THE AI LEARNING LAB: an interdisciplinary **Learning Community** for the effective deployment of AI solutions in Medicine

Ferdinand Mol, Mohammad Rezazade Mehrizi, Wendy Günther
Vrije Universiteit Amsterdam, KIN Center for Digital Innovation

Willem Grootjans
Leiden University Medical Center

Harmen Bijwaard
InHolland University of Applied Sciences

PURPOSE & LEARNING OBJECTIVE

Artificial Intelligence (AI) technologies are gaining popularity for their ability to autonomously perform tasks and mimic human reasoning **[1, 2]**. Especially within the medical industry, the implementation of AI solutions has seen an increasing pace **[3]**. However, the field of radiology is not yet transformed with the promised value of AI, as knowledge on the effective use and implementation of AI is falling behind due to a number of causes:

1) Reactive/passive modes of learning are dominant
2) Existing developments are fragmented
3) Lack of expertise and differing perspectives
4) Lack of effective learning space

Learning communities can help overcome these problems and address the complexities that come with human-technology configurations **[4]**. As the impact of a technology is dependent on its social management and implementation processes **[5]**, our research question then becomes:

How do we design, configure, and manage a Learning Community to maximize the impact of AI solutions in medicine?

BACKGROUND & METHODS

As a point of departure, we build on an initial design of a learning environment (see **Figure 1**) that applies unique configurations of medical use cases, working scenarios, and AI solutions to facilitate experimental learning, titled the "AI Learning Lab" **[6]**.

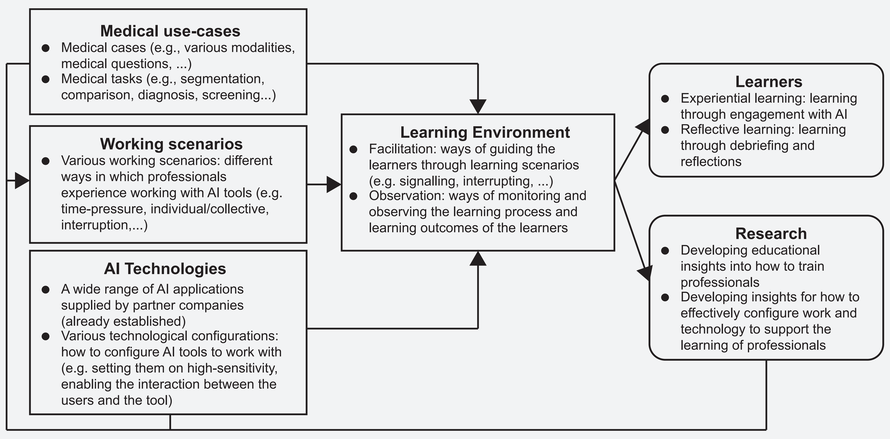


Figure 1: Intial concept of the AI Learning Lab, extracted from **[6]**

So far, theories of learning communities are limited in their ability to explain novel learning mechanisms that emerge in human-technology communities **[7, 8]**, because when stakeholders come together, they often produce more questions than answers. Thus, the reintegration of new knowledge is key for the effective functioning of a human-technology Learning Community. We therefore apply Flywheel Effect Theory **[9, 10]** in designing the core of the Learning Community, to create a cyclical feedback loop of knowledge.

We then apply 'Participatory Impact Pathways Analysis' (PIPA) in shaping the Learning Community pathways **[11, 12]**. Using the PIPA framework we ensure the resulting Learning Community combines a demand-led prioritization of research together with stakeholder involvement in order to maximize its impact.

