2 dec 2025 - "Responsible AI innovation in healthcare"

LASO:

A practical, participatory approach to help hospitals harness the potential of AI in a responsible manner

Melissa Wittens, Anouk Verhellen, An Jacobs

imec-SMIT Vrije Universiteit Brussel

Agenda

- Rationale of the approach
- The different steps of the approach
- An overview of a use case
- Step by step review of the method for this use case

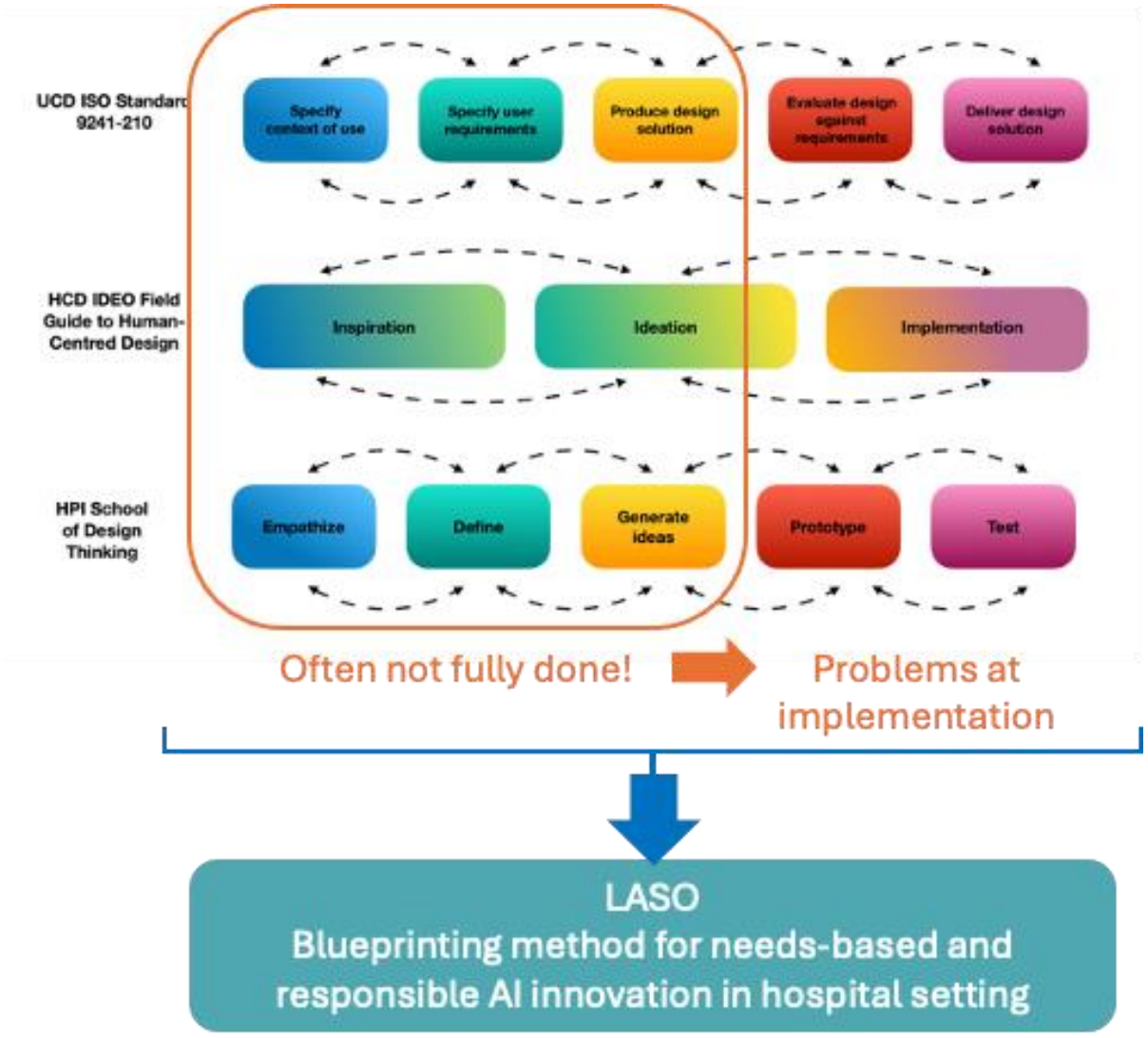
LASO method - Rationale

- **AI innovation**: Technology push vs. need-based approach

- **Human-centered design, design thinking**
  - Problem driven,
  - Iterative,
  - Multidisciplinay collaboration,
  - Active involvement of users through the design process

  - BUT: problem identification and ideation often incomplete
    - User problems,
    - Work Process problems,
    - Legal/ethical concerns only surface during implementation (costs) → **DANGEROUS**

- **LASO: Practical framework for need-based and responsable AI**
  - Developed within a hospital context (UZ Brussel)
  - Combination of different tools:
    - Sagacify Cards
    - DataKlap
    - Guidance Ethics



LASO method

Intake interview

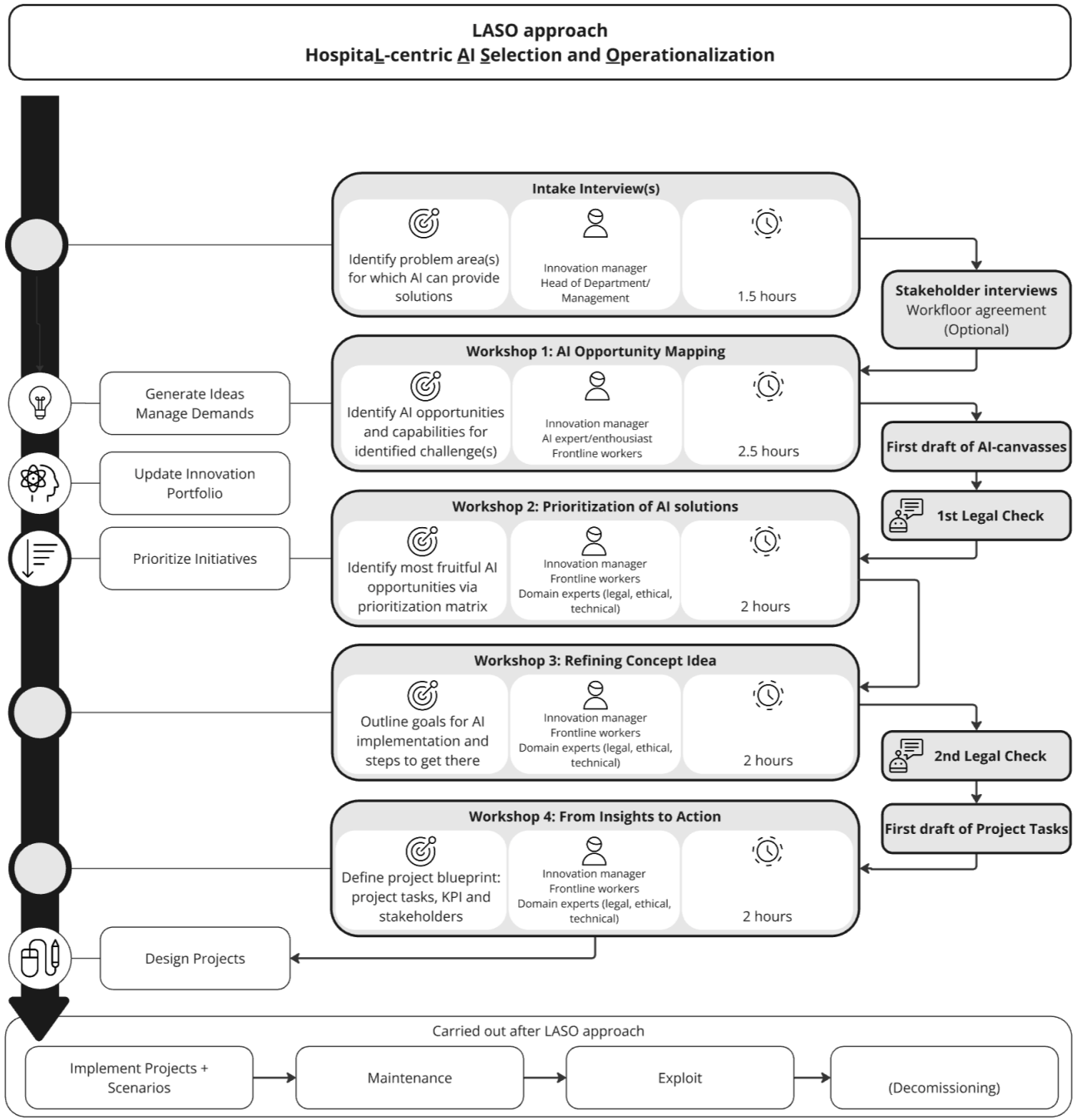
4 multi-stakeholder workshops

Innovation manager
Head of department
Frontline stakeholders
Domain experts (technical, legal, ethical)

