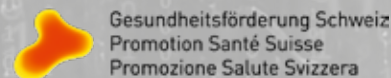


Workshop Canvas AI-4-SME Framework

Identification and utilisation of
strategic AI opportunities to strengthen
an organisation's competitiveness
and innovation capabilities

ai-framework.net

Business partners:



Research and media partners:



Phase 1: Design

In the design phase, AI-relevant opportunities are identified and ideas are generated progressing into concrete solutions and documented AI opportunities.

1. Company Level

Identification of products and services (existing or new) for which the use of AI is suitable.

1.1 Situation and expectations (open strategy questions)

- What will change in the market/company in the future and what are the (technological) challenges/pain points?

- What do you know about AI and what have you implemented so far in this regard?

1.2 External perspective: portfolio analysis

- Can AI help turn a question mark into a star?
- Does it make sense to invest in a star to maintain its market share in a growing market?
- How threatened are your cash cows?
- Is there an opportunity to develop a new AI-supported product in the market with the potential to become a star?



1.3 Internal perspective: capabilities

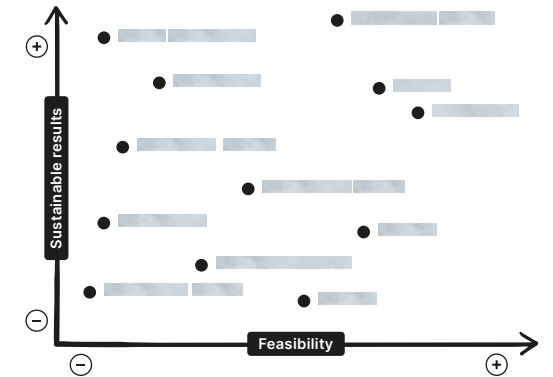
- The potential of AI is determined not only by the market, but also by the company's own strengths and weaknesses. By using AI, weaknesses can be overcome and strengths expanded.
- What capabilities do you (not yet) have for products and services with high market potential (from 1.2)? Develop a "capability map" based on the example below.



1.4 Prioritisation of AI application options

Identify the processes and application areas in which the identified capabilities (from step 1.3) are present. Knowledge and data-intensive processes are relevant for the use of AI. They should fulfil one or more of the following criteria:

- The application utilises capabilities that can be improved today.
- The application contributes to market success (see portfolio analysis step 1.2).
- The process requires a high level of expertise and/or many years of experience (see step 1.3).
- Data is utilised, processed or produced.
- The application has many system breaks and processes data from different sources.
- The application is lengthy, customer or time-critical, error-prone or expensive.
- The process requires the interaction of different participants.
- The process is run frequently (scalability).



For the AI application options identified, the impact on the firm's success (sustainable results based on the market opportunities from step 1.2) and feasibility are assessed. Assessment criteria for feasibility include, for example, the availability of data, availability of resources/skills, required effort/investment and potential risks.

2. Process Level

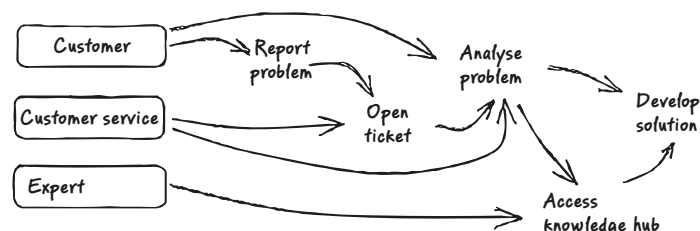
Identification of knowledge and data-intensive tasks and definition of key goals.

2.1 Determination of knowledge tasks

Knowledge tasks in processes that can be supported by AI are presented as a simplified process visualisation. You can determine several processes with AI opportunities in this step.

Criteria for knowledge-intensive tasks:

- Problems are solved, decisions are made and tasks are optimised or automated.
- The task primarily uses knowledge (data) as input or primarily processes knowledge (data).
- The task generates/processes new knowledge (or data) as a result of the completed activities (and can thus create/further develop knowledge).
- The task requires technical knowledge, specialised experience and/or creativity.
- Specialised software is used for the task.
- The task involves R&D activities.



