this road to successful long-term AI implementation and scaling.



Using the Canvas to set up these internal structures enables an organization to create an impactful funnel for validating use cases and implement them using AI-specific methodology. This includes following the PoC-MVP-Life Cycle stages of development. Moreover, it involves embedding the Life Cycle - the continuous improvement of methods, processes and strategies - as well as cross-organisational knowledge sharing into company structures.

This is informed by insights from the other Canvas blocks. For example, a healthcare company might have identified various operational implications concerning legal, ethical and data security issues when validating their first use case. Due to the nature of this heavily regulated industry, similar issues are likely to apply to many future use cases. Hence, the organization can increase the long-term effectiveness of AI implementation by establishing frameworks and internal governance processes for understanding and dealing with operational implications.

Using the AI Canvas holistically thus enables companies first starting out with AI to build solid foundations for successful long-term AI adoption from their initial use case onwards.

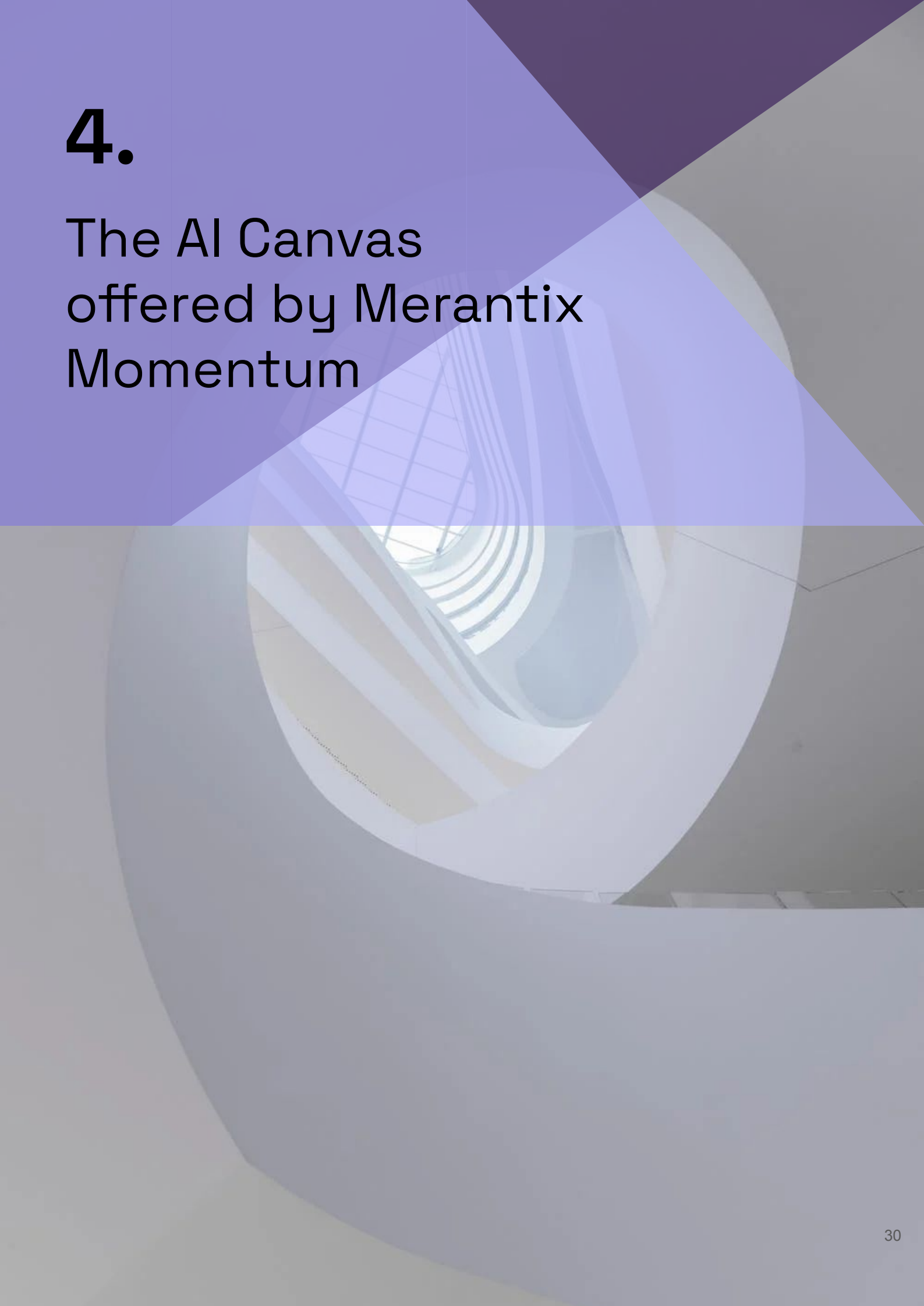
Moreover, the AI Canvas is also beneficial for organizations who have already implemented AI use cases. Going through all Canvas blocks enables them to evaluate their current AI adoption holistically. Doing this while paying special attention to the Organization and Life Cycle blocks further helps companies create an effective strategy for improving and scaling their existing AI adoption. Thereby, the Canvas aids organizations with increasing the value generated from AI implementation.