4-5 supporting activities

Innovation department
LASO team

Link to full manual will be available via report of this day via KDM



LASO method in practice

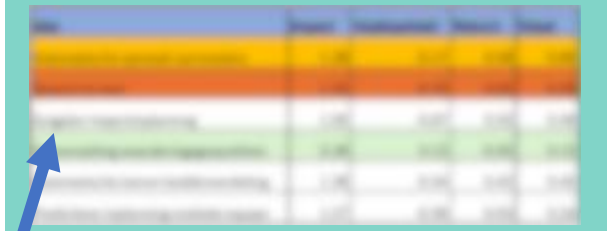
Intake interview → broadly defined problem area 'Registritis'

WS 1: AI Opportunity Mapping

Ideate AI solutions
30 solutions

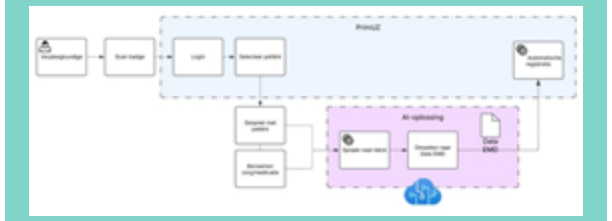
First prioritization
6 solutions

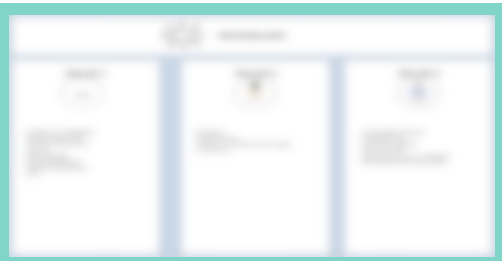
WS 2: Prioritization of AI solutions



- Automatic staff scheduling ☑
- Automatic registration EPR via speech-to-text ☑
- Automatic drafting and summarizing of appraisals

WS 3: Refining Concept Idea

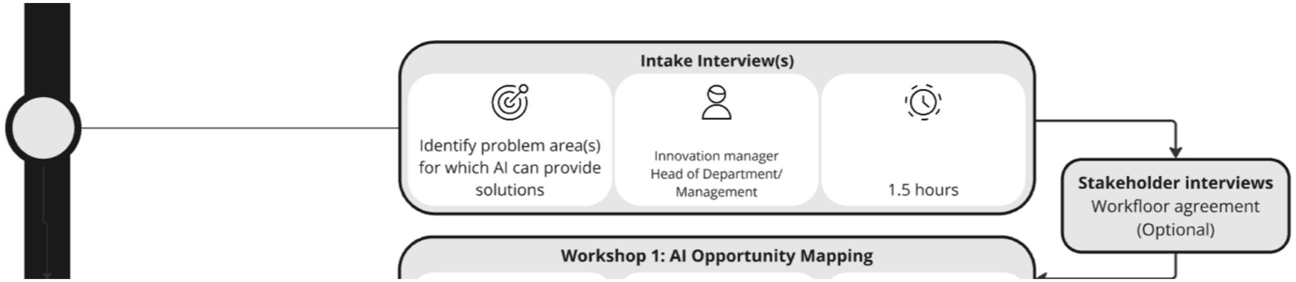




WS 4: From Insights to Action

1st legal check ✓
LASO JusticeBot

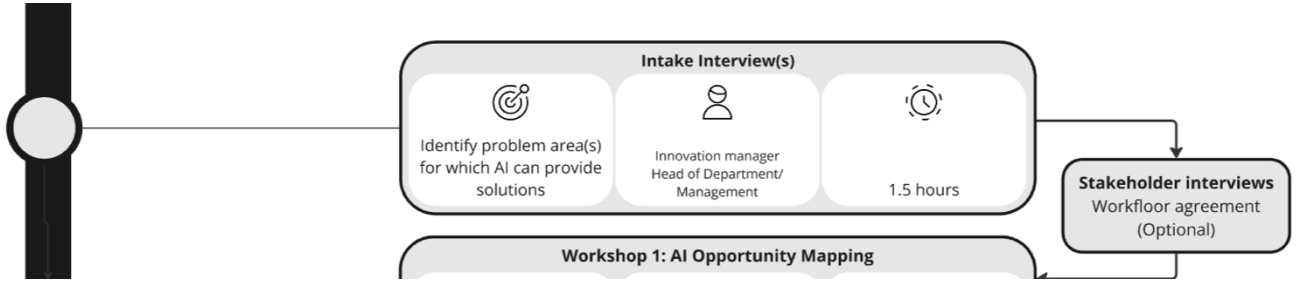
LASO method: intake interview

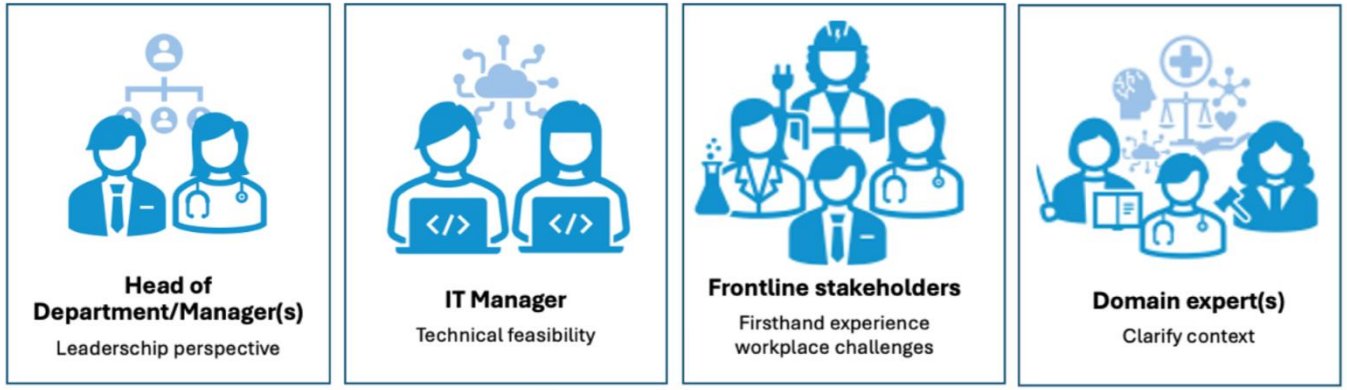


Before this step : *Identification of hospital department willing to innovate with innovation department*

Step 1 Intake interview → broadly defined problem area ‘Registritis’

