



## EDIH4UrbanSAVE

Test Before Invest – Workshop Formats (updated Version)  
**Deliverable D2.2, Version 1.6, 30.11.2023**



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## **Test before Invest – Workshop Formats (updated Version)**

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## History of changes

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## Executive summary

This deliverable concerning **Workshop Concepts, Specifications and Training Materials - updated Version** is based on the deliverable 2.2 **Workshop Concepts, Specifications and Training Materials** and what was described in the proposal and Grant Agreement (GA). Furthermore, this deliverable aims to describe how the goals and process of connecting to the innovation ecosystem at regional, national, and EU levels for the European Digital Innovation Hub for Urban Networked Supply and Value Ecosystems<sup>1</sup> (EDIH4UrbanSAVE) will be achieved to provide value to the target mission audience and leverage existing ecosystem actors and services.

This document is built up as follows: in the beginning, a short overview of the Test before Invest services catalogue is given. Based on this, an overview of the required training materials and supporting materials is given. This deliverable is an updated version after a project duration of 12 months.

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<sup>1</sup> In the following text, EDIH4UrbanSAVE is also referred to as EDIH Hamburg.

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# 1. Introduction

The EDIH will prepare the European society and economy and place Europe at the forefront of sustainable tech development and the twin transition (digital & green). Therefore, important new and established innovation actors and the education sector have joined forces across clusters and industries. Hamburg's EDIH will contribute to the twin transition (green & digital) of local SMEs, small mid-caps and public sector organisations (PSOs) with a portfolio based on existing local competencies, covering the key digital technologies of AI, HPC, cybersecurity, distributed infrastructure and digital skills, including, where relevant, their environmental impact. A large-scale digital transformation of the metropolitan region of Hamburg will be facilitated by "Test before Invest" formats.

## 1.1 Intended Audience

This deliverable is addressed to three main audiences: 1) the consortium members, 2) the commission services and the independent reviewers of the project and 3) external organisations and participants of external projects, especially those with an interest in EDIHs. The primary audience are the first two groups, but as a public deliverable, its content is intended to be made available to other interested parties.

## 1.2 Structure of this Deliverable

After the description of the services catalogue of the pillar Test before Invest in Section 2, workshop concepts, specification and material of already planned services will be presented. In doing so, we address the planned questionnaires after the services have been used in order to iteratively improve them.

## 1.3 Goal

Together with the developed blueprints, this deliverable will provide guidelines for the successful implementation of the services in the Test before Invest pillar of EDIH4UrbanSAVE. The description of possible materials is intended to support the implementation of services across partners and may also provide guidance to other EDIH initiatives. [Changes to the initial deliverable are marked in blue to make changes easier to recognize.](#)

## 2. Test before Invest Services Catalogue

The condensed list of the Test before Invest (TBI) services is shown in Table 1.

TBI-1:	Use and access to Tech Labs including sufficient support and consulting
TBI-2:	Future-Tech Check-up: AI, cybersecurity, ethics, privacy & digitisation: interactive survey and workshop with different stakeholders in a company/public admin.; identification of tech maturity and digital innovation potential in a company
TBI-3:	Use case development service: in-house workshops with different stakeholders to identify and develop tech use cases
TBI-4:	JPOC - Joint Proof of Concept/feasibility project: co-creation, prototyping & agile development project delivering a PoC (Proof of Concept) & PoV (Proof of Value)
TBI-5:	Experiments, intensive processing on the research computing infrastructure (AI servers, HPC, security experiments) with expert support
TBI-6:	Agile Development Series (challenge-based ideation, rapid prototyping, minimal valuable product)

Table 1: Test before Invest Service Catalogue

### 2.1 Workshop Concepts, Specification and Material

This section takes a closer look at the material and specifications of the formats already planned for the TBI services shown in Table 1. For the five services, documents on implementation and documentation are generally presented to ensure successful implementation. Initial content for the surveys is presented. Methodical format development guides are not included here, materials for operation are handled so far by each partner individually.

The project is in the development phase of the services and will present more detailed material and specifications of the services in month 12 in a follow-up deliverable.

#### 2.1.1 Workshop Concepts and Material

Materials for TBI workshop formats are presented here. Because these are services that must be customized to the specific context of the customer, the associated materials are not always used in their entirety.

If the formats presented here represent an initial contact with the customer, the onboarding document (see Appendix, Figure 2) or a partner-specific equivalent will be used for inclusion in EDIH4UrbanSAVE.

For the formats for which a Digital Maturity Assessment (DMA) is conducted, the results are made available to the SME or PA upon request.

#### **TBI-1: Use and access to Tech Labs**

Tech Lab formats for documentation and implementation require various materials to ensure smooth operation of the labs. Here is an overview of materials that will be useful in the “Use and access to Tech Labs” service:



1. *Agenda*: There must be a clear agenda for the use of the labs in order to address issues of SMEs and PAs in a targeted manner and to make optimal use of the infrastructure. Parts of the agenda are an introduction of the Tech Lab operators and SME or PAs with a presentation of the impetus for use from the SME or PA point of view. In addition, a goal statement should be developed prior to actual use of the lab. Another item on the agenda should be networking possibilities of the practitioners.
2. *Presentation materials*: Depending on the needs, presentation slides, flipcharts, or whiteboards may be required to present information, lead discussions, and visualize ideas. [There are some overview presentation slides for AI Tech Lab – ARIC Showroom – in Appendix.](#)
3. *Technical equipment*: Depending on the needs of the Tech Lab, various technical equipment may be needed, such as computers, laptops, tablets, smartphones, networking equipment, programming boards, or other specific hardware. These support the hands-on exercises, demonstration purposes, or live coding during the lab. For these *documentation and manuals* (how-to guides, documentation, best practices, or other informative materials) are needed. [Descriptions of some of the AI demonstration exhibits in the ARIC Showroom AI Tech Lab are given in the Appendix: Temperature and mask detection \(Synergeticon GmbH\), LUIS EDGE AI CAM \(LUIS TECHNOLOGY GMBH\), Hand hygiene monitor \(Lemberg Solutions\).](#)
4. *Access and authorization documents*: If the Tech Lab require access to specific systems or resources, ensure that all participants have the necessary credentials and authorizations. This may include access to test environments, cloud platforms, databases, or other relevant systems.
5. *Documentation templates*: To document the progress and outcomes of the service carried out in the Tech Lab, templates such as workshop minutes, action plans, checklists, or report templates will be useful. This helps to record discussions, decisions, results achieved, and action steps for the SME or PA, [see Appendix, Figure 6.](#)
6. *Evaluation and feedback forms*: Evaluation and feedback forms can be prepared to evaluate the Tech Lab and obtain feedback from participants. This helps to assess the success of the Tech Lab usage, identify areas for improvement, and optimize future events. In addition, after using the service, there will be a survey to improve the service in EDIH, see Questionnaire Concept in Section 2.2.

Specific materials may vary depending on the nature of the specific Tech Lab, objectives, and requirements.