Since understanding AI is quite complex, a company does not need to identify and evaluate use cases or build an AI strategy alone. There are many options of partnerships and collaborations where an external service provider with high expertise, like Merantix Momentum, can introduce a company to the topic of AI.

Such partnerships can work on both short-term and long-term basis and can be in the form of workshops, consulting services, development services, deployment services, maintenance services, and others. In the following section, we delve deeper into Merantix Momentum's offering.

4.

The AI Canvas offered by Merantix Momentum



How to Use the AI Canvas - The AI Canvas Workshop

Key Takeaways

- Increased Understanding of AI and data management
- Detailed and interactive introduction to use case development and evaluation with the AI Canvas
- 2-3 fully conceptualized AI use cases ready for execution
- Data assessment for customer-specific data sets on use cases
- Development roadmap from PoC to rollout for the use cases

Format

Length: 4 days (2 of which are workshop)

Place: The workshop is carried out at the client site

Participants: 5-15 participants from all relevant departments

Our Team: 2-3 AI Strategists & Machine Learning Engineers

Agenda per day

01

Preparation with the client and our team

Selection of participants

Initial industry research and sample use case preparation

02

Onsite Workshop

Introduction to AI, data management and business case building

Collection of use case ideas through team sparring

Business case development and discussion of process integration

03

Onsite Workshop

Evaluation of existing data infrastructure

Evaluation of the technical feasibility of previously discussed use cases

Development of an understanding of operational implications

Definition of final user journey for discussed solutions

Creation of a development roadmap

04

Consolidation of workshop results

Development of a detailed roadmap approach for discussed use cases

Merantix Momentum - What We Offer

AI Strategy
Generating value through AI

With AI Strategy we enable companies to utilise AI effectively and efficiently, thereby reaping actual value from it. This includes support on education, ideation, business case building and structural set ups within customers' organisations. We partner on all levels, from small workshops to transformative strategies, to deliver success to our customers.

AI Development
Building AI solutions for partners

AI Developments means conceptualizing and delivering state-of-the-art machine learning technologies. We take our clients challenges and transfer them into ML approaches, ideating with leading AI engineers and researchers on the best applicable technologies. Depending on the task at hand, we build the AI solution, from PoC to fully scaled industry solution, for and with our customers.

AI Operations
Ensuring continuous performance

AI Operations ensure that the solutions built by us continuously deliver value to our customers. This means hosting, monitoring, securing and retraining models, to ensure their performance continuously remains at peak levels. For this, we work closely with our customers on their specific needs and domain best practices.

If you'd like to know more, send us an email at momentum@merantix.com - we will provide you with further information and see how your company can derive value from AI!