LASO method: intake interview



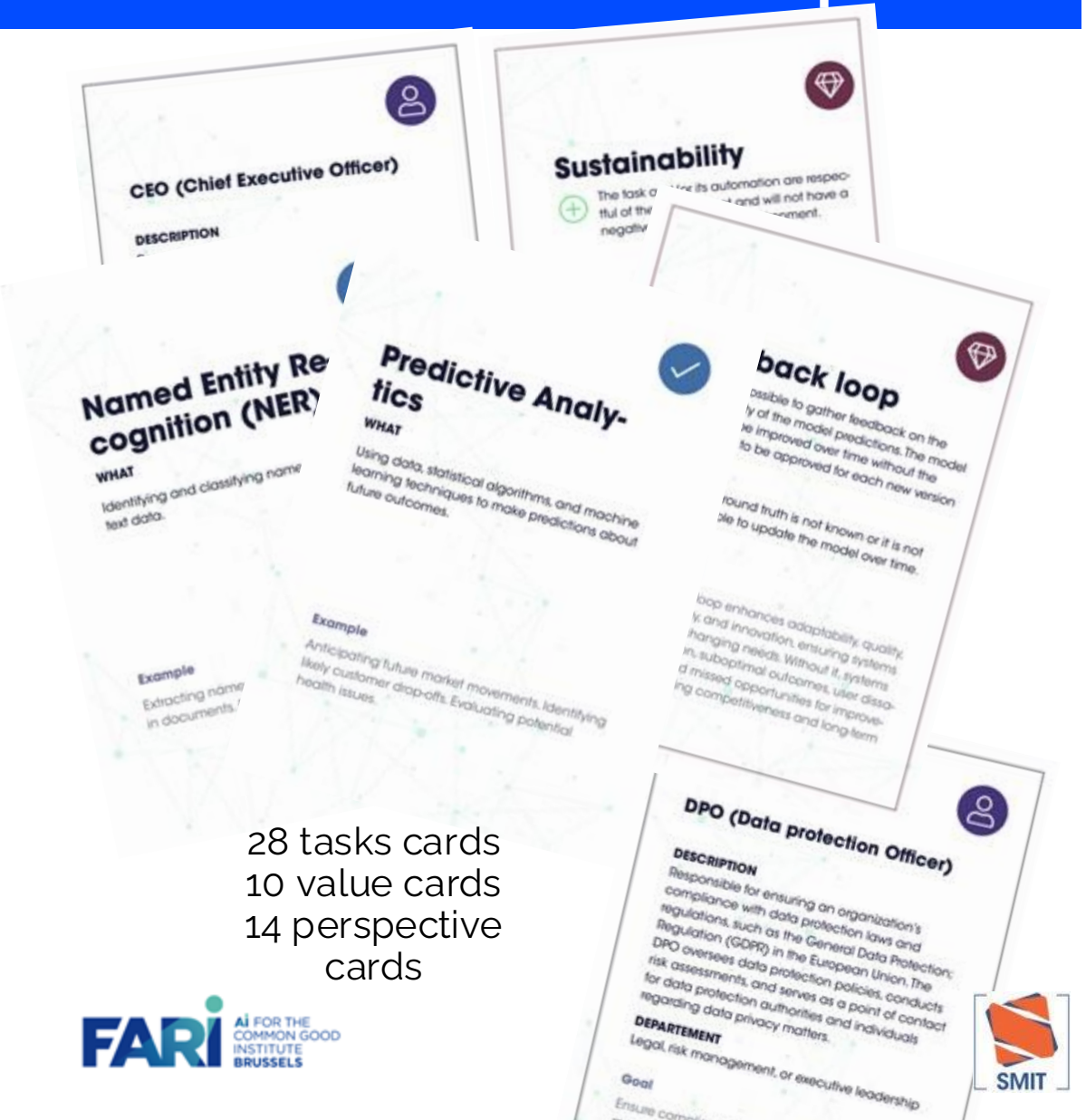


If you think about your own healthcare organization or healthcare organization you (want to) collaborate with:

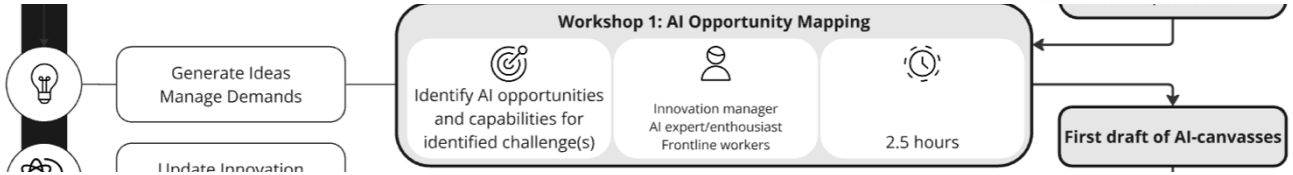
Q1: Which departments or people in a department could **be curious to think about the new potential of AI** to solve current needs (medical, care and operational/logistical/admin needs) ?

Q2: Which **other stakeholders** to involve in the following steps of LASO, the workshops ?

LASO method: workshop 1



28 tasks cards
10 value cards
14 perspective cards



AI Opportunity Mapping

Input Workshop 1				
Problem area	"Registritis": High administrative burden linked to registration of nursing activities in the EPR, taking time away from patient care and leading to low-quality data input.			
Relevant stakeholders	•Nurses and student nurses •Head nurses •Care managers DNM •Hospital IT department and EPR experts •Hospital innovation team			
Strategic values	Patient care	Less difficulties and (medical) errors	Workload optimalization	Work processes
	Patient satisfaction	Use of resources	Sustainability	Operational costs
	Administrative processes	Patient management	Efficiency of staff	Revenue management
	Knowledge and skills of staff			

AI ideation : **Generate new AI projects ideas with the help of AI cards**

1. **Preparation**
   a. Everyone around the table 3 perspectives cards
   b. Value and tasks cards on the table

2. **Generate AI ideas**

   Rules:

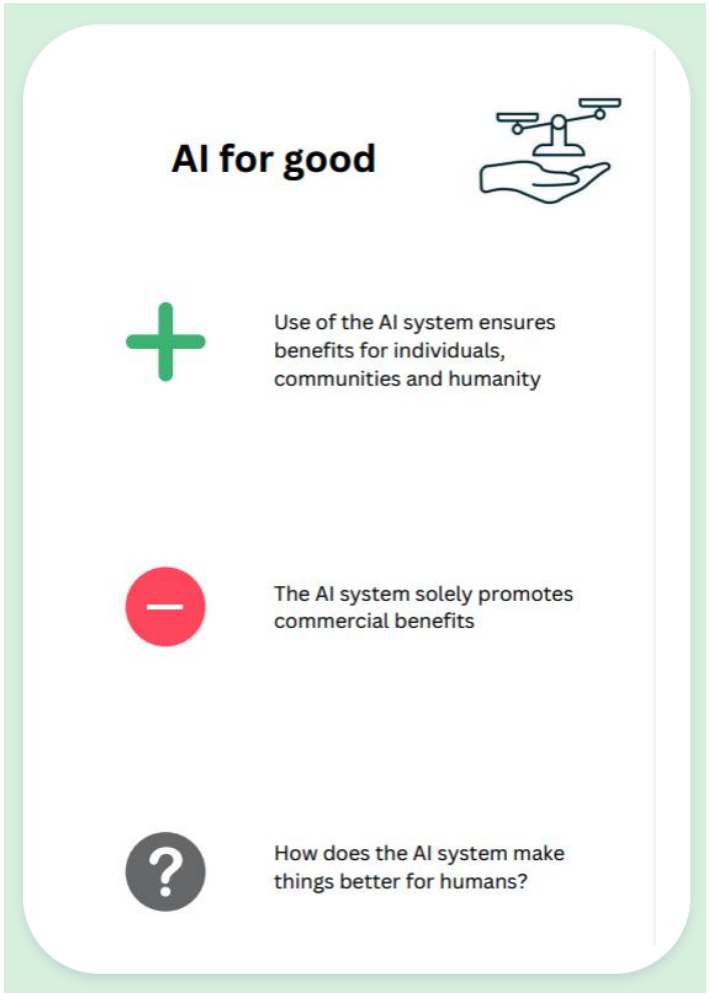
   Everyone builds an AI project by assuming the role of one of the perspective cards they hand in hand and combine it with one or more tasks and values:

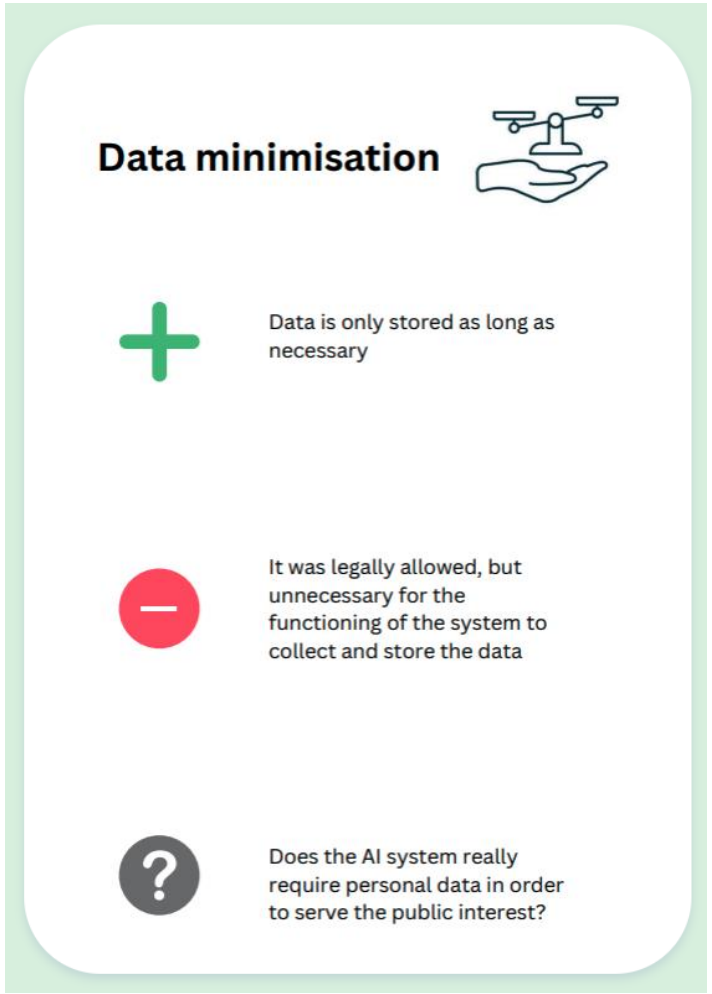
   "As a CFO of our hospital (perspective), i think that anomaly detection (task) as valuable because it will help identify our missed invoices (value), that we know happens frequently"

   The AI idea is written down and the cards are put back on the table.

   We aim for at least 10 ideas, we aim to select 3

AI ideation : **Ethical reflection for selected ideas**

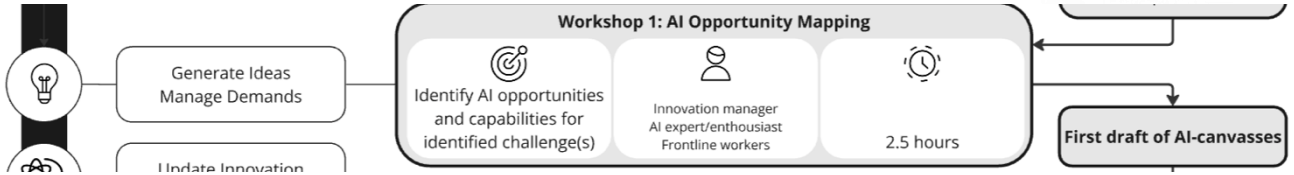




FARI AI FOR THE COMMON GOOD INSTITUTE BRUSSELS

ULB SAGACIFY VUB Universitair Ziekenhuis Brussel

LASO method: workshop 1



N= 31 diverse participants

Introduce problem area

On average, about 80 base registrations are required per patient.

Ideate AI solutions with cards - 2 Mixed teams - 30 solutions

AI Value Canvas Card: **Automatic allocation of rooms and beds**

AI Value Canvas

1 – Identify the problem

What challenge are we solving?

We want to...

Who are we solving this for?

For...

We aim to...

- ○ Upgrade
- ○ Optimise
- ○ Invent

2 – Shape the context

Who will use the solution?

The solution will be used by...

Where will the solution be used?

at/in...

How will the solution be used?

in this way:

What values is the solution supporting?

because...

3 – Ideate the solution

Which data will be used?

Data will be collected from...

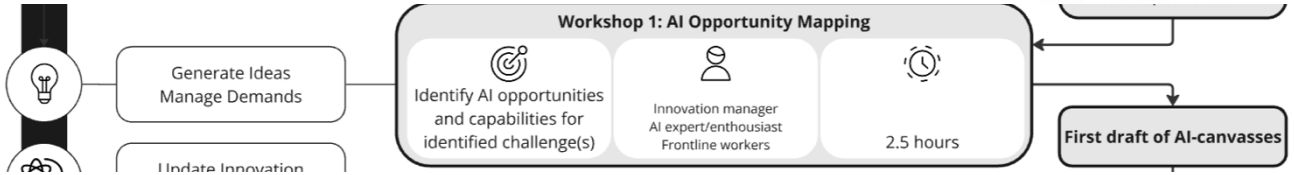
Which AI task will be carried out?

to enable...

What result will the AI give?

and provide us with...

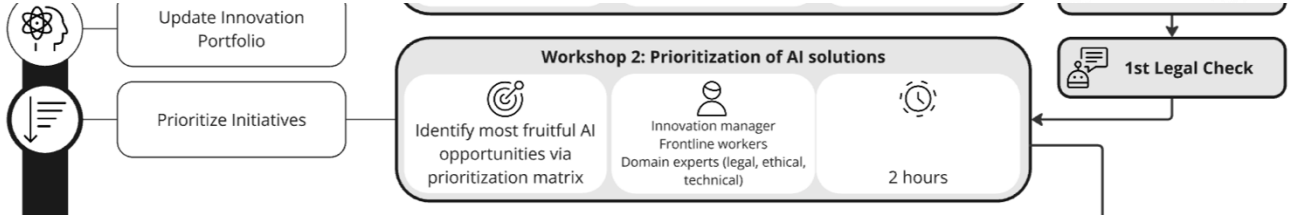
LASO method: workshop 1



Let us now vote for the top 6 solutions: you get 3 votes

AI solution	votes
Automatic staff scheduling	
Automatic registration EPR using speech-to-text (+ link with tarification)	
Automatic drafting and summarizing of appraisals	
Automatic allocation of rooms and beds	
Automated care planning based on patient care profile (linked to automated care pathways)	
Predictive planning of mobile nursing team	

LASO method: workshop 2



Prioritization of AI solutions

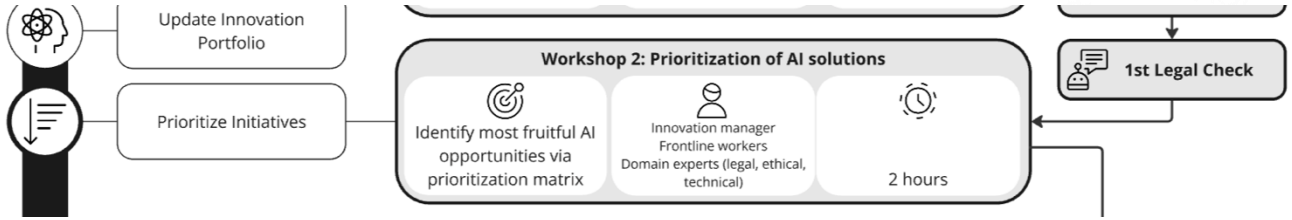
Personal votes carried the most weight for the heads of department DNM.

Solutions with a high strategic score, but no personal votes, were, for example, not considered

The innovation team and heads of department DNM wanted to follow **a bottom-up strategy** in which ideas come from the people on the work floor and are supported by them.

AI solution	Personal voting	Strategic Score
Automatic staff scheduling	20	15
Automatic registration EPR using speech-to-text (+ link with tarification)	17	29
Automatic drafting and summarizing of appraisals	14	15
Automatic allocation of rooms and beds	5	22
Automated care planning based on patient care profile (linked to automated care pathways)	3	28
Predictive planning of mobile nursing team	3	21