## **TBI-2: Future-Tech Check-up**

A Future-Tech Check-up requires a variety of tailored materials to support the conduct and documentation of the assessment. Concept and material must be adapted to the SME's segment and issues, depending on the SME's industry and PA focus. The EDIH4UrbanSAVE procedure for this service has been outlined in a Blueprint (see Deliverable 2.1) and will be presented to the individual SME or PA.

Here is an overview of materials that will be useful in a Future-Tech Check-up service:

1. *Agenda*: There must be a clear agenda for the Future-Tech Check-up in order to address issues of the SMEs and PAs in a targeted manner and to make optimal use of the check-up. Parts of the agenda are an introduction of the EDIH service operators and SME or PAs with presentation of the impetus for use from the point of the SME, PA. Processes, data, applications, interfaces and exemplary customers should be presented by the SME

or PA. [The use of a survey makes it easier to obtain this information and is carried out using the survey in the appendix, Figure 4.](#)

2. *Presentation materials*: Prepared presentation slides or handouts can be used to explain the concept of the Future-Tech Check-up to participants, explain the agenda, process, and present relevant information, like the DMA with EDIH extensions. This may include information on concluding recommendations, future technology trends, best practices, or case studies. In addition, next steps and interesting services within EDIH can be presented.
3. *Technology examples and demos*: EDIH will prepare tailored materials that present examples of future technologies or innovative solutions to the requested orientation of the check-up (depends on key technologies). This may include case studies, demos, or prototypes to give participants insight into the capabilities and implications of these technologies.
4. *NDA*: An NDA (Non-Disclosure Agreement), or confidentiality agreement, is a legal document used to protect confidential information and trade secrets. It is agreed upon between two or more parties within EDIH4UrbanSAVE as needed to ensure that certain information is kept confidential and will not be disclosed or used without the consent of the parties involved. [A consent for electronic data processing is also required and in our case also contains an optional NDA clause, see Figure 1.](#)
5. *Evaluation and feedback forms*: Evaluation (based on a DMA) and feedback forms can be used to assess the Future-Tech Check-up and obtain feedback from participants. This helps to assess the value of the Check-up, identify areas for improvement, and capture feedback from participants (see questionnaire concept, in Section 2.2).

The specific materials may vary depending on the objective of the Future-Tech Check-up and individual requirements [and sectors](#). Careful planning and preparation in advance and the developed blueprint will ensure that all necessary materials are in place to effectively conduct the check-up and adequately document the results.

### **TBI-3: Use Case Development Service**

For a use case development service, various tailored materials are needed to support the service, the documentation and the execution. How the procedure of this service is planned in EDIH4UrbanSAVE is shown in Deliverable 2.1 in the corresponding blueprint.

Here is an overview of materials that will be useful in a Use Case Development Service:

1. *Agenda*: There must be a clear agenda for the use case development service in order to address issues of the SMEs and PAs in a targeted manner and to make optimal use of the resources of all participants. Parts of the agenda are an introduction of the EDIH service operators and SME or PAs with presentation of the impetus for use from the point of the SME or PA. The EDIH responsible persons will present the developed blueprint with the corresponding steps. Processes, data, applications, interfaces and exemplary customers should be presented by the SME or PA.
2. *Presentation materials*: Prepared presentation slides or handouts can be used to explain the concept of the use case development service to participants, explain the agenda, process, and present relevant information, like the DMA with EDIH extensions. Presentations will be created in different phases of the service. This includes the presentation of the data analysis phase, the developed use case, information on concluding recommendations, or case studies. In addition, next steps and interesting services within EDIH can be presented, like the Joint Proof of Concept service.

3. *Requirement documents*: Requirement documents are needed to understand and document the use case. These documents describe the functionalities, goals, and constraints and needed data of the use case. They serve as a starting point for the development of the use case.
4. *Workshop materials*: Presentation slides, flipcharts, whiteboards, or other visualization tools may be required for workshops or meetings to develop the use case. These support communication, collaboration, and discussion among participants.
5. *Modeling tools*: Depending on the complexity of the use case, modeling tools such as UML (Unified Modeling Language), BPMN (Business Process Model and Notation) or other diagramming tools can be used to model and document the use case. These tools enable a detailed representation of the use case with diagrams and descriptions.
6. *Canvas*: There are different canvases that can be used as a basis for the development service depending on the key technology, like presented in Figure 1.
7. *Final technical use case description*: The technical description of the use case summarizes the requirements, the data needed, and the results from previous workshops and meetings conducted internally or collaboratively. In addition, the technical description will consist of input and output as well as technical methods.
8. *NDA*: An NDA (Non-Disclosure Agreement), or confidentiality agreement, is a legal document used to protect confidential information and trade secrets. It is agreed upon between two or more parties within EDIH4UrbanSAVE as needed to ensure that certain information is kept confidential and will not be disclosed or used without the consent of the parties involved. [A consent for electronic data processing is also required and also contains an optional NDA clause, see Figure 1.](#)
9. *Evaluation and feedback forms*: Evaluation (based on a DMA) and feedback forms will be used to assess the Use Case Development service and obtain feedback from participants. These help to assess the digital maturity of the SME or PA, the value of the use case development service, identify areas for improvement, and capture feedback from participants (see questionnaire concept, in Section 2.2).

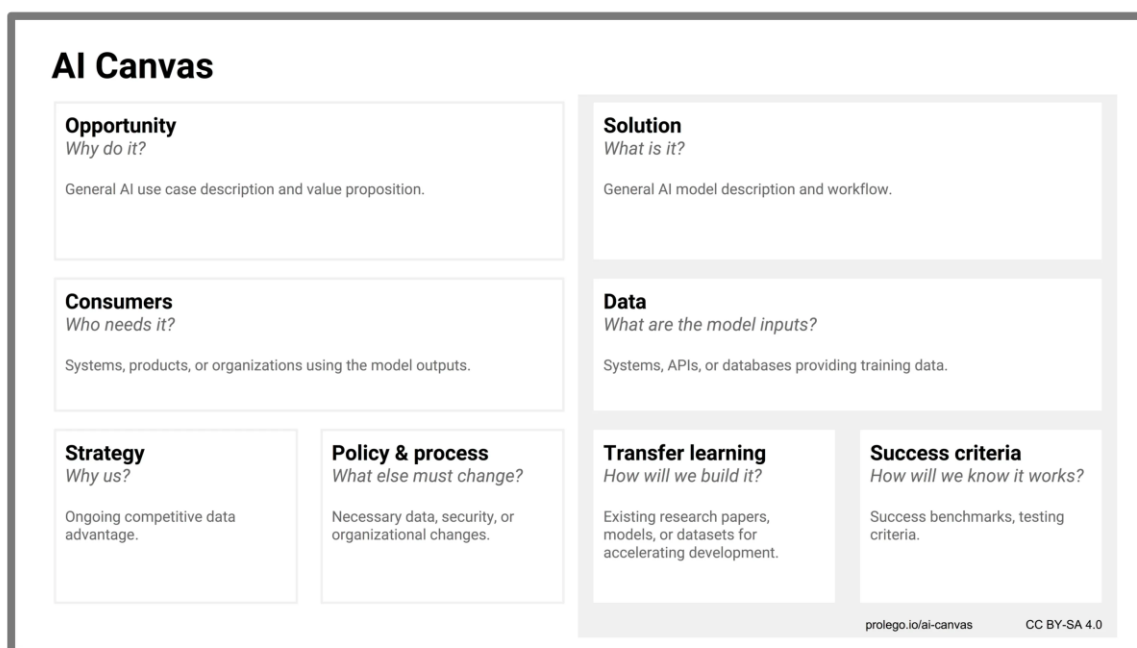


Figure 1: Example of an AI Use Case Canvas [source: prolego.io, retrieved May 2023]

Specific materials may vary based on Use Case Development Service requirements and individual needs of the SME or PA.