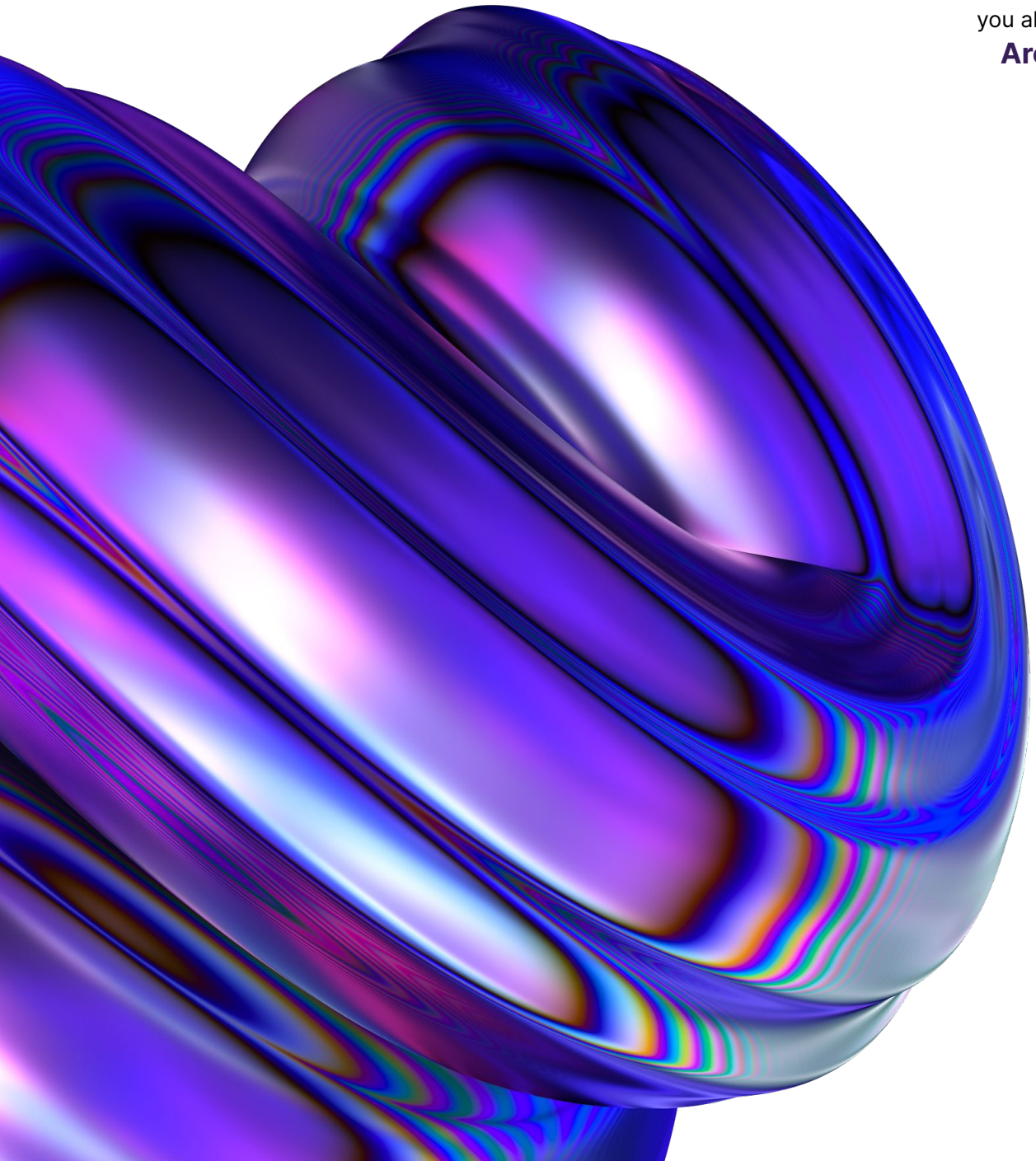
CONCLUSION

AI is revolutionizing the way companies operate and is presenting endless opportunities for generating value. However, the majority of companies are struggling with sustainably deploying and scaling AI across their organization. In this whitepaper, we have presented a strategic framework for helping companies address these problems.

The AI Canvas guides companies through the topic of AI, from conceptualising first use cases to scaling them and transforming organizational structures. It offers a structured process of identifying key topics and challenges in the building blocks of Business, Technology, Organization, and AI Life Cycle.

We recommend using the AI Canvas as a first step into, and as a way of securing a foothold in, the world of AI. Merantix Momentum is here to support you along this journey.

Are you ready?



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MERANTIX MOMENTUM

Merantix Momentum is your company's external machine learning department.

We help you with ideation, identification, implementation, and scaling of AI solutions with high business value. We also provide strategic advice on AI.

Our world class machine learning experts have deep knowledge of data-driven business models and have designed solutions for various industries including logistics, manufacturing, retail, healthcare, legal services, and others. We focus on three key technologies: natural language processing, computer vision, and predictive analytics.

Get in touch if you would like to learn more about how we can support you!

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The Artificial Intelligence and Machine Learning [AI:ML] chair headed by Prof. Damian Borth covers the area of deep neural networks. Our research focuses on representation learning through supervised and unsupervised approaches with applications to text-to-speech generation, computer vision and remote sensing, and financial time-series data.

https://ics.unisg.ch/

Endnotes

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