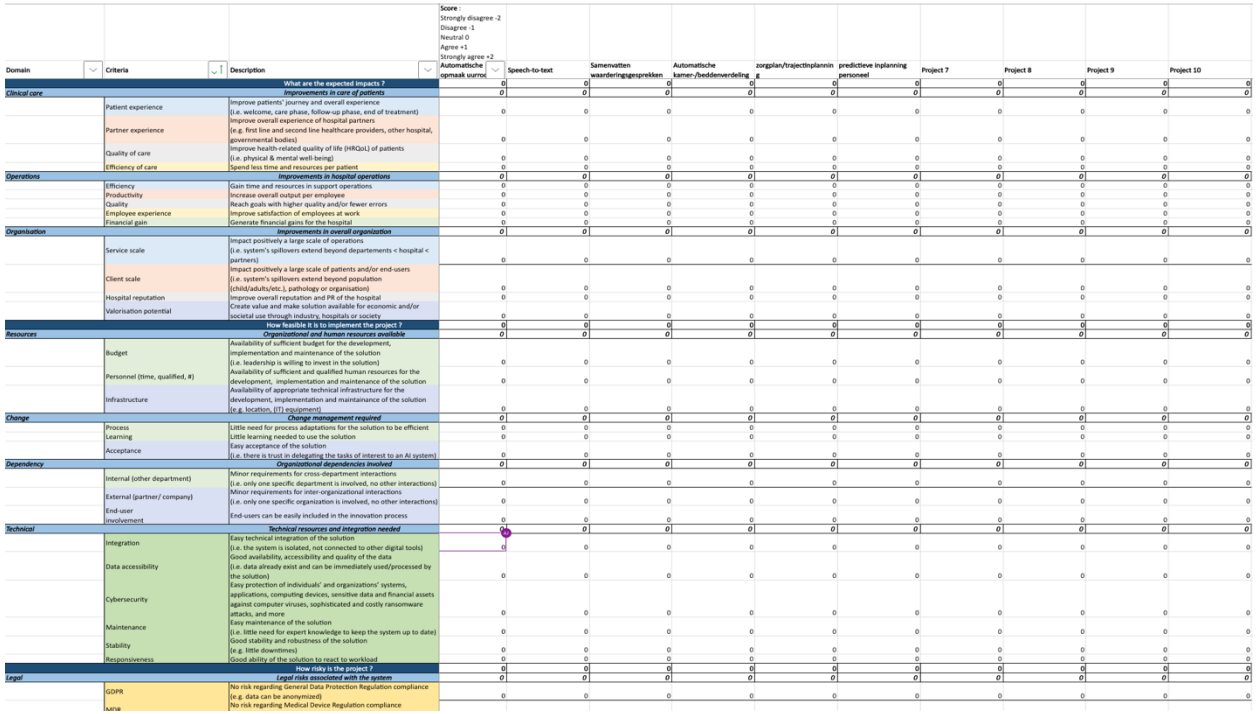
LASO method: workshop 2



Prioritization of AI solutions

Prioritization matrix

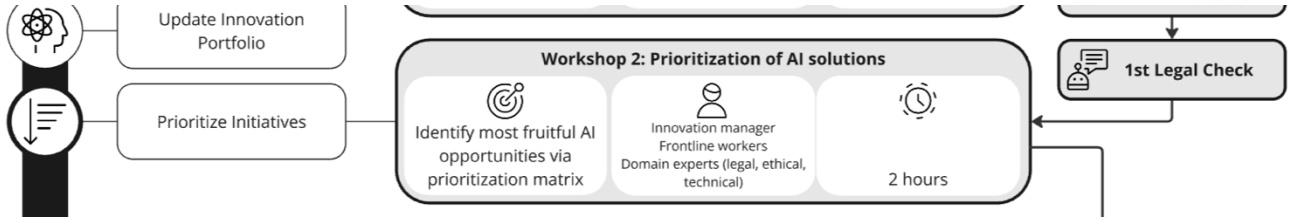
- Impact
- Feasibility
- Risk



Domain	Criteria	Description	Score : Strongly disagree -2 Disagree -1 Neutral 0 Agree +1 Strongly agree +2 Automatische opmaak surro	Speech-to-text	Samenvatten waarderingsgesprekken	Automatische kamer-/beddenverdeling	zorgplan/trajectinplannin g	predictieve inplanning personeel	Project 7	Project 8	Project 9	Project 10
		What are the expected impacts ?	0	0	0	0	0	0	0	0	0	0
Clinical care		Improvements in care of patients	0	0	0	0	0	0	0	0	0	0
	Patient experience	Improve patients' journey and overall experience (i.e. welcome, care phase, follow-up phase, end of treatment)	0	0	0	0	0	0	0	0	0	0
	Partner experience	Improve overall experience of hospital partners (e.g. first line and second line healthcare providers, other hospital, governmental bodies)	0	0	0	0	0	0	0	0	0	0
	Quality of care	Improve health-related quality of life (HRQoL) of patients (i.e. physical & mental well-being)	0	0	0	0	0	0	0	0	0	0
	Efficiency of care	Spend less time and resources per patient	0	0	0	0	0	0	0	0	0	0
Operations		Improvements in hospital operations	0	0	0	0	0	0	0	0	0	0
	Efficiency	Gain time and resources in support operations	0	0	0	0	0	0	0	0	0	0
	Productivity	Increase overall output per employee	0	0	0	0	0	0	0	0	0	0
	Quality	Reach goals with higher quality and/or fewer errors	0	0	0	0	0	0	0	0	0	0
	Employee experience	Improve satisfaction of employees at work	0	0	0	0	0	0	0	0	0	0
	Financial gain	Generate financial gains for the hospital	0	0	0	0	0	0	0	0	0	0
Organisation		Improvements in overall organization	0	0	0	0	0	0	0	0	0	0
	Service scale	Impact positively a large scale of operations (i.e. system's spillovers extend beyond departements < hospital < partners)	0	0	0	0	0	0	0	0	0	0
	Client scale	Impact positively a large scale of patients and/or end-users (i.e. system's spillovers extend beyond population (child/adults/etc.), pathology or organisation)	0	0	0	0	0	0	0	0	0	0
	Hospital reputation	Improve overall reputation and PR of the hospital	0	0	0	0	0	0	0	0	0	0
	Valorisation potential	Create value and make solution available for economic and/or societal use through industry, hospitals or society	0	0	0	0	0	0	0	0	0	0
		How feasible it is to implement the project ?	0	0	0	0	0	0	0	0	0	0
Resources		Organizational and human resources available	0	0	0	0	0	0	0	0	0	0
	Budget	Availability of sufficient budget for the development, implementation and maintenance of the solution (i.e. leadership is willing to invest in the solution)	0	0	0	0	0	0	0	0	0	0
	Personnel (time, qualified, #)	Availability of sufficient and qualified human resources for the development, implementation and maintenance of the solution	0	0	0	0	0	0	0	0	0	0
	Infrastructure	Availability of appropriate technical infrastructure for the development, implementation and maintainance of the solution (e.g. location, (IT) equipment)	0	0	0	0	0	0	0	0	0	0
Change		Change management required	0	0	0	0	0	0	0	0	0	0
	Process	Little need for process adaptations for the solution to be efficient	0	0	0	0	0	0	0	0	0	0
	Learning	Little learning needed to use the solution	0	0	0	0	0	0	0	0	0	0
	Acceptance	Easy acceptance of the solution (i.e. there is trust in delegating the tasks of interest to an AI system)	0	0	0	0	0	0	0	0	0	0
Dependency		Organizational dependencies involved	0	0	0	0	0	0	0	0	0	0
	Internal (other department)	Minor requirements for cross-department interactions (i.e. only one specific department is involved, no other interactions)	0	0	0	0	0	0	0	0	0	0
	External (partner/ company)	Minor requirements for inter-organizational interactions (i.e. only one specific organization is involved, no other interactions)	0	0	0	0	0	0	0	0	0	0
	End-user involvement	End-users can be easily included in the innovation process	0	0	0	0	0	0	0	0	0	0
Technical		Technical resources and integration needed	0	0	0	0	0	0	0	0	0	0
	Integration	Easy technical integration of the solution (i.e. the system is isolated, not connected to other digital tools)	0	0	0	0	0	0	0	0	0	0
	Data accessibility	Good availability, accessibility and quality of the data (i.e. data already exist and can be immediately used/processed by the solution)	0	0	0	0	0	0	0	0	0	0
	Cybersecurity	Easy protection of individuals' and organizations' systems, applications, computing devices, sensitive data and financial assets against computer viruses, sophisticated and costly ransomware attacks, and more	0	0	0	0	0	0	0	0	0	0
	Maintenance	Easy maintenance of the solution (i.e. little need for expert knowledge to keep the system up to date)	0	0	0	0	0	0	0	0	0	0
	Stability	Good stability and robustness of the solution (e.g. little downtimes)	0	0	0	0	0	0	0	0	0	0
	Responsiveness	Good ability of the solution to react to workload	0	0	0	0	0	0	0	0	0	0
		How risky is the project ?	0	0	0	0	0	0	0	0	0	0
Legal		Legal risks associated with the system	0	0	0	0	0	0	0	0	0	0
	GDPR	No risk regarding General Data Protection Regulation compliance (e.g. data can be anonymized)	0	0	0	0	0	0	0	0	0	0
	MDR	No risk regarding Medical Device Regulation compliance										

Each participant fills in the scores connected to their role

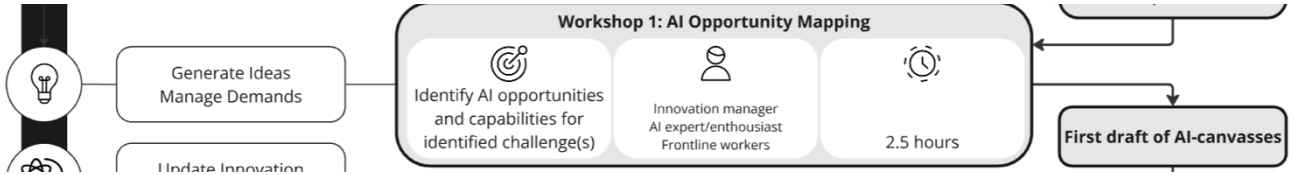
LASO method: workshop 2



Prioritization of AI solutions

Idea	Personal voting	Strategic score	Impact	Feasibility	Risk	Total
Automatic **staff scheduling**	2.00	1.07	1.38	-0.17	0.58	1.07
Automatic registration EPR using **speech-to-text** in link with (verification)	1.40	1.33	1.55	-0.75	0.05	0.88
Automated **care planning** based on patient care profile linked to automated care pathways	0.30	1.47	1.92	-0.67	0.53	0.75
Automatic drafting and summarizing of **appraisals**	1.40	0.67	0.38	0.13	-0.05	0.64
Automatic **allocation of rooms and beds**	0.50	0.98	1.38	-0.54	0.42	0.58
Predictive planning of **mobile nursing team**	0.30	0.98	1.27	-0.58	0.03	0.49

LASO method: legal check



First Legal Check

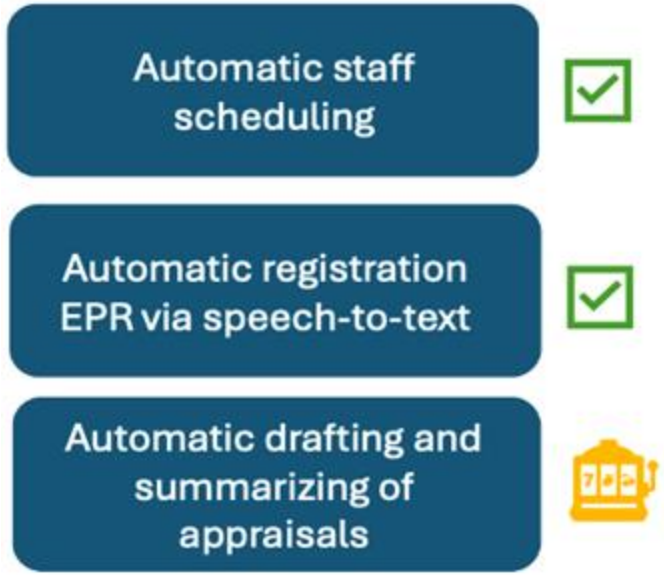
ensures that AI solutions comply with relevant legal frameworks, particularly the General Data Protection Regulation (GDPR) and the AI Act.

3 legal tools

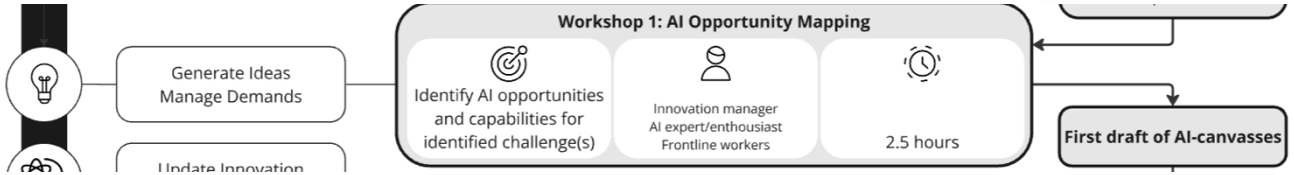
- **Checklist and PowerPoint presentation**: intended for use during the early ideation and exploration phases. They introduce six prohibited AI scenarios under the AI Act and help stakeholders reflect on the legal feasibility of their ideas.

https://laso.smartlawhub.eu

Q: What types of practices, decisions, or applications should AI never be used for**?**



LASO method: legal check



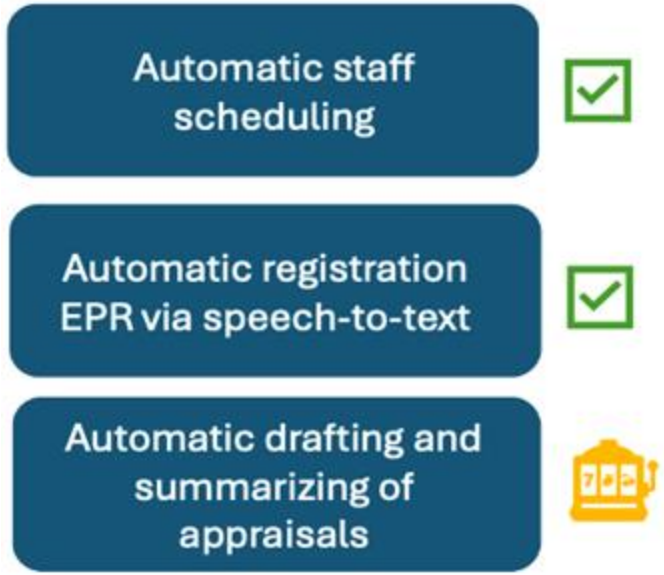
First Legal Check
ensures that AI solutions comply with relevant legal frameworks, particularly the General Data Protection Regulation (GDPR) and the AI Act.

3 legal tools

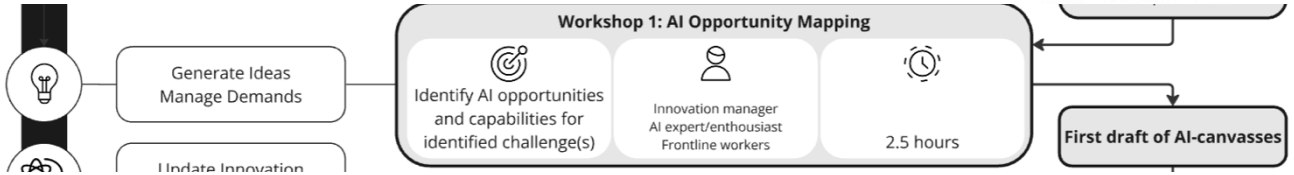
- **Checklist and PowerPoint presentation**: intended for use during the early ideation and exploration phases. They introduce six prohibited AI scenarios under the AI Act and help stakeholders reflect on the legal feasibility of their ideas.

https://laso.smartlawhub.eu

1) AI tools using **subliminal, manipulative, or deceptive** techniques
2) AI tools **exploiting vulnerabilities** of a group or person
3) AI tools using a **social score** leading to detrimental or unfavorable treatment of a natural person or groups of persons
4) AI assessing **criminal risks** of a person
5) AI using **biometric categorization** for certain sensitive characteristics
6) AI **inferring emotions** of people in the workplace



LASO method: legal check



First Legal Check

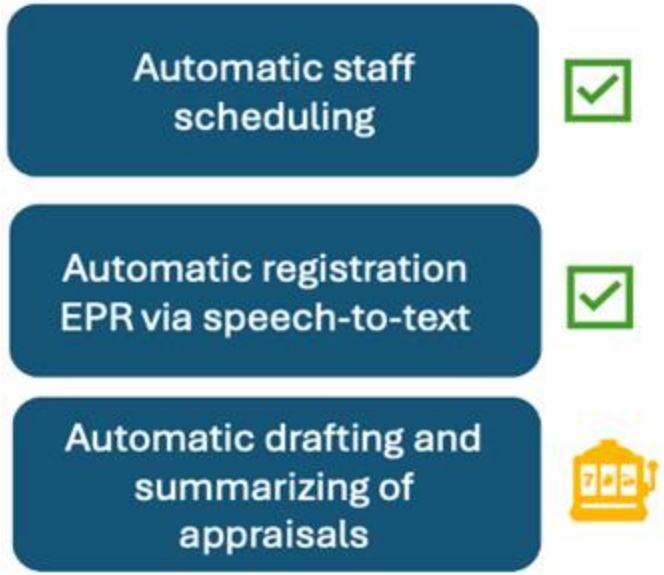
ensures that AI solutions comply with relevant legal frameworks, particularly the General Data Protection Regulation (GDPR) and the AI Act.

