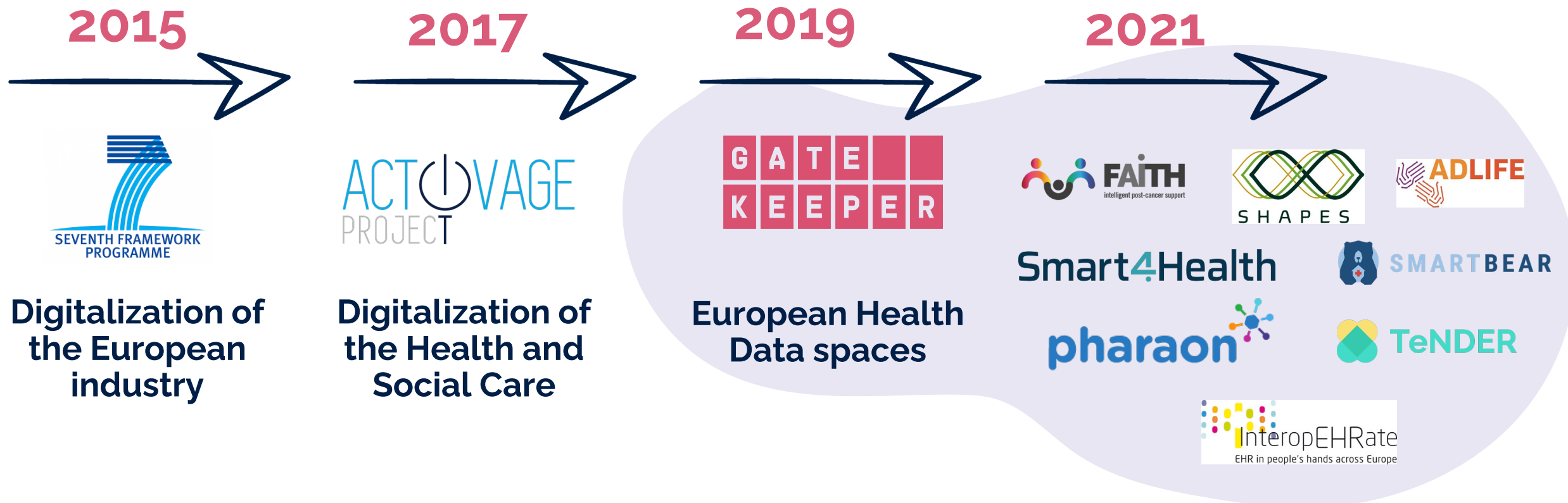


The journey



GOVERNANCE OVER: Data production, storage, transmission, use, privacy, security, sharing, fairness

FIRE: *Findable, Accessible, Interoperable and Re-usable*

The OPEN DEI ecosystem: 35+ Ecosystem Projects (incl. 2 LSPs)

Agri-food (7)



Energy (9)



Manufacturing (7)



Health & Care (13)



Platforms: consolidated SWOT- Healthcare Domain

Strengths

- Digital platforms strongly support the **convergence** of healthcare ecosystems on **patient value and offer new digital services**
- Digital platforms are key enablers to **integration** the healthcare value chain from professionals to patients
- Digital Platforms offer the required **flexibility** to divers needs of a complex multi-stakeholder domain such as healthcare.
- Effective role of digital platforms during COVID-19 pandemic could drive their **adoption acceleration**
- Digital platforms in healthcare domain are adopted having both **centralized and decentralized approaches** highlighting the flexibility of domain for their adoption apart from the approach.

Opportunities

- The strong trend of new digital services and delivery models in healthcare highlights the role of digital platforms as **key enablers of transformational use cases** and innovative services.
- The significant trend of shifting towards a patient and citizen-oriented system provides an opportunity for platforms as a mean to facilitate **the integration of end-users in the value chain**
- The pandemic offered the opportunity to demonstrate the benefits in terms of patient value of these platforms.

Weaknesses

- **Interoperability** is a main challenge to adopt healthcare digital platforms due to a strong need of using international healthcare interoperability standards
- There is a lack of proper **innovative business models** to actively support uptake of healthcare digital platforms
- **Data privacy** is a challenge which limits use-case adoption and economies of scale even though acts like GDPR could help.
- Healthcare platforms with advanced functionalities are usually received better at **regional and community level due to trust challenge**.
- **Limited engagement of Industry stakeholder** with cloud technology could hurdle the effective development of patient value-based platforms

Threats

- The **fragmented nature** of healthcare market (& platforms) , with stringent regulations on data use, and patient safety and complex governance models to address ethical aspects hurdles the adoption of digital platforms.
- Level of **digital maturity is not homogeneous** across healthcare and life sciences organizations and adoption of truly **cloud based architectures** is still low.
- **Cultural differences** in different ecosystems could hurdle the acceptance and deployment of platforms.
- Limited number of national infrastructures in different countries to access critical resources.
- **Lack of Global compulsory IoP implementation reference framework** at EU level and Incentives attached to it.
- **Complexity of governance process for Interoperability** at national and EU levels.





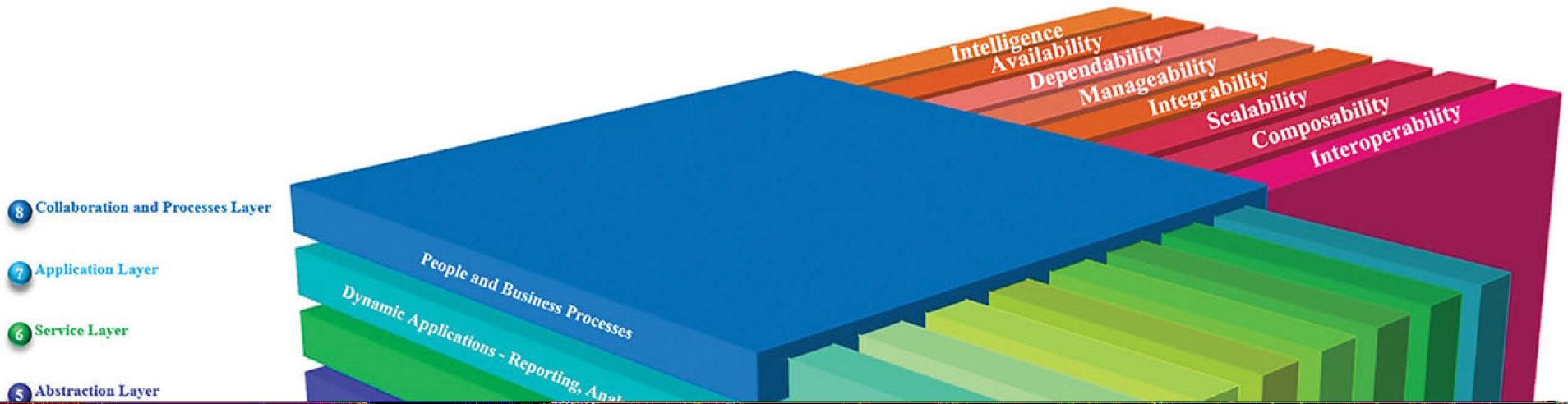
FINDINGS FROM THE HC CLUSTER

Consensus: RAM to be used should be **technology-agnostic**

- Architecture descriptions supporting platforms selection/development should at least identify:
 - **System stakeholders** (including users, operators, owners, developers, maintainers);
 - **Fundamental concerns** (including the purpose of the system, suitability of the architecture to fulfill the set objective, feasibility, risks, maintainability, evolution);
 - **Architecture views** (representing a related set of concerns as seen from a perspective a view is taken, a viewpoint);
 - and **The rationale** for each important architecture decision.



Create-IoT 3D RAM most supported by projects