Because services from TBI-3 and TBI-4 were requested earlier than expected, and the materials were not all developed, a docket (see Figure 3) was created for internal purposes to conduct use case development and JPoC services for EDIH staff.

#### **TBI-4: Joint Proof of Concept**

The purpose of a Joint Proof of Concept (JPoC) development under EDIH is to collaboratively explore and validate the feasibility, functionality, and potential value of a new technology, solution, or innovation in a real-world context of an SME or PA. [At the current stage of the project, this service has been very well received and is highly customized](#) For a JPoC service, various materials are needed to support the documentation and execution of the service. How the procedure of this service is planned in EDIH4UrbanSAVE is shown in Deliverable 2.1 in the corresponding blueprint.

Here is an overview of materials that will be useful in a JPoC service:

1. *Agenda*: There must be a clear agenda for the JPoC service in order to address the use case of the SMEs and PAs in a targeted manner and to make optimal use of the resources of all participants. Parts of the agenda are an introduction of the EDIH service operators and SME or PAs with presentation of the impetus for use from the point of the SME, PA. The EDIH responsible persons will present the developed blueprint with the corresponding steps. Processes, data, applications, interfaces should be presented by the SME or PA.
2. *Presentation materials*: Prepared presentation slides or handouts can be used to explain the concept of the JPoC service to participants, explain the agenda, process, and present relevant information, like the DMA. Presentations will be created in different phases of the service. This includes the presentation of the use case to be developed from the point of view of the SME or PA, the results of the data analysis phase by the EDIH experts or the interim reports of the development phase by the EDIH experts. In addition, next steps and interesting services within EDIH can be presented, like the experiments on the research computing infrastructure service.
3. *Workshop materials*: Presentation slides, flipcharts, whiteboards, or other visualization tools may be required for workshops or meetings to develop the use case and discuss the Joint Proof of Concept. This supports communication, collaboration, and discussion among participants.
4. *Final technical description*: The technical description of the proof of concept summarizes the requirements, the data needed, and the results from previous workshops and meetings conducted internally or collaboratively. In addition, the technical description will consist of input and output as well as technical methods.
5. *Prototyping tools*: To visualize and prototype the proof of concept, materials such as paper, pens, sticky notes, scissors, glue, and other office supplies can be used. These allow participants to sketch the proof of concept, represent interactions, and design user flows.
6. *Documentation and manuals of results*: Provide documentation and manuals, as appropriate, that can serve as a reference for participants during the Joint Proof of Concept service. The delivery of results consisting of code, documentation and licensing information.

7. *Cooperation Agreement*: The cooperation agreement<sup>2</sup> regulates the research and development work for the service, such as the responsibilities, duration of the service, the free use of SMEs and PSOs of the service, references to deMinimis regulations, references to software libraries and licenses used, disclaimer, confidentiality and legacy rights
  - a. *Exclusion of liability*: A liability disclaimer is a legal document or clause used to limit or exclude the liability of a person or organization for the integration of the JPoC at the SME or PA. It is used to minimize potential legal risks and provide protections in the event of damage or loss.
  - b. *NDA*: An NDA (Non-Disclosure Agreement), or confidentiality agreement, is a legal document used to protect confidential information and trade secrets. It is agreed upon between two or more parties within EDIH4UrbanSAVE as needed to ensure that certain information is kept confidential and will not be disclosed or used without the consent of the parties involved.
8. *Evaluation and feedback forms*: Evaluation (based on a DMA) and feedback forms will be used to assess the Joint Proof of Concept service and obtain feedback from participants. These help to assess the digital maturity of the SME or PA, the value of the use case development service, identify areas for improvement, and capture feedback from participants (see questionnaire concept, in Section 2.2).

Specific materials varies based on JPoC service requirements and individual needs of the SME or PA. This service is highly requested and meets the demand of the EDIH customers.

#### **TBI-4: Experiments, intensive processing on the research computing infrastructure**

Since month 12 of the project, EDIH customers are able to use the service on a project-internal Research Computing Infrastructure (RCI). The description of the currently available hardware and architecture is described in Deliverable 2.3 *TBI Research Computing Infrastructure (Version 1)*. The services covering TBI-5 *Experiments, intensive processing on the research computing infrastructure* can now be offered. This service is not considered a pure workshop format however, the following accompanying materials may be required:

1. *Experiment description or plan*: Description of the research objective, expected results, expected computing time and planned experimental design.
2. *User agreements*: Agreements regarding the use of the computing infrastructure, including agreement to terms of use, handling of maintenance and malfunction cases, deletion concept, security policies, and privacy policies.
3. *Resource requirements*: Specifications regarding the computing power, disk space, and other resources needed to conduct the experiments, see Deliverable 2.3.
4. *EDIH slurm cluster introduction*: A brief introduction to the special features of the Slurm Cluster (RCI) from EDIH. Slurm (Simple Linux Utility for Resource Management) is responsible for the job scheduling on the RCI to allocate access to the computer nodes.
5. *Protocols and reports (created by EDIH customer)*: Records of experiments conducted, results, problems and their solutions, as well as regular progress reports.
6. *NDA*: An NDA (Non-Disclosure Agreement), or confidentiality agreement, is a legal document used to protect confidential information and trade secrets. It is agreed upon

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<sup>2</sup> The cooperation agreement can be provided on request within the framework of EDIH.

between two or more parties within EDIH4UrbanSAVE as needed to ensure that certain information is kept confidential and will not be disclosed or used without the consent of the parties involved. A *consent for electronic data processing* is also required, see Figure 1.

7. *Evaluation and feedback forms*: Evaluation (based on a DMA) and feedback forms will be used to assess Experiments service and obtain feedback from participants. These help to assess the digital maturity of the SME or PA, the value of the experiment service, identify areas for improvement, and capture feedback from participants (see questionnaire concept, in Section 2.2).

The service covering TBI-6 *Agile Development Series* may also include workshop-type segments. However, it are not considered a pure workshop format and thus are not discussed here. Parts of the materials described above can be used for a successful implementation of them.

## 2.2 Questionnaire Concept

Basically, two types of questionnaires exist in the project EDIH4UrbanSAVE. The first is the Digital Maturity Assessment questionnaire, which is carried out for larger interventions, and the feedback questionnaire to improve the services themselves. In EDIH4UrbanSAVE, the Digital Maturity Assessment will be expanded to include core questions about key technologies (AI, Digitization, HPC, and Cybersecurity).