3 legal tools

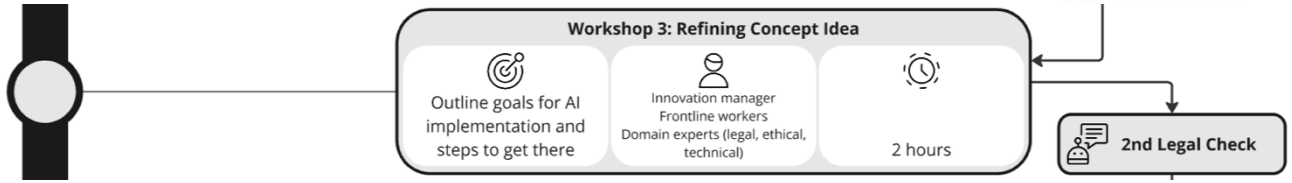
- **Checklist and PowerPoint presentation**: intended for use during the early ideation and exploration phases. They introduce six prohibited AI scenarios under the AI Act and help stakeholders reflect on the legal feasibility of their ideas.
- **LASO JusticeBot**: structured online tool that identifies relevant regulatory issues under the AI Act and GDPR. It guides users through a series of questions and generates a tailored legal risk report for each AI solution
- **ComPlayAnt game**: intuitive analog tool designed to help non-specialists assess legal risks through a guided process.

https://laso.smartlawhub.eu

Score	AI Act	GDPR	Explanation
+2	●	●	No risk identified in either section
+1	NA	NA	Not applicable
0	●/●	●/●	One section is free of risks, while the other contains at least one intermediate risk
-1	●	●	Both sections at least one Intermediate Risk
-2	●/●/●	●/●/●	At least one section contains a severe risk
UR	●	●/●/●	An Unacceptable Risk has been flagged



LASO method: workshop 3

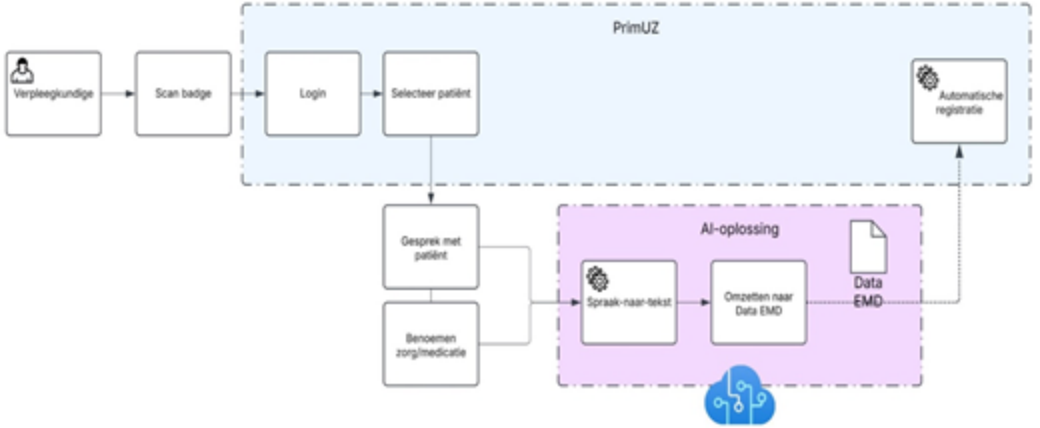


Refine the concept idea

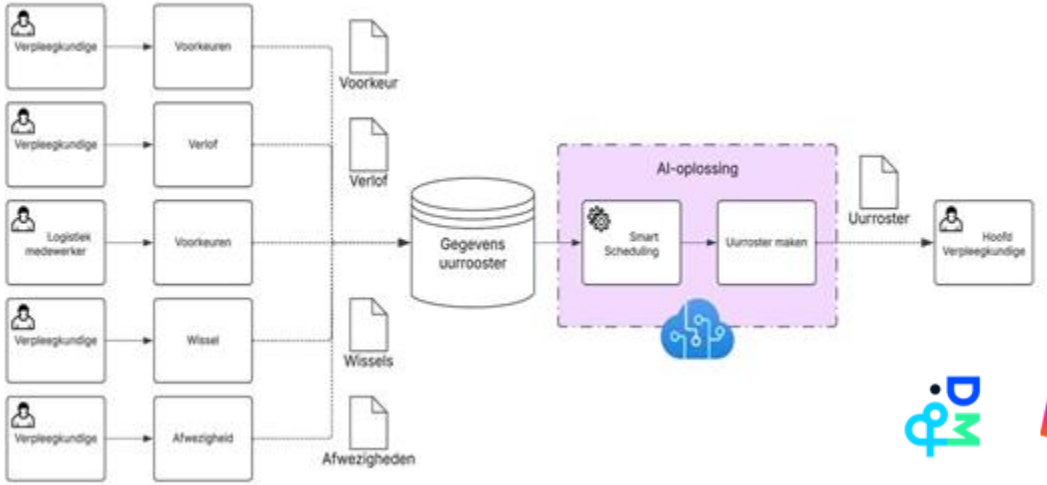
N= 23, nurses, IT, care manager, HR

- Get back into cases and refine/update
- Dialogue: adaptation of guidance ethics approach
  - **Actors** (micro, meso, & macro level)
  - **Effects:** positive and negative, timing and level of impact
  - **Values**
  - **Actions**: tech, context, user behavior
- Reflection

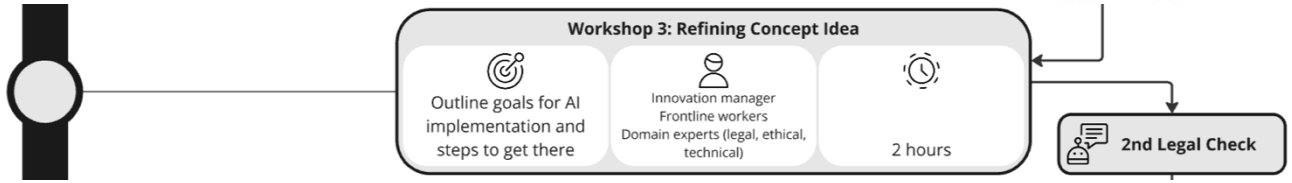
Speech-to-text solution for automated documentation in EPR



Automated **staff scheduling** solution



LASO method: workshop 3

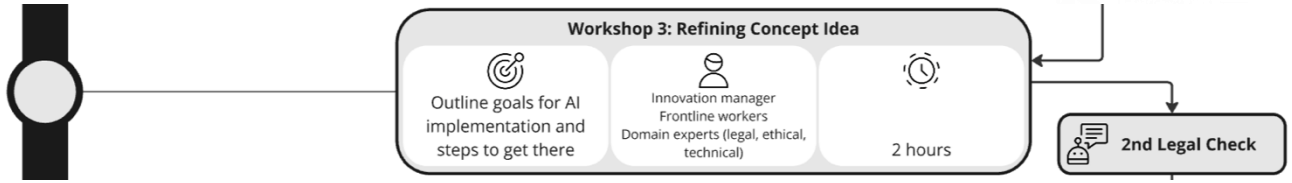


N= 23, nurses, IT, care manager, HR

Identified **actors** for speech-to-text solution

Identified **effects** for speech-to-text solution (macro, meso, micro)

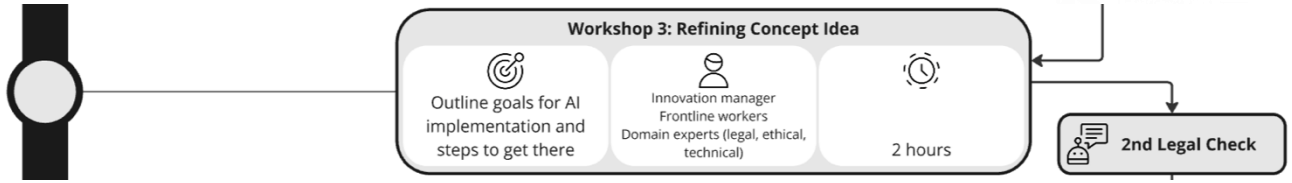
LASO method: workshop 3



N= 23, nurses, IT, care manager, HR

Identified **core values** for speech-to-text solution

LASO method: workshop 3

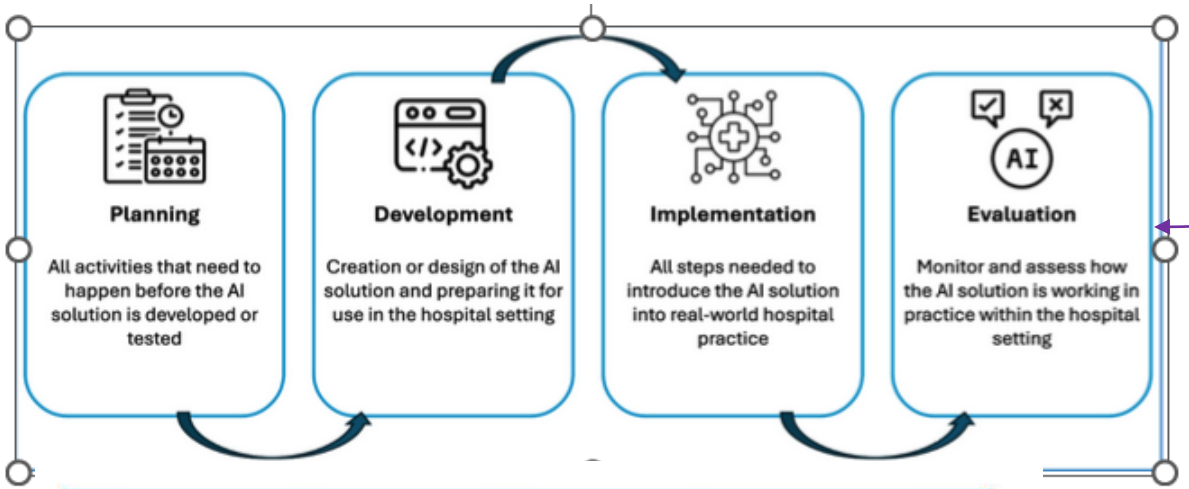


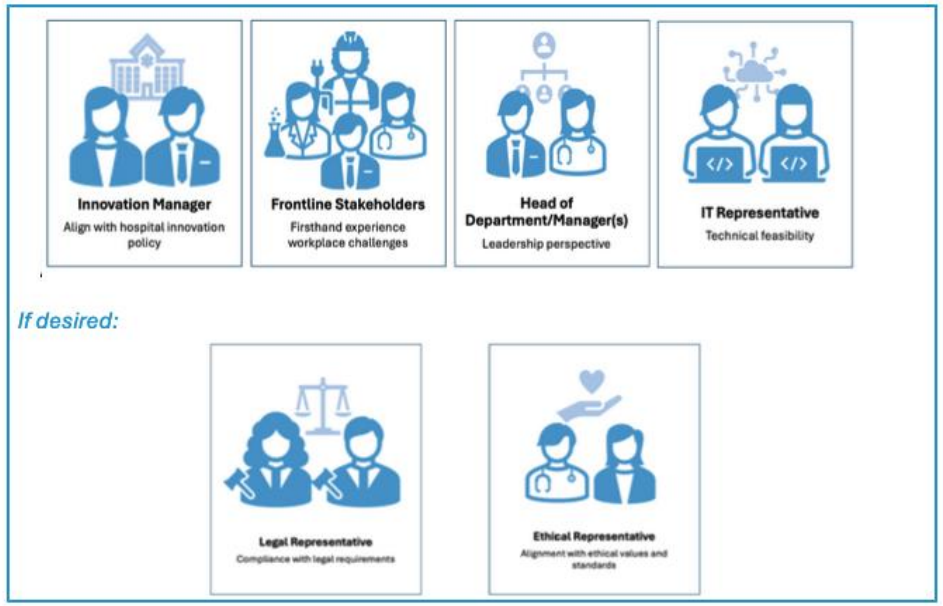
N= 23, nurses, IT, care manager, HR

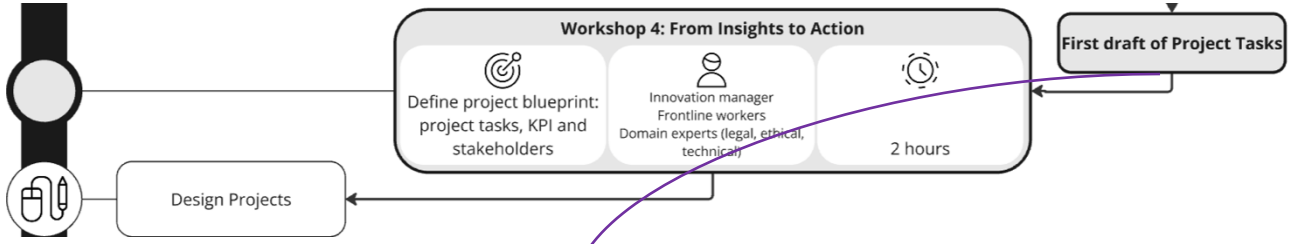
Outcomes **options for action** for speech-to-text solution

LASO method: workshop 4

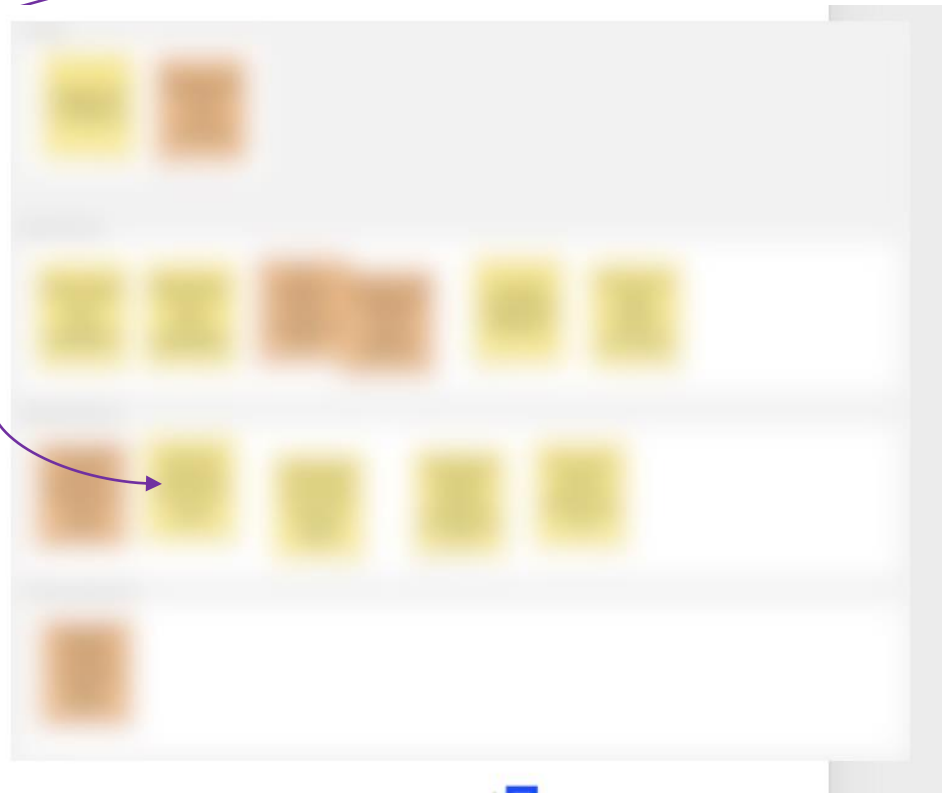
N= 24, mixed





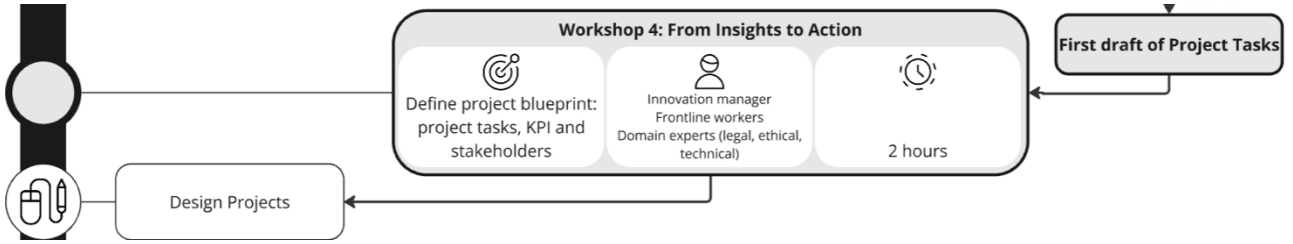


Refining first draft of project tasks



LASO method: workshop 4

N= 24, mixed

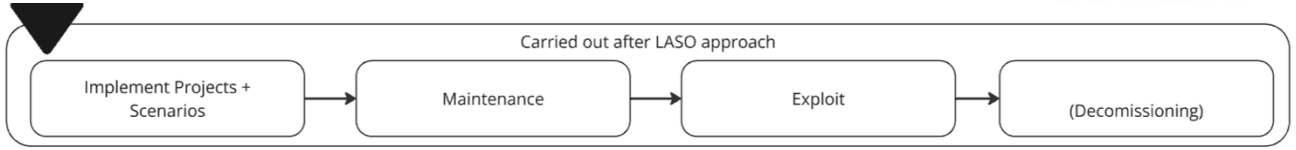


RASCI stakeholder analysis:

Setting tasks priorities

Agree on **responsibilities and accountability** of stakeholders

LASO method: After approach



From **your** experience:

What do you **recommend** to do after these kind of ideation activities ?

Or what can be **bottlenecks or blockers** you foresee?

Thank you!

Melissa.wittens@vub.be