

LUXEMBOURG  
INSTITUTE  
OF **HEALTH**

RESEARCH DEDICATED TO LIFE



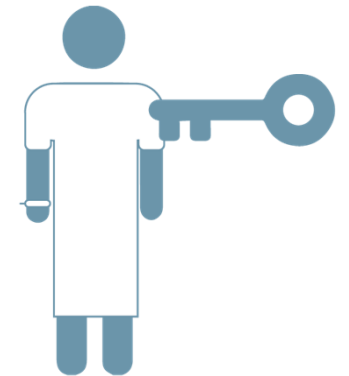
LUXEMBOURG  
INSTITUTE  
OF **HEALTH**  
RESEARCH DEDICATED TO LIFE

# Clinnova context and strategic approach



Strategic approach of Clinnova:

*“Unlocking the potential of data science and artificial intelligence (AI) in health care”*



## Clinnova's aims:

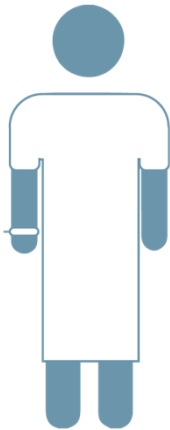
### Short Term Goal:

- Improve the quality of data around precisely defined medical questions
- create a data enabling dimension by integrating diverse standardized data sources



### Medium Term Goal:

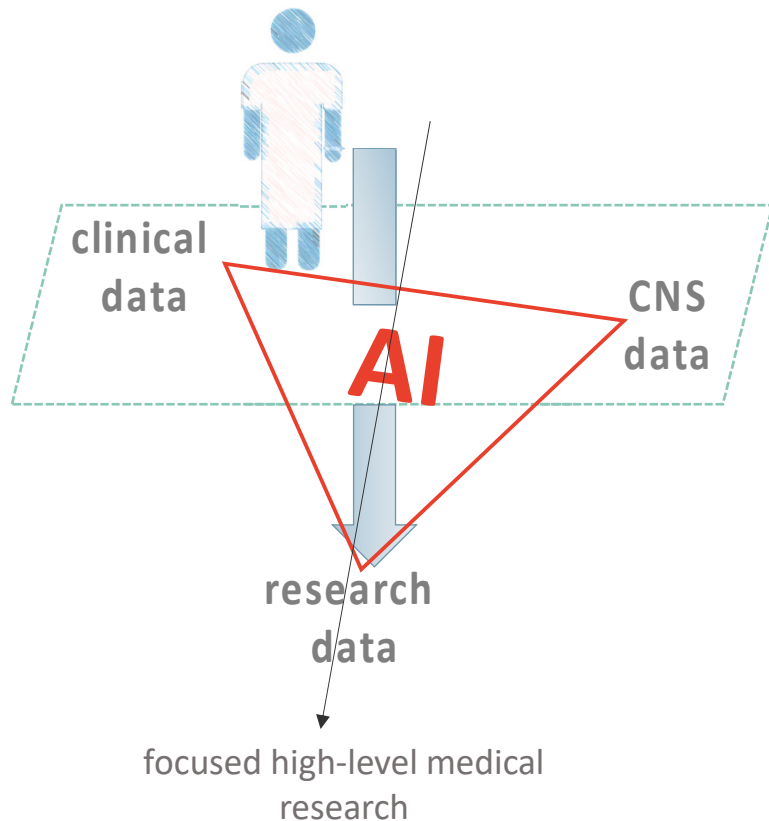
- Build AI-based decision support for clinicians, enabling integrated care cycles around patients in defined disease areas.
- Advance applied medical research on shared mechanisms of action in immune related diseases and co-morbidities



# DIGITAL HEALTH HUB LUXEMBOURG

## Clinnova considers AI-innovation in health care first of all an operational and organizational challenge

- The bottle-neck is not in the 'right AI algorithm' - it lies in creating an enabling data dimension
- That requires the concatenation of clinical and CNS metadata with standardized, quality-controlled research data



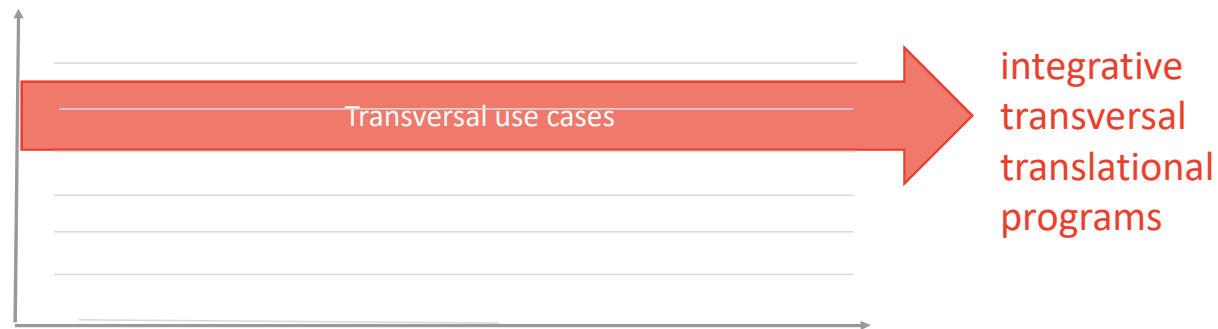


LUXEMBOURG  
INSTITUTE  
OF **HEALTH**  
RESEARCH DEDICATED TO LIFE

# Dissecting the Data-challenge into practical work steps

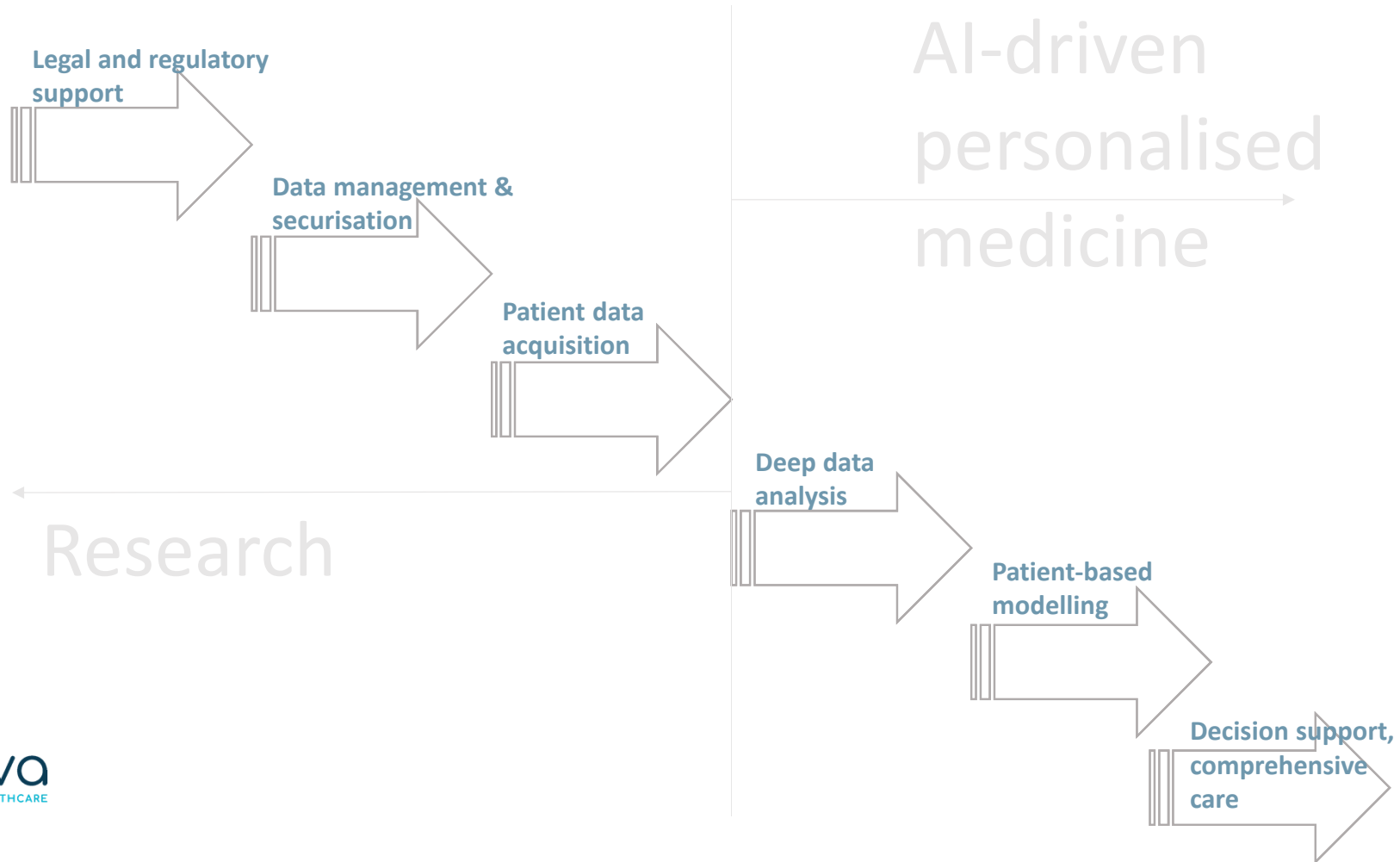
# DIGITAL HEALTH HUB LUXEMBOURG

- Creating an 'enabling data dimension' requires extensive **capacity building**
- 6 distinct competence platforms will be needed in Luxembourg, some of which already exist



*Competence platforms will be tied together and focused around relevant use cases to establish standard operating procedures*

# COMPETENCE PLATFORMS TO UNLOCK THE POTENTIAL OF AI IN HEALTH CARE





# COMPETENCE PLATFORMS TO UNLOCK THE POTENTIAL OF AI IN HEALTH CARE

A competence platform developing socio-economic, ethical, regulatory and legal solutions (Loi Hospitalier, default consent with opt-out) compliant with GDPR to protect patient's rights and facilitate implementation of digital health and personalised medicine



**LEGAL & ETHICAL**

Patient data acquisition

Deep data analysis

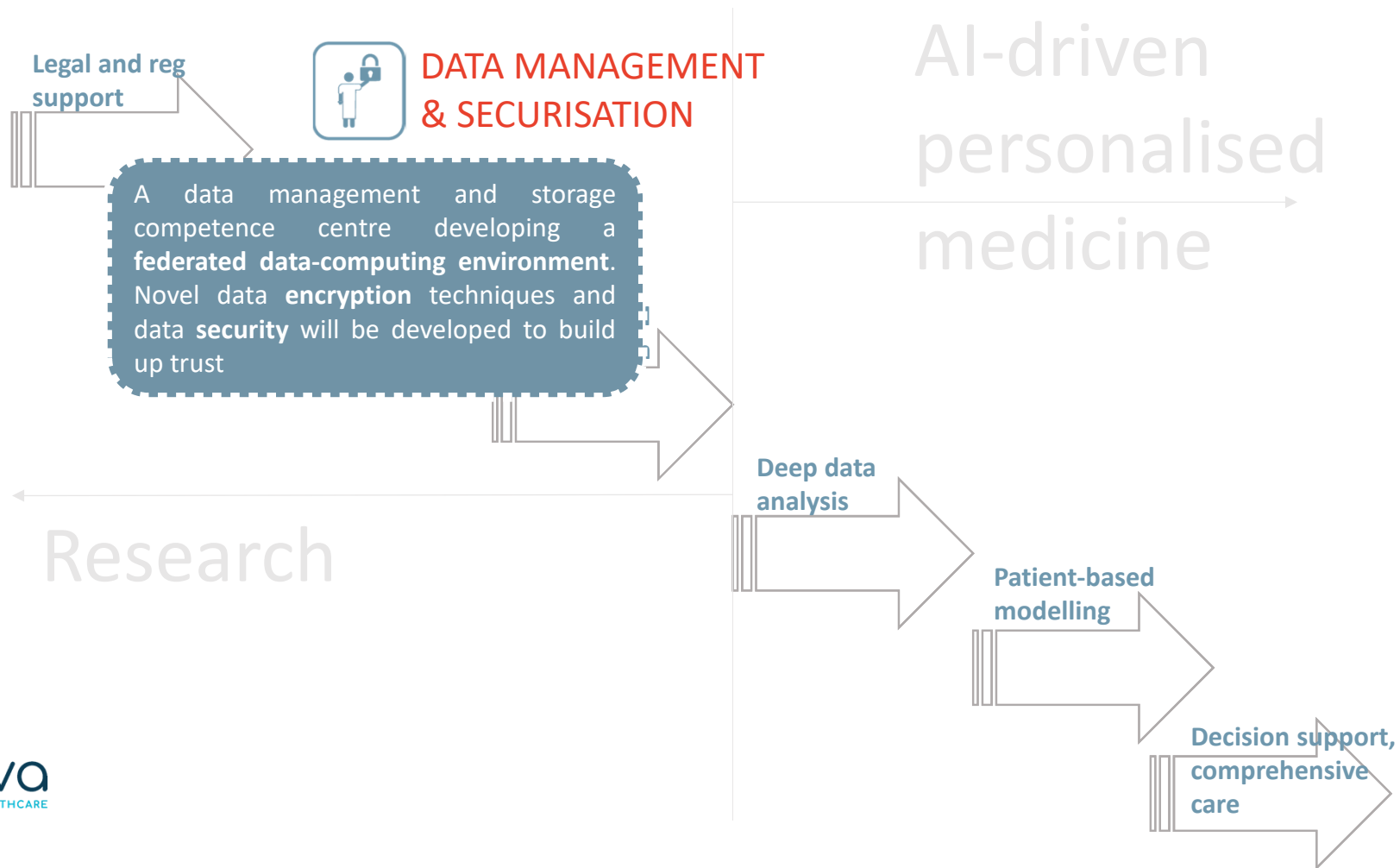
Patient-based modelling

Decision support, comprehensive care

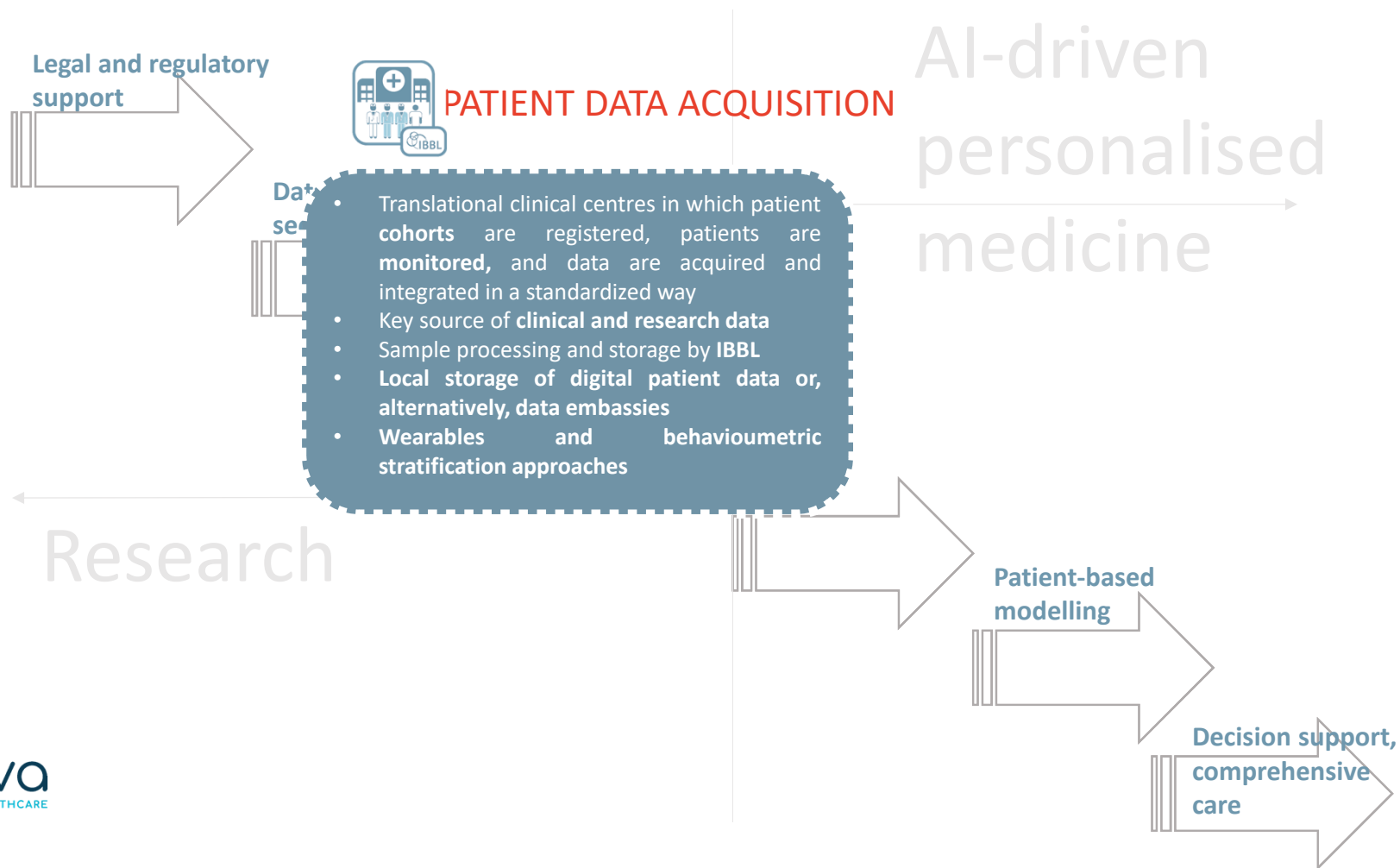
AI-driven personalised medicine

Research

# COMPETENCE PLATFORMS TO UNLOCK THE POTENTIAL OF AI IN HEALTH CARE

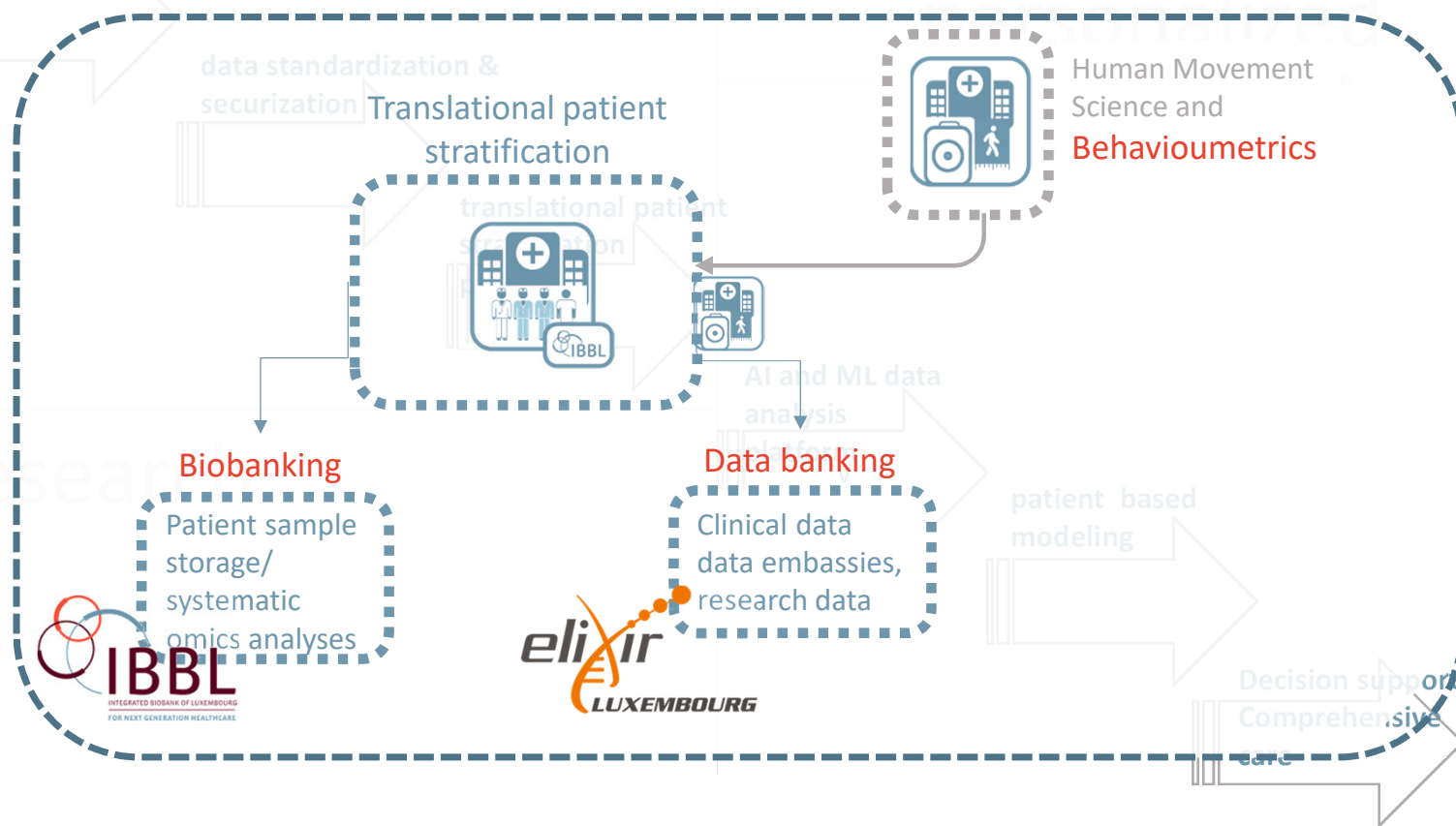


# COMPETENCE PLATFORMS TO UNLOCK THE POTENTIAL OF AI IN HEALTH CARE

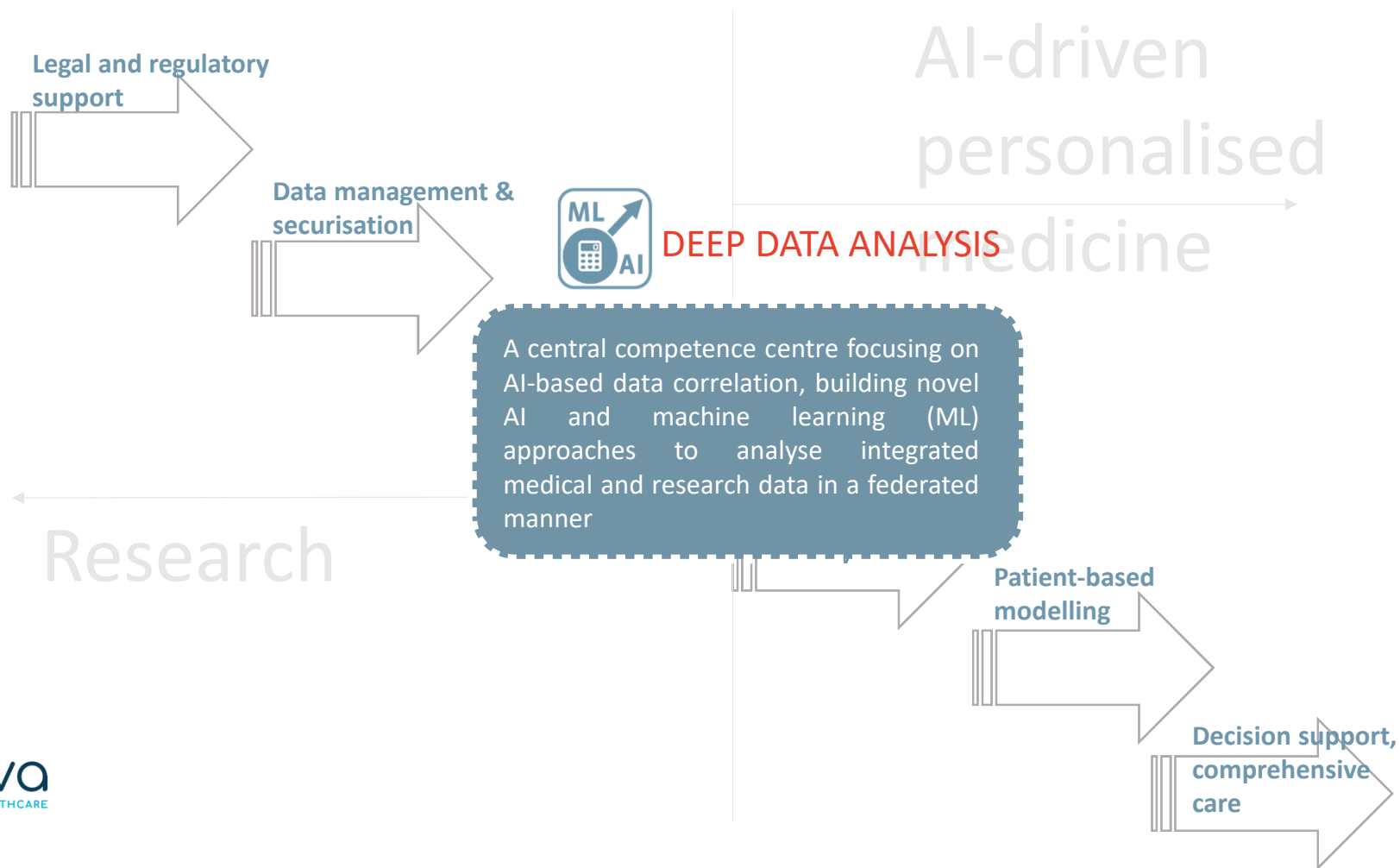


# COMPETENCE PLATFORMS TO UNLOCK THE POTENTIAL OF AI IN HEALTH CARE

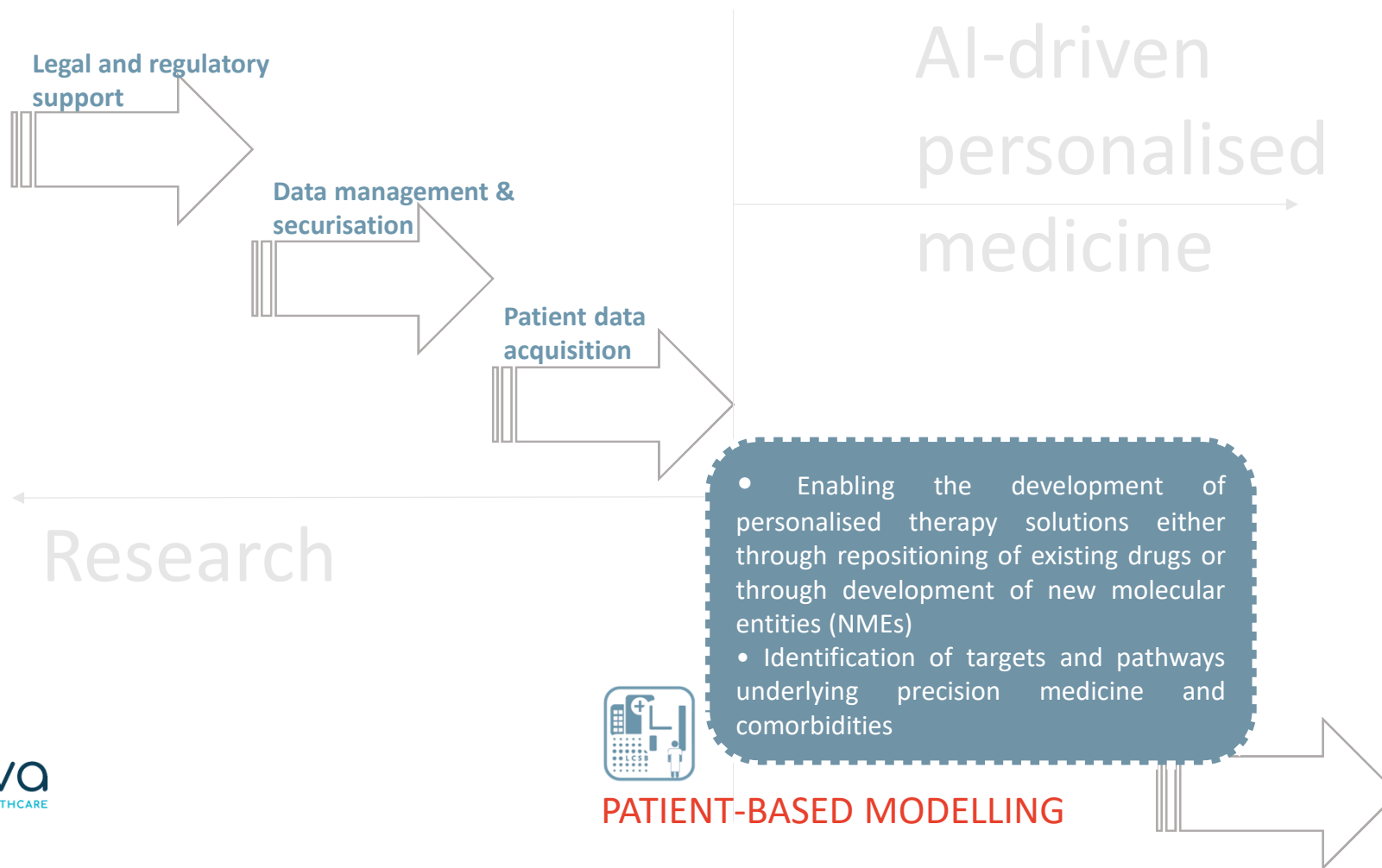
Individual units contributing to translational patient stratification:



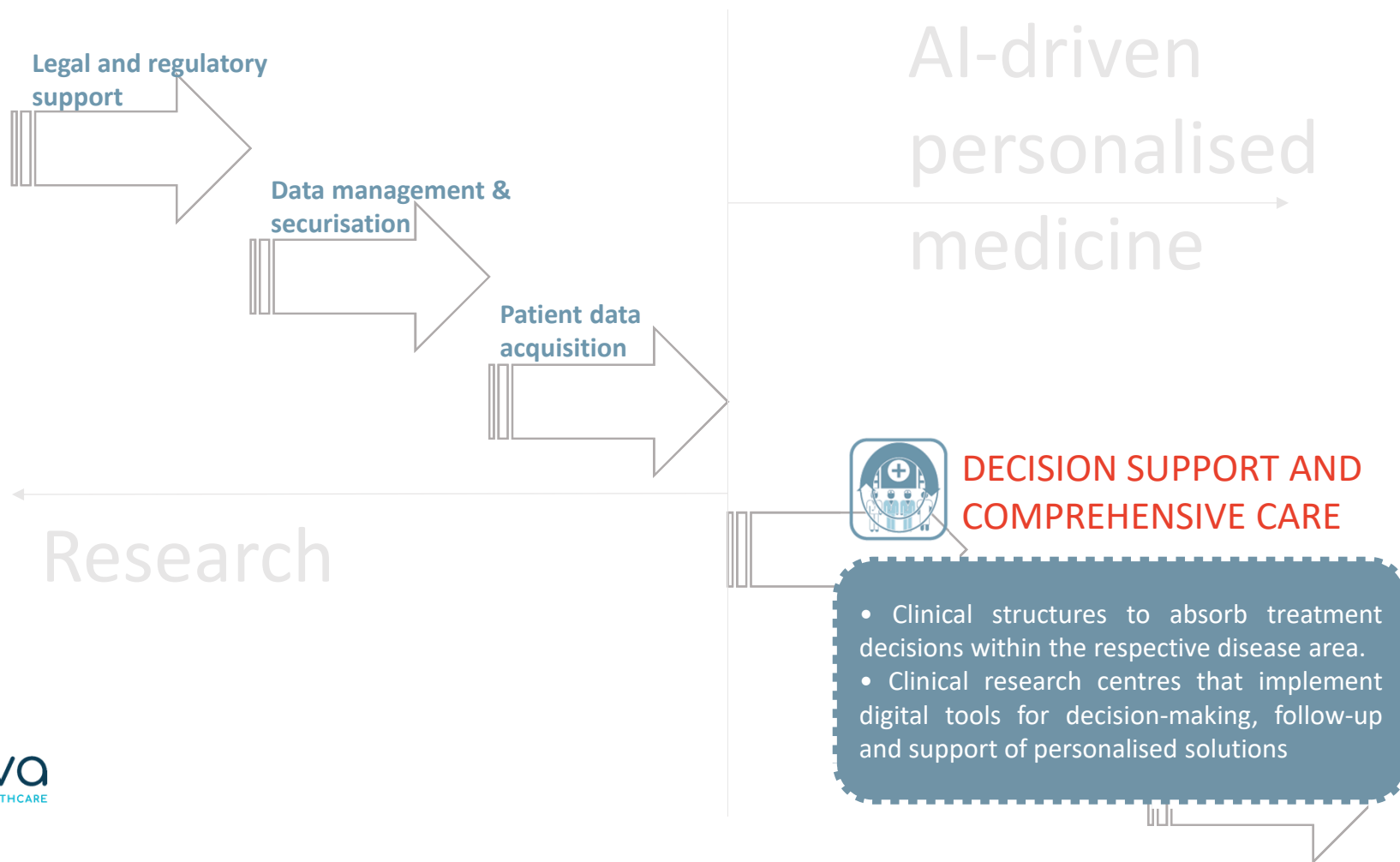
# COMPETENCE PLATFORMS TO UNLOCK THE POTENTIAL OF AI IN HEALTH CARE



# COMPETENCE PLATFORMS TO UNLOCK THE POTENTIAL OF AI IN HEALTH CARE



# COMPETENCE PLATFORMS TO UNLOCK THE POTENTIAL OF AI IN HEALTH CARE





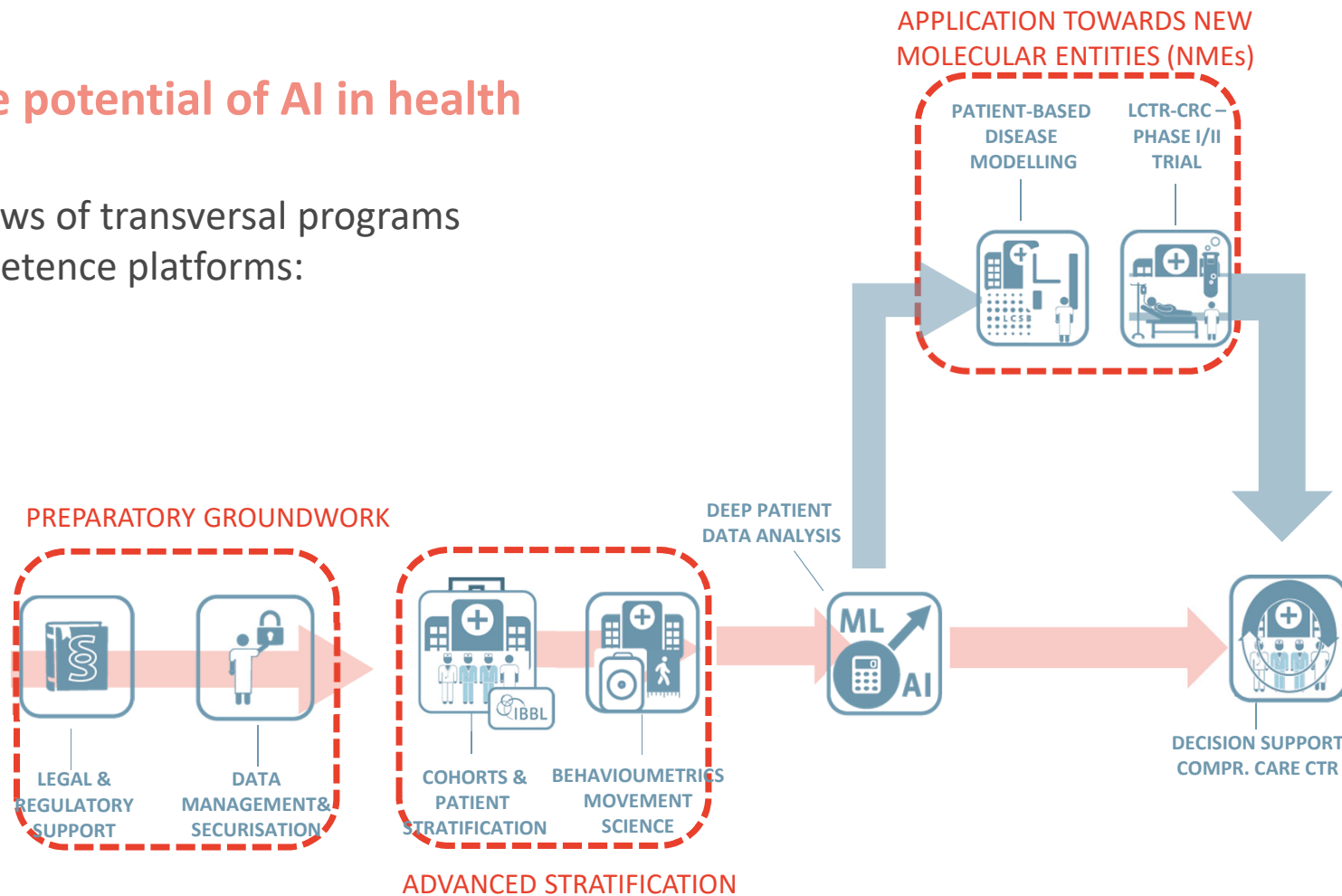
LUXEMBOURG  
INSTITUTE  
OF **HEALTH**  
RESEARCH DEDICATED TO LIFE

# Projected Clinnova workflow

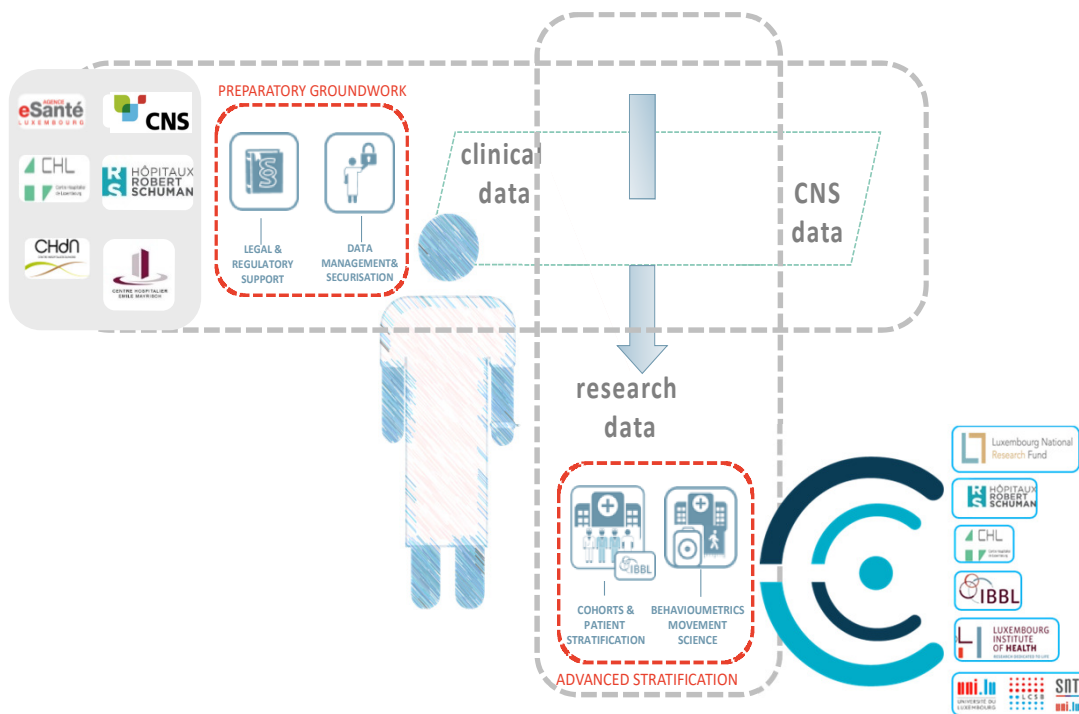


## Unlocking the potential of AI in health care

Possible workflows of transversal programs across the competence platforms:



## Collaborating across systems:



## Creating a data continuum:

- Insurance, hospital and research data, insofar as existent, should be integrated and standardized around individual patients.
- All data should then be integrated on the same data base (eSanté)
- Analysis for research outputs can be done by remote AI/ML analyses in a federated data environment

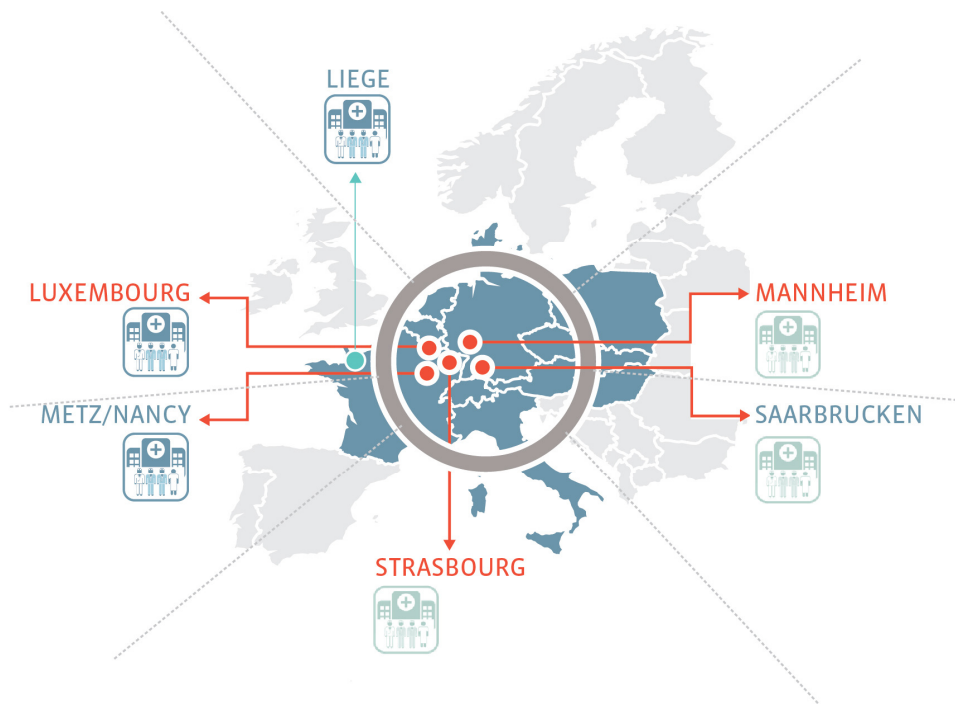


LUXEMBOURG  
INSTITUTE  
OF **HEALTH**  
RESEARCH DEDICATED TO LIFE

# Creating a federated data environment

putting Luxembourg into the center of a  
digital health hub

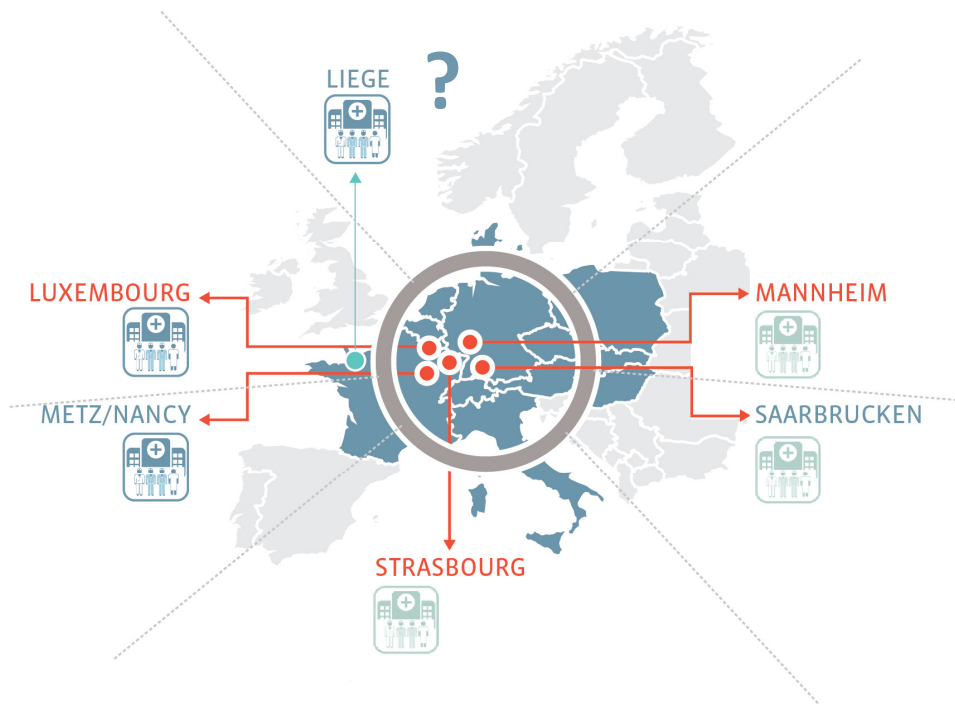
## CLINNOVA TRANS-BORDER DIMENSION



### Clinnova needs to access more patients and expand data sourcing

- Luxembourg is an ideal test bed to implement and integrate digital health and AI tools, but lacks in critical patient count
- Clinical trans-border partners need to be taken aboard:
  - Grand-Est: Strasbourg, Nancy/Metz
  - Baden-Württemberg: Heidelberg/Heinrich-Lanz Centre Mannheim, Univ. Hosp. Mannheim
  - Saarland: DKFI Saarbrücken

## CLINNOVA TRANS-BORDER DIMENSION



**The concept of a federated data environment with remote analysis access facilitates cross border collaboration**

- Clinicians in collaborating centers align with Luxembourg cohorts on patient linked stratification standards in respective disease areas
- Luxembourg will provide local biobanking, sample processing and data banking solutions
- Patient data can remain in local data banks, and can be accessed remotely for AI/ML analysis through centralized algorithms