Feedback questionnaires (created in *EU Survey*<sup>3</sup>, see Appendix, Figure 7) and the creation of an interview guide are planned for the evaluation of the various workshop formats. The evaluation of the results obtained in this way is intended to support the fine tuning of the workshop formats and the learning content in the sense of an iterative step of improvement. With the questionnaires, all participants will be given the opportunity of various feedback measures on the offered workshop format after a training activity. If necessary, the interview guide can be used to obtain additional information about an event by actively interviewing (a selection of) participants (e.g., by videoconferencing). This seems to make sense, for example, in case of a low return rate of the questionnaires, which can be estimated based on the number of participants or other key indicators such as the number of downloads of learning material.

If possible, the data of the participants will be stored temporarily when they register for an event in such a way that interviews can be performed later. It is planned for the questionnaires and within the scope of the interviews to initially collect the following data, if possible, for the various workshop formats:

1. Contact information of participant
2. Background of participation
  - o How was the service known?
  - o What were the expectations and goals of participation?
3. Assessment of the organization of the workshop format
  - o How easy was the registration process?

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<sup>3</sup> <https://ec.europa.eu/eusurvey/>, retrieved 30.11.2023

- o How smooth was the training event?
- 4. Assessment of the quality of the presentation of the learning material
- 5. Assessment of the scope and speed with which the content was presented
- 6. Assessment of the fulfillment of expectations
- 7. Assessment of the transferability of the respective core topic (AI, Digitization, Cybersecurity, and HPC) to the SME/PSO of the participant and the improvements that can be expected to result from it
- 8. Particularly positive (or, if applicable, negative) impressions
- 9. Comments
- 10. Suggestions for improvement
- 11. Which other topics (for which there are no workshop offers within EDIH Hamburg so far) would be of particular interest?

Furthermore, it is planned to collect more specific data depending on the workshop format, e.g., for workshops with practical contents:

- 12. Assessment of the balance between theoretical and practical contents
- 13. Assessment of the transferability of the practical content to problems in the SME/PSO of the participant

In workshop formats with a more specific or individual character to the SME/PSO, for example in connection with the development of use cases, a participant will also receive correspondingly intensive training from the EDIH experts. This is a good starting point for also collecting data after an event that can be used to identify the needs for funding opportunities, such as:

- 1. Assessment of an immediate economic impact on the SME/PSO of the participant
- 2. Assessment of the potential for investment
- 3. Rough estimation of costs for personnel, hardware, etc. for an investment
- 4. Assessment of the need for assistance in writing project proposals

Currently, research is being conducted into which IT solution can be used to conduct the surveys. Important aspects for this are data protection and also the easiest possible expansion of the surveys in the consortium. Furthermore, additional surveys are necessary due to the co-financing within the framework of the *Mittelstand-Digital-Zentrum*<sup>4</sup> in order to meet the funding requirements there.

### 3. Summary

In this document we updated the descriptions of the workshop concepts, specification and material for the pillar Test before Invest. Together with the developed blueprints, they will provide guidelines for the successful implementation of the services in EDIH4UrbanSAVE. In addition, the two types of questionnaires that are planned in the project were discussed.

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<sup>4</sup> <https://www.kompetenzzentrum-hamburg.digital>, retrieved May 2023

# Appendix



Figure 2: Onboarding document EDIH4UrbanSAVE

Figure 3: Docket for TBI



Quelle (Quelle)	Handlungsfeld (Quelle)	Handlungsfeld (nr.)	Fragenart	Frage	Antwortformat	Zielgruppe	Anmerkung
DigiCheck	Grunddaten	0 Grunddaten	Sachfrage	Name des Beraters / der Beraterin	Freitext	Geschäftsführung	Erscheint nur: wenn bei der Frage zur Instrum "Mit einem Berater" ausgewählt wird!
DigiCheck	Grunddaten	0 Grunddaten	Sachfrage	Email-Adresse des Beraters / der Beraterin	Email	Geschäftsführung	
DigiCheck	Grunddaten	0 Grunddaten	Sachfrage	Name des Unternehmens	Freitext	Geschäftsführung	Erscheint nur: wenn bei der Frage zur Instrum "Selbsttest" ausgewählt wird!
DigiCheck	Grunddaten	0 Grunddaten	Sachfrage	Rolle Interview-Partner:in	Geschäftsführung IT-Leitung/-Verantwortlichkeit Fachbereichsleitung Personal	Geschäftsführung	
DigiCheck	Grunddaten	0 Grunddaten	Sachfrage	Geschäftsadresse	Ort	Geschäftsführung	Erscheint nur: wenn bei der Frage zur Instrum "Selbsttest" ausgewählt wird!
DigiCheck	Grunddaten	0 Grunddaten	Sachfrage	Gewerk	Freitext	Geschäftsführung	ggf. Liste mit Antwortmöglichkeiten recherchieren
DigiCheck	Grunddaten	0 Grunddaten	Sachfrage	Anzahl Mitarbeitende	Einfachauswahl Dropdown (0-10, 11-25, 26-50, 51-100, Mehr als 100)	Geschäftsführung	
DigiCheck	Grunddaten	0 Grunddaten	Sachfrage	Umsatz im letzten Jahr	Einfachauswahl Dropdown (EUR 17.500 bis zu 50.000, EUR 50.000 bis zu 125.000, EUR 125.000 bis zu 250.000, EUR 250.000 bis zu 500.000, 500.000 bis zu 5 Mio., 5 Mio. und mehr; Keine Angabe)	Geschäftsführung	ggf. Auswahlmöglichkeit mit Ranges ermöglicht bessere Auswertung
BMCS	Rahmenbedingungen	0 Grunddaten	Sachfrage	Wie lange dauert die Besetzung von Stellen für gewöhnlich?	Freitext	Geschäftsführung	
BMCS	Geschäftsprozesse	0 Grunddaten	Sachfrage	Gibt es die Möglichkeit im Homeoffice / Remote zu arbeiten?	Einfachauswahl Dropdown (Ja, Nein, in Planung; Keine Angabe)	Geschäftsführung	
DigiCheck	Mitarbeitende	0 Grunddaten	Sachfrage	Vor welchen Herausforderungen steht das Unternehmen in den kommenden Jahren in Bezug auf die Mitarbeitenden?	Freitext	Geschäftsführung	Standardfrage am Ende eines Abschnitts
DigiCheck	Grunddaten	0 Grunddaten	Sachfrage	Kund:innen-Struktur: Privat-Kund:innen	Prozentbalken	Geschäftsführung	
DigiCheck	Grunddaten	0 Grunddaten	Sachfrage	Kund:innen-Struktur: Gewerbliche Kund:innen	Prozentbalken	Geschäftsführung	
DigiCheck	Grunddaten	0 Grunddaten	Sachfrage	Kund:innen-Struktur: Öffentliche Auftraggeber:innen	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen
BMCS	Unternehmenskultur	0 Grunddaten	Sichtweise	Das Unternehmen ist aufgeschlossen gegenüber Veränderungen.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen
BMCS	Unternehmenskultur	0 Grunddaten	Sichtweise	Im Unternehmen gibt es einen geregelten Austausch zwischen den verschiedenen Bereichen, Abteilungen und Disziplinen.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen
BMCS	Geschäftsmodelle	1 Geschäftsmodell	Sichtweise	Unsere Kund:innen fragen vermehrt nach digitalen Services. (z.B. Terminbuchung, Dokumente per Email, Digitale Arbeitsst. etc.)	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen
DigiCheck	Geschäftsmodelle	1 Geschäftsmodell	Sichtweise	Wir konnten unsere Produkte und Dienstleistungen mit Hilfe digitaler Technologien bereits verbessern? (z.B. digitale Auftragsverarbeitung, Fernwartung, etc.)	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	vorher: Mithilfe digitaler Technologien konnte Produkte (z.B. Vorbeugende Instandsetzung r Sensorik) und/oder Dienstleistungen durch zu Funktionen/ Angebote (z.B. Fernwartung) erw werden.
DigiCheck	Geschäftsmodelle	1 Geschäftsmodell	Sichtweise	Unsere Kund:innen können die für sie passenden Lösungen digital und individuell zusammenstellen.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	Kund:innen & Lieferant:innen	2 Kund:innen & Lieferant:innen	Sichtweise	Welche Chancen und Risiken ergeben sich in den nächsten Jahren für ihr Geschäftsmodell?	Freitext	Geschäftsführung	
DigiCheck	Kund:innen & Lieferant:innen	2 Kund:innen & Lieferant:innen	Sichtweise	Wir informieren unsere Kund:innen über digitale Medien gezielt über unsere Produkte und Dienstleistungen.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	Kund:innen & Lieferant:innen	2 Kund:innen & Lieferant:innen	Sichtweise	Wir erfassen Kund:inendaten und werten diese aus.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	Kund:innen & Lieferant:innen	2 Kund:innen & Lieferant:innen	Sichtweise	Lieferant:innen sind über IT-Systeme in unsere Leistungserbringung eingebunden.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	Kund:innen & Lieferant:innen	2 Kund:innen & Lieferant:innen	Sachfrage	Vor welchen Herausforderungen steht das Unternehmen in den kommenden Jahren in Bezug auf Kund:innen und Lieferant:innen?	Freitext	Geschäftsführung	Standardfrage am Ende eines Abschnitts
DigiCheck	Prozesse	3 Geschäftsprozesse	Sichtweise	Die Prozesse (Management-, Kern- und Unterstützungsprozesse) sind dokumentiert.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	Prozesse	3 Geschäftsprozesse	Sichtweise	Die Anlagen, Maschinen und Geräte in unserem Unternehmen sind vernetzt.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Hier werden die Punkte "Trifft eher zu" und "I zu" im Hilfstext bisher nicht berücksichtigt
DigiCheck	Prozesse	3 Geschäftsprozesse	Sichtweise	Interne Informationsflüsse, beispielsweise Zettelfassung, Werkzeugverwaltung, Bautagebuch, werden über Smartphone oder Tablet unterstützt.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	Mitarbeitende	3 Geschäftsprozesse	Sichtweise	Unser Unternehmen nutzt digitale Medien zur Mitarbeitereingewinnung.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	Prozesse	3 Geschäftsprozesse	Sichtweise	Wir haben ein QM-System zur Standardisierung und Verbesserung unserer Prozesse im Einsatz.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	Prozesse	3 Geschäftsprozesse	Sichtweise	Unsere Prozesse von der Angebotsaufnahme über die Auftragsabwicklung bis zur Rechnungsstellung werden voll umfänglich über ein ERP-System abgebildet.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	Mitarbeitende	4 Kompetenzen & Weiterbildung	Sichtweise	Welche Chancen und Risiken sehen Sie im Bezug auf ihre Kernprozesse in den nächsten Jahren?	Freitext	Geschäftsführung	
DigiCheck	Mitarbeitende	4 Kompetenzen & Weiterbildung	Sichtweise	Unsere Mitarbeitenden verfügen über die notwendigen Kompetenzen für den Umgang mit digitalen Technologien.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Kein Hilfstext hinterlegt; Vorschlag: Ggf. unflo "Mitarbeitenden-Sicht"
DigiCheck	Mitarbeitende	4 Kompetenzen & Weiterbildung	Sichtweise	Unsere Führungskräfte & Mitarbeitenden verfügen über alle IT-Kompetenzen, die sie zur Ausübung ihrer Tätigkeiten benötigen.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	Mitarbeitende	4 Kompetenzen & Weiterbildung	Sichtweise	Wir fühlen uns ausreichend gerüstet für die digitale Zukunft.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
BMCS	Verständnis d. Weiterbildungsrelevanz	4 Kompetenzen & Weiterbildung	Sichtweise	Der Stand der Fähigkeiten und Bedarfe der Mitarbeitenden ist regelmäßig Bestandteil von Zielgesprächen.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
BMCS	Verständnis d. Weiterbildungsrelevanz	4 Kompetenzen & Weiterbildung	Sichtweise	Das Thema Weiterbildung wird im Unternehmen aktiv gelebt und gefördert.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen
BMCS	Veränderungsbereitschaft MA	4 Kompetenzen & Weiterbildung	Sichtweise	Es gibt einen Prozess innerhalb dessen Fortbildungswünsche kommuniziert werden können.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen
BMCS	Veränderungsbereitschaft MA	4 Kompetenzen & Weiterbildung	Sichtweise	Von Unternehmensseite werden ausreichend Angebote zur Weiterbildung zur Verfügung gestellt.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen
BMCS	Weiterbildungspraxis	4 Kompetenzen & Weiterbildung	Sichtweise	Für die Einarbeitung im Unternehmen werden dem Tätigkeitsfeld entsprechende Schulungen angeboten.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen
BMCS	Weiterbildungspraxis	4 Kompetenzen & Weiterbildung	Sichtweise	Für die Einarbeitung neuer Mitarbeitenden wird ausreichend Zeit eingeplant und aufgewendet.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen
BMCS	Weiterbildungspraxis	5 Tools & Technologie	Sichtweise	Sämtliche Mitarbeitenden haben an einer Schulung zum Thema IT-Sicherheit & Datenschutz teilgenommen?	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen
DigiCheck	IT-Sicherheit	5 Tools & Technologie	Sachfrage	Alle Geräte, die mit dem Internet verbunden sind, verfügen über einen Basisschutz (Firewall, Virenschanner).	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	IT-Sicherheit	5 Tools & Technologie	Sachfrage	Alle Daten werden regelmäßig gesichert.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	IT-Sicherheit	5 Tools & Technologie	Sachfrage	Alle IT-Geräte sind durch einen Zugriffsschutz gesichert.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
DigiCheck	IT-Sicherheit	5 Tools & Technologie	Sachfrage	Alle Mitarbeitenden sind über die Gefahren von "Phishing" und "Social Engineering" informiert.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	
BMCS	Ressourcen	5 Tools & Technologie	Sichtweise	Das Unternehmen verfügt über eine ausreichend schnelle Internetverbindung sowohl im Büro als auch bei Kunden vor Ort.	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen
BMCS	Ressourcen	5 Tools & Technologie	Sichtweise	Es besteht ausreichendes Budget für die Pflege und Wartung Hard- und Software	Likert (Trifft voll zu, Trifft eher zu, Trifft teilweise zu, Trifft weniger zu, Trifft nicht zu; Keine Angabe)	Geschäftsführung	Frage bei Übernahme umformuliert und Likert übernommen

Figure 4: Questionnaire on Future Tech Check-up of the Handwerkskammer Hamburg

**Einwilligungserklärung im Rahmen von EDIH4UrbanSAVE**

Kunden <KMU/PSO>-Name  
 Anschrift  
 Name Verantwortlicher  
 Dieser wird im Folgenden "der Kunde" genannt.

Hiermit erklärt sich der Kunde mit der Übermittlung von Firmen- bzw. Behördendaten an die Europäische Union einverstanden, die im Rahmen der Inanspruchnahme eines EDIH-Service erhoben wurden. Die Daten dürfen elektronisch gespeichert und zur Erfassung von Kennzahlen, sowie der Durchführung eines Digital Maturity Assessments von EDIH4UrbanSAVE an die Europäische Union übermittelt werden.

Die Daten dürfen den EDIH4UrbanSAVE Partnern - Hamburg Informatik Technologie-Center (HITeC e.V.), Artificial Intelligence Center Hamburg (ARIC e.V.), Technische Universität Hamburg (TUHH), Hochschule für Angewandte Wissenschaften Hamburg (HAW Hamburg), Digital Hub Logistics (DigiHub), Handwerkskammer Hamburg – zur Projektdurchführung zugänglich gemacht werden.

Hiermit erklärt sich der Kunde dazu bereit am Digital Maturity Assessment (DMA) als Teil der Förderung teilzunehmen. Die Befragung erfolgt in drei Teilen, vor Inanspruchnahme des Service, und in Jahr 2 sowie 3 nach der Inanspruchnahme.

Hiermit erklärt sich der Kunde dazu bereit, nach der Inanspruchnahme eines EDIH-Service an einer Qualitätsumfrage bzgl. Service-Inhalten und -durchführung teilzunehmen.

Der Kunde verpflichtet sich - sofern der Kunde keine öffentliche Einrichtung, kein kleines oder mittleres Unternehmen<sup>1</sup> und kein Startup ist, die gelten Beihilferegelungen im Sinne der EU-Verordnungen für De-minimis-Behilfen<sup>2</sup> zu beachten. Die Höhe der de-minimis relevanten Beihilfen beträgt \_\_\_\_\_ €.

Die **kostenfrei** in Anspruch genommenen EDIH-Services sind dem Anhang zu entnehmen.

<sup>1</sup> [https://single-market-economy.ec.europa.eu/smes/sme-definition\\_de](https://single-market-economy.ec.europa.eu/smes/sme-definition_de), abgerufen Juni 2023  
<sup>2</sup> <https://www.hamburg.de/contentblob/1282940/7d8b82d7f6082733ab4e0d004d9e954/data/de-minimis-erlaeuterung.pdf>, abgerufen Juni 2023

Datum, Ort, Name des Unterzeichners

**Preisliste EDIH**

Service <small>(bitte ankreuzen)</small>	Listenpreis
ST-1: Basic and Expert Workshops for Key Technologies	2.000€
ST-2: HPC, AI, Cybersec., <u>Digitization</u> , <u>Blended Learning</u> Workshops	4.000€
ST-3: AI domain-driven Workshops	3.000€
ST-4: Certificate and Curriculum, Communities of Practice, Each-One-Teach-One (Joint Innovation Projects & Circles)	5.000€
ST-5: Tech demonstration workshops for enabling Technologies	2.000€
TBI-1: Access to Tech Labs Incl. Support	4.000€
TBI-2: Future Tech Check-up	3.000€
TBI-3: Use Cases Development Service	15.000€
TBI-4: JPOC - Joint Proof of Concept & PoV (Proof-of-Value)	40.000€
TBI-5: Experiments on Research Computing Infrastructure	35.000€
TBI-6: Agile Development Series	15.000€
SFI-1: Project Proposal writing / support	12.000€
SFI-2: Consultation - Fit for Investment	5.000€
SFI-3: Individual Funding and Investment Matching	3.000€
SFI-4: International EDIH Pitch-Day Event	2.000€
EN-1: Technology Matching and Strategy Road-mapping	2.000€
EN-2: Key Technology Events and Use Case Community Events	1.000€
EN-3: Co-Working, Co-Innovation & Matching startups and established companies	3.000€
EN-4: Communities of practice (COP), Joint Innovation Circles	3.000€
EN-5: Co-Acceleration Bootcamp	3.000€
EN-6: Jumpboard programme: Curated Delegation Visits to European Innovation Hotspot	2.500€

Figure 5: Consent for electronic data processing



**Documentation Template for Tech Lab Visit**

Date: XX.XX.XX  
 Document Prepared By: NAME  
 Tech Lab: e.g. ARIC AI SHOWROOM

**General Information to Workshop**

Topic of Workshop	
Date & Time	
Partner / Client / Public Administration	
Participants	

**Summary of outcome / visit to Tech Lab**

*(Please note: Depending on the Tech Lab the desired outcome may be different – however usually it should be some kind of a use case that got inspired by the technology displayed or discussions during the visit. In other cases please adjust the "use case" below accordingly)*

Use Case Idea #1 (description, technology used, potential showstoppers, etc)	
Use Case Idea #2	
Use Case Idea #3	
...	

**Action Plan**

Objectives	
Detailed Steps for Implementation	
Assigned Responsibilities	
Deadlines and Milestones	

Figure 6: Document Template for Tech Lab Visits

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 Date: 08/12/2023 09:18:20

## EDIH Hamburg *Test before invest*-Befragung

Mit \* markierte Felder sind Pflichtfelder.



Befragung für *Test before Invest*-Services im Rahmen von EDIH4UrbanSAVE

Mit Ihrer Teilnahme ermöglichen Sie uns unsere Angebote besser an Ihre Bedürfnisse anzupassen! Vielen Dank!

Welchen Service im Rahmen von *Test before Invest* haben Sie in Anspruch genommen?

- Nutzung und Zugang zu TechLabs
- Future-Tech Check-up
- Use Case Development
- Joint-Proof-of-Concept
- Experimente auf den EDIH-Servern (GPU-/CPU-Servern) \*
- Agile Development Series

\* Wie sind Sie auf den Service/das Angebot aufmerksam geworden?

1


Bitte wählen Sie die zutreffende Antwort für jeden Punkt aus:

	Ich stimme zu	Ich stimme teilweise zu	Unentschlossen	Ich stimme teilweise nicht zu	Ich stimme nicht zu	keine Angabe
Der Inhalt des Services (Material, Ergebnisse) hat meine Erwartungen erfüllt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Der organisatorische Rahmen (Anmeldung, Einladung, Ablauf) hat meine Erwartungen erfüllt.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Es gab ausreichend Raum für Rückfragen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Die Ergebnisse des Services bieten einen Mehrwert für mein Unternehmen/meine Organisation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Der Service trifft den Bedarf meines Unternehmens/meiner Organisation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

<p>Wo können wir besser werden?</p> <input style="width: 100%; height: 20px;" type="text"/> <p>Was hat Ihnen besonders gut gefallen?</p> <input style="width: 100%; height: 20px;" type="text"/> <p>Falls Sie Experimente auf der EDIH-Servern (CPU/GPU-Server) (*) durchgeführt haben, haben Sie dazu ein besonderes Feedback?</p> <input style="width: 100%; height: 20px;" type="text"/> <p>* Würden Sie den Service weiterempfehlen?</p> <p><input type="radio"/> Ja <input type="radio"/> Nein</p> <p>Zu welchen anderen Themen wünschen Sie sich Formate im Rahmen von EDIH?</p> <input style="width: 100%; height: 20px;" type="text"/> <p><b>Über Sie</b></p> <p>* Zu welcher Branche gehört Ihr Unternehmen, Ihre Organisation?</p> <p><input type="radio"/> Handwerk <input type="radio"/> Produzierendes Gewerbe <input type="radio"/> Verkehr <input type="radio"/> Dienstleistungen <input type="radio"/> Gastgewerbe <input type="radio"/> Handel <input type="radio"/> Öffentliche Verwaltung / Public Service Organisation <input type="radio"/> Logistik</p> <p>* Wieviele Mitarbeiter hat Ihr Unternehmen, Ihre Organisation?</p> <p><input type="radio"/> 1-9 <input type="radio"/> 10-49 <input type="radio"/> 50-249 <input type="radio"/> 250-499 <input type="radio"/> 500-2999 <input type="radio"/> 3000 oder größer</p> <p style="text-align: right;">3</p>	<hr/> <p><b>Vielen Dank für die Teilnahme an der Befragung!</b></p> <p>Durch Ihr Feedback geben Sie uns die Möglichkeit unsere Angebote besser an Ihre Bedürfnisse anzupassen.</p> <hr/> <p><b>Contact</b> <a href="#">Contact Form</a></p> <p style="text-align: right;">4</p>
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Figure 7: Online Questionnaire on Test before Invest Services





AGENDA

- Was kann KI?
- KI-Begrifflichkeiten
- Die drei Lerntypen
- Exponate

Künstliche Intelligenz kann für verschiedene Aufgaben genutzt werden, zum Beispiel für:

			
<b>Klassifikation</b> Objekterkennung Signalerkennung (z.B. Musik, Ultraschall) Klassifikation	<b>Analyse von Datenmengen</b> Mustererkennung Prognosen Planung Optimierung	<b>Motorische Aufgaben</b> Steuerung von Regelsystemen Robotik	<b>Generierung von</b> Audio-, Text-, Sprach-, Bild- und Videosequenzen

Anmerkung: diese Auflistung ist unvollständig und die Einteilung in vier Übergruppen dient der Übersicht und stellt keine allgemeingültige Kategorisierung dar.



10

Es gibt verschiedene Lerntypen für unterschiedliche Aufgabenbereiche

```

    KI
      |
      v
    Maschinelles Lernen
      / | \
     /  |  \
    /   |   \
  Überw. Unüberw. Bestärkendes
  wachtes wachtes wachendes
  Lernen Lernen Lernen
  / Supervised / Unsupervised / Reinforcement
  / Learning / Learning / Learning
  /         /         /
  Beispiele Beispiele Beispiele
  /         /         /
  Klassifikation Regression Clustering Intelligente Agenten
  /         /         /
  [Graph] [Graph] [Image] [Image]
  /         /         /
  "Ist das ein Apfel?" "Wie teuer ist dieser Apfel?"
  /         /
  Ja Nein 2,10€
  (diskreter Wert) (kontinuierlicher Wert)
  
```

15

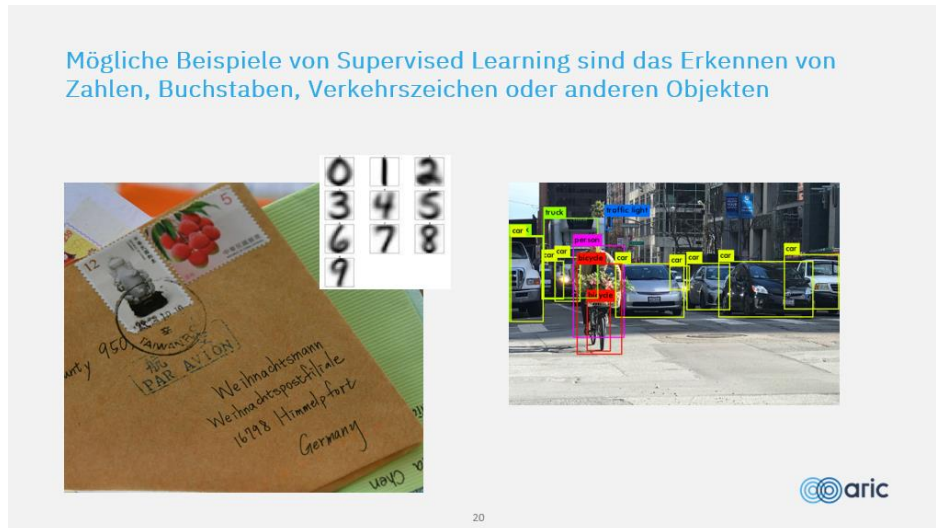


Figure 8: Overview presentation slides for AI Tech Lab (ARIC Showroom)

### Temperature and mask detection (Synergeticon GmbH)

Artificial intelligence in use to contain the coronavirus pandemic

Synergeticon's intelligent image recognition system can be used in high-traffic areas such as the entrance areas of retirement homes or supermarkets automatically and in compliance with all data protection guidelines. For example, it recognizes whether masks are being worn correctly and whether there is an elevated body temperature, thus providing an important service in protecting against infection. service in protecting against infection. If there are any anomalies, the information is forwarded to the relevant medical personnel. The system consists of cameras, a computer and control unit and a display monitor. It is set up locally and is ready for use directly on site.

A deployment scenario is currently being implemented in a care home. The experience gained in the clinic is being used to make improvements to the system.

## Temperatur- und Maskenerfassung



Künstliche Intelligenz im Einsatz bei der Eindämmung der Corona-Pandemie

Synergeticons intelligentes Bilderkennungssystem kann an stark frequentierten Orten wie den Eingangsbereichen von Seniorenresidenzen oder Supermärkten automatisch und unter Einhaltung sämtlicher Datenschutzrichtlinien auf die Einhaltung von Schutzmaßnahmen hinweisen. Es erkennt beispielsweise, ob Masken korrekt getragen werden und ob eine erhöhte Körpertemperatur vorliegt und leistet somit einen wichtigen Dienst im Schutz vor Infektionen. Sollte eine Auffälligkeit bestehen, wird die Information an entsprechendes medizinisches Personal weitergeleitet. Das System besteht aus Kameras, einer Rechner- und Bedieneinheit sowie einem Anzeigemonitor. Es wird lokal aufgebaut und ist direkt vor Ort einsatzbereit.

Aktuell wird ein Einsatzszenario in einem betreuten Pflegeheim realisiert. Die Erfahrungen aus der Klinik werden genutzt, um Verbesserung am System durchzuführen.



**Hinweis: Foto stellt eine Entwickleransicht dar und ist nicht für die Veröffentlichung bestimmt.**

Source:

[https://synergeticon.de/wp-content/uploads/2020\\_07\\_02\\_K%C3%BCnstlicheIntelligenzZurEind%C3%A4mmungVonCorona\\_Press.pdf](https://synergeticon.de/wp-content/uploads/2020_07_02_K%C3%BCnstlicheIntelligenzZurEind%C3%A4mmungVonCorona_Press.pdf)

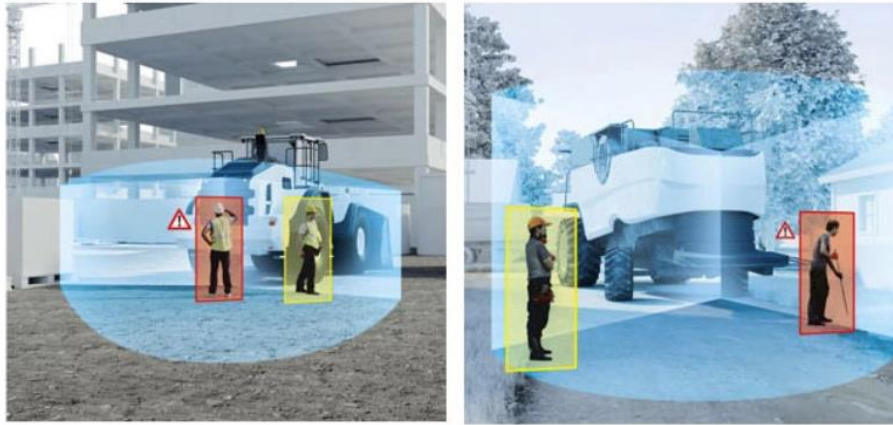
### LUIS EDGE AI CAM (LUIS TECHNOLOGY GMBH)

The LUIS EDGE AI CAM is an intelligent camera that can distinguish people from other obstacles in real time and provide the driver with a multi-stage warning in the event of danger. It only warns the driver of collisions with people or other trained object classes without unnecessarily alerting them to other objects. In this way, the LUIS EDGE AI CAM effectively helps to avoid collisions with people, especially in tight driving situations.

The LUIS EDGE AI CAM has been designed to remain operational even in harsh environments and environmental influences. The object detection runs on the camera ("embedded") to save space without additional hardware and ECUs.

The detection zones and warning mechanisms can be individually adapted to the respective vehicle and signals can be emitted to the outside.

For even more precise person detection and localization, we are further developing the LUIS EDGE AI CAM and supplementing it with a depth sensor (Sensor Fusion).



Source:

<https://www.luis.de/embedded-ki-kamera/>

### Hand hygiene monitor (Lemberg Solutions)

The used sanitizer is most visible under a UV lamp; any other light would damage the image contrast, tampering with the accuracy of the analysis. That's why the device is a box made of opaque plastic. Its only opening is in the front, for inserting the hands. This prevents unnecessary light from entering. For the interior of the box, we had to find three key components:

- Appropriate lights. We went with multiple UV diodes because they provide a narrower wavelength than other light sources and ensure even lighting.
- The right background. We covered the bottom of the interior with green felt. It serves as a chroma key and enables simple detection of hands in the video.
- A suitable camera. We chose the RPi Camera (G) with a fisheye lens because it's compatible with our Raspberry Pi, has an angle of view wide enough to catch both hands, and comes with
- adjustable focus control.

To develop the computer vision algorithm, our engineers used the OpenCV library and added several custom algorithms. Here's a rough summary of how the recognition process goes:

- The algorithm separates hands from the background and detects their contours.
- Then it checks that both hands are in the correct position (that they aren't touching the device interior and aren't overlapping).
- Finally, it analyzes sanitizer coverage: the areas of hands covered with sanitizer appear bright blue in the image. By calculating the ratio of blue-covered area to the total hand surface, our algorithm assesses the quality of hand disinfection.



### Services

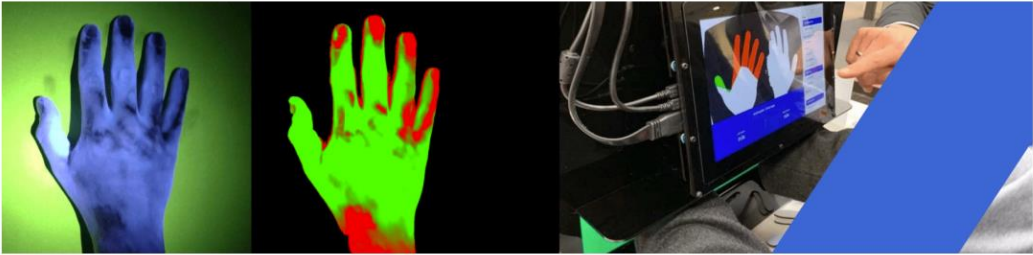
- Data Science
- Hardware Development
- Firmware Development
- Product Development

### Industries

- Healthcare

### Technologies

- C++
- Python
- Qt
- OpenCV
- Raspberry Pi



Source:  
<https://lebergsolutions.com/case-study/hand-hygiene-monitor>

Figure 9: Description of some AI Demonstration exhibits the AI Tech Lab (ARIC Showroom)

## Glossary

Notions defined in this glossary are specific for this document only.

Notion	Meaning
ADCH	AI, Digitisation, Cybersecurity, and HPC
AI	Artificial Intelligence
ARIC	Artificial Intelligence Center Hamburg
BPMN	Business Process Model and Notation
DigiHub	Digital Hub Logistics GmbH
DMA	Digital Maturity Assessment
EDIH	European Digital Innovation Hub
EDIH4UrbanSAVE	European Digital Innovation Hub for urban interconnected supply and value Ecosystems
EU	European Union
GA	Grant Agreement
HITeC	Hamburger Informatik Technologie-Center
HPC	High-Performance Computing
HWK	Handwerkskammer Hamburg
IoT	Internet of Things
JPoC	Joint Proof of Concept
MDZ	Mittelstand-Digital Zentrum
NDA	Non-Disclosure Agreement
PoC	Proof of Concept
PoV	Proof of Value
PPP / PA	Public Private Partnership, Public Authority
PSO	Public Sector Organisation
RCI	Research Computing Infrastructure
SDG	Sustainable Development Goal
SME	Small and Medium Enterprises
TBI	Test before Invest
UML	Unified Modeling Language