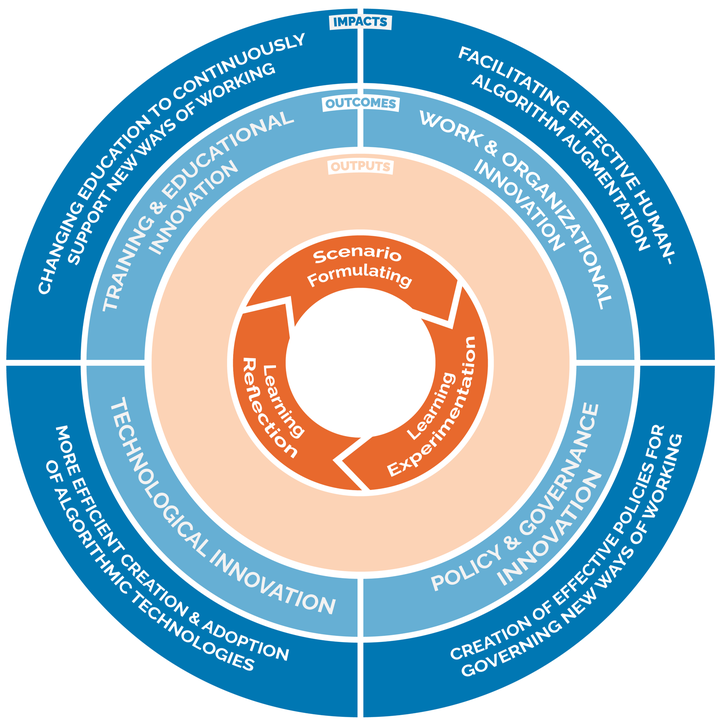
CONTACT

Ferdinand Mol: f.p.j.mol@gmail.com

RESULTS

The resulting design of the Learning Community is depicted in **Figure 2**. Its formulated impact pathway flowchart can be seen in **Figure 3**, depicting how the community's outputs connect to the desired impact.

Figure 2: Design of the AI Learning Lab learning community, depicting its cyclical core spaces, surrounded by an output space, its resulting outcomes, and resulting impacts.

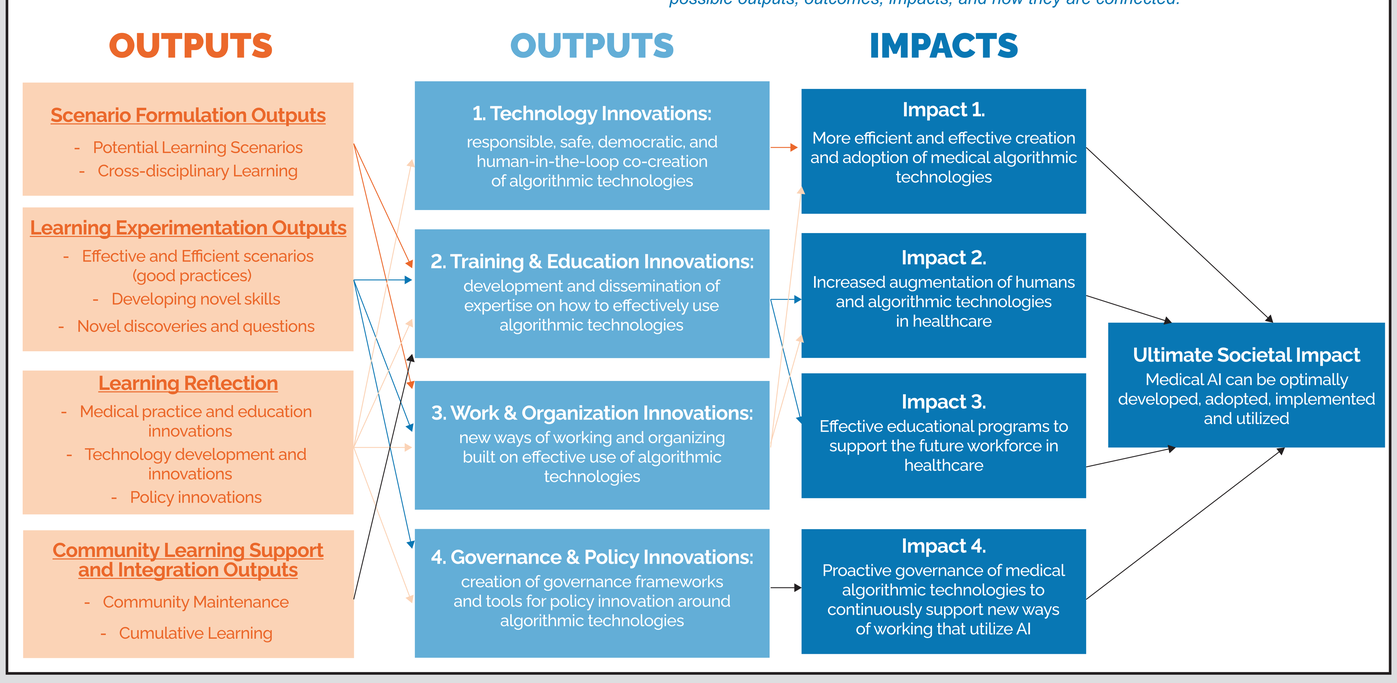


CONCLUSION

With our proposed design, our medical AI Learning Community will continuously produce and reintegrate knowledge through its cyclical core design. This generated knowledge will in turn facilitate the optimal development, doption, implementation, and utilization of medical AI by generating 4 main outcomes:

1) Technological Innovation
2) Training & Educational Innovation
3) Work & Organizational Innovation
4) Policy & Governance Innovation

Figure 3: Impact pathways of the AI Learning Lab learning community, depicting the possible outputs, outcomes, impacts, and how they are connected.



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