2.2 External perspective: strategic opportunities

In the external perspective, discuss the following question on the basis of step 2.1:

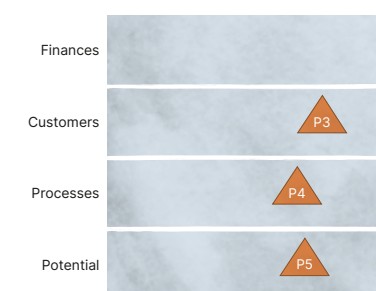
- Where do you recognise AI market opportunities (e.g. M1, M2) in the visualised process from which the customer could benefit in the long term?



2.3 Internal perspective: operational AI process optimisation opportunities

The internal perspective is about utilising the competencies/skills that have been recognised as important but that are in need of improvement at company level. To this end, address the following question:

- Where do you recognise operational AI process optimisation opportunities (e.g. P3, P4, P5) in the visualised process from which the company could benefit in the long term?

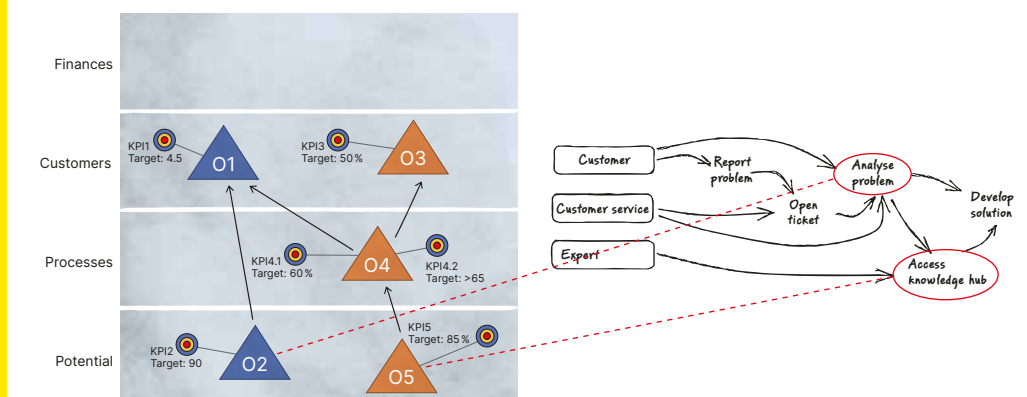


2.4 Objectives for the use of AI

To document the objectives (e.g. O1 to O5) from both perspectives (steps 2.2 and 2.3), the relevant activities are marked in the process model (from step 2.1) and the objectives for AI deployment are formulated in the categories of the balanced scorecard model.

The objectives of the external perspective are usually assigned to the "customers" category (ultimately with an impact on finances; shown in blue below) and the objectives of the internal perspective to the processes category (shown in orange below).

In addition, key performance indicators (KPIs) can be assigned to the individual objectives.



3. Task Level

Generation of AI solution ideas and definition of the necessary measures, people and data as well as documentation of the AI solution using design thinking.

3.1 Understand (empathise)

Use the storyboarding and persona methods to better assess the needs of future users of the AI application.


Storyboarding

The storyboarding technique consists of creating realistic stories that aim to understand the context and working methods of the target users when developing a product or service.

“Please describe your daily work activities that are in the context of the previously selected business process (from step 2.1). Concentrate on one or several complex tasks. Go into detail and describe the purpose of the task, who you interacted with (e.g. colleagues and/or IT systems), why you performed the task in a certain way and, if applicable, why you needed interactions.”

Persona

Personas are fictitious typical users who embody the goals and needs of the user group. They are helpful in the development of user-friendly software, as they make it possible to better understand and consider the motivations and needs.




3.2 Define point of view (define)

(1) Model a business process (from step 2.1) and (2) identify specific problems in it.

Then define both the **knowledge-intensive tasks (KITs)** and the **data-intensive tasks (DITs)**. Knowledge-intensive tasks require AI solutions with cognitive skills such as problem solving, analysis, creativity and decision making. Data-intensive tasks, for example, require AI solutions for analysing data and transactions. To do this, answer the six **W questions** (see below), formulate the resulting problem (“point of view”) and then discuss how the problem can be solved.

- **What** is the problem?
- **Who** has the problem?
- **Why** does the problem exist?
- **When** is it a problem?
- **Where** exactly is the problem?
- **How** is the problem being solved today?



3.3 Develop ideas (ideate)


Generate ideas for possible AI applications using the brainstorming method and the 2x2 matrix.

Brainstorming with Crazy 8

Each participant sketches/draws eight different ideas on paper (paper sheet, folded into eight squares) within eight minutes. The aim is to quickly generate many different solutions for a specific problem without thinking too long about individual ideas. The sketches are then shared and discussed in the group.

2x2 matrix method

Use two axes to group the generated ideas in a matrix with four quadrants (e.g. effort vs benefit, novelty vs feasibility, impact/results vs feasibility). By categorising the ideas in these quadrants, an overview is quickly created and promising approaches for further development are identified.

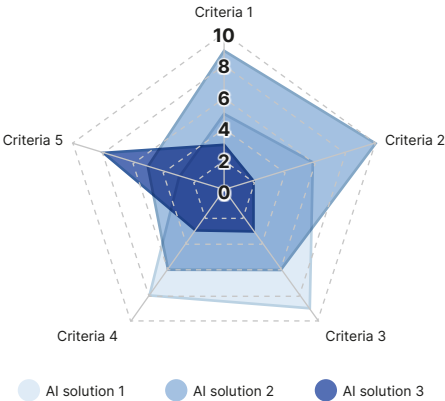


3.4 Develop prototype (prototype)

To develop the prototype, a realistic target use case is created (e.g. using the storyboarding method from step 3.1).

Before creating the prototype, it is recommended to research whether there are already corresponding AI solutions on the market. Look for (1) companies that offer similar AI solutions and (2) companies that offer different AI solutions but address similar needs of the same target users.

The findings will help you to define and compare the criteria (e.g. using a spider diagram) that will be integrated into your AI prototype.



3.5 Testing (test)

The developed AI prototype is tested with the potential users. For this purpose, tests are prepared/carried out, the results are documented and findings are derived for the re-iteration of the design thinking process. Components of the test phase:

- Description of the test scenario
- Definition of the test criteria
- Test procedure
- Roles in the test
- Test results
- Resulting measures
- Further findings

3.6 Documentation

The design phase is concluded with the documentation of the workshop results and proposed AI solutions.

The structure follows the design phase (this workshop canvas) with the results from the company, process and task levels.

Phase 2: Build

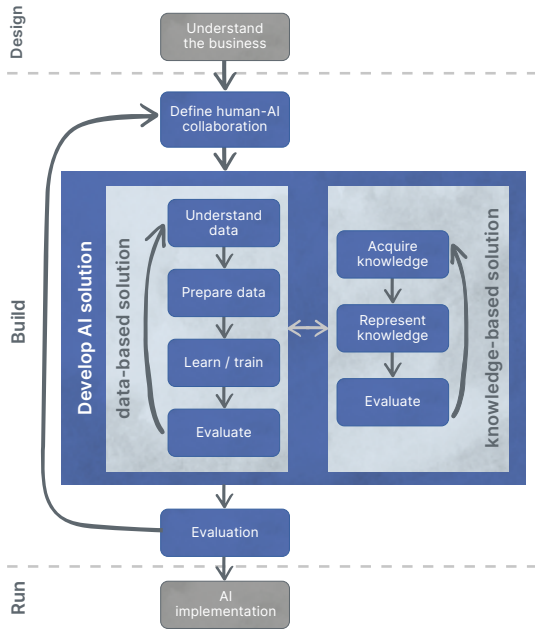
The build phase comprises the development and implementation of AI solutions, focusing on the collaboration between humans and AI.

1. Process model

Structure for project planning, development and implementation of the AI solution

When developing the AI solution, it is possible to develop a data-based, a knowledge-based or a hybrid AI solution. The interaction during the development of a hybrid AI solution is symbolised by the arrow between the two processes.

The process model can be applied flexibly. Depending on the type of AI used and the tools and systems used (see next point), not all steps need to be completed.



2. Systems and tools for AI solutions

Options for the realisation of AI solutions

Options for AI systems:

- **Generic AI systems** such as large language models (ChatGPT, Gemini or Claude), but also assistants (e.g. Microsoft Co-Pilot) that are integrated directly into existing applications.
- **General AI services** that provide basic functionalities such as speech and image recognition, translations and the generation of texts, images or videos.
- **Specialised AI solutions** that are geared towards specific tasks within firms. Examples include systems for automated applicant selection in recruitment, support in sales or the optimisation of warehouse management processes.

Options for AI tools:

- **Data-based solutions:** in machine learning, neural networks are trained based on a firm's own data to create customised AI models. Commonly used frameworks include TensorFlow from Google and PyTorch from Meta, which enable flexible and powerful developments.
- **Knowledge-based systems:** if decisions are to be based on rules or structured knowledge, knowledge-based systems are used. Various commercial tools are available for the creation and use of knowledge graphs, including metaphactory (metaphacts), TopBraid Composer (TopQuadrant), Neo4j, Stardog, GraphDB or RDFox.

Phase 3: Run

In the run phase, the AI solution is integrated into the company's productive environment.

When the AI solution is introduced, the finished model or system is integrated into the company's productive environment.

The introduction of the AI solution affects all levels of the organisation's architecture and corresponding planning and implementation concepts are created:

- **Corporate governance:** principles for the use of AI that comply with the legal frameworks (e.g. GDPR, EU AI Act) as well as the ethical values and guidelines of the company (e.g. transparency, avoidance of discrimination) and that minimise risks (legal and ethical risks, data protection/loss, company reputation, etc.) as far as possible.
- **IT and data infrastructure:** decision in favour of own servers vs cloud solution (incl. data storage physically and geographically) as well as requirements for data quality/ sources, security and robustness, performance, scalability and integration into the existing IT landscape are defined.
- **Application level:** definition of integration into the company's application architecture (e.g. [web] API to ERP/CRM systems).
- **Business processes:** adaptation of processes (interaction between humans and AI), including change management activities.

The use of artificial intelligence (AI) is of great importance for a company's competitiveness and ability to innovate, and therefore for its financial performance. Through the targeted use of AI technologies, processes can be made more efficient, better decisions can be made, tasks can be automated, improved or made possible in the first place and new business opportunities can be created.

However, access to AI is difficult for many organisations. On the one hand, there is a lack of knowledge about AI and, on the other hand, a lack of understanding about how AI can be used.

The AI-4-SME framework was developed as part of a project by the FHNW School of Business together with the Olten Economic Development Agency, supported by the New Regional Policy Association (NRP) and the Canton of Solothurn. It supports organisations to recognise and document potential applications of AI and implement successful projects. With this method, organisations can find, customise, develop, implement and successfully use AI applications that are suitable and efficient in line with their business strategies.

The AI-4-SME framework comprises three phases:

In the **design phase**, AI-relevant problems are recognised and ideas for solutions are generated. The aim here is to identify the potential application areas by identifying AI opportunities in the company, and by developing creative approaches for its use. The phase comprises three levels:

1. Company level

Identification of products and services (existing or new) for which the use of AI is suitable.

2. Process level

Identification of knowledge and data intensive tasks, and definition of key goals for AI supported processes.

3. Task level

Generation of solution ideas, definition of the required activities, people and data, as well as documentation of the AI solution.

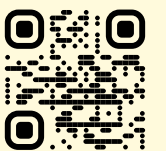
The **build phase** comprises the development and implementation of AI solutions. This phase includes the realisation of the design phase, taking into account effective interaction between humans and machines. The AI-4-SME framework offers a flexible process model for this, which can be used for both machine learning as well as for knowledge-based AI solutions and their combination.

In the **run phase**, the AI solution is developed and used in the company's productive environment. This includes embedding the developed AI solution into the existing business processes and company's IT systems in order to achieve the desired benefits, as well as the development of concepts relating to corporate governance, IT and data infrastructure, the application level and business processes.

Use the workshop canvas to identify and utilise strategic AI opportunities to strengthen your competitiveness and innovation capabilities.



For your AI project, use the practical guide (in German) for a description of the AI-4-SME framework for insights into many topics on AI (e.g. knowledge-based AI, ML, DL, generative AI, AI and humans, AI use in the workplace, AI and cybersecurity, as well as the legal frameworks in Switzerland and the EU) and for case studies from Swiss companies.



Visit www.ai-framework.net for further information about the project and to download the AI workshop canvas.

Business partners:



Research and media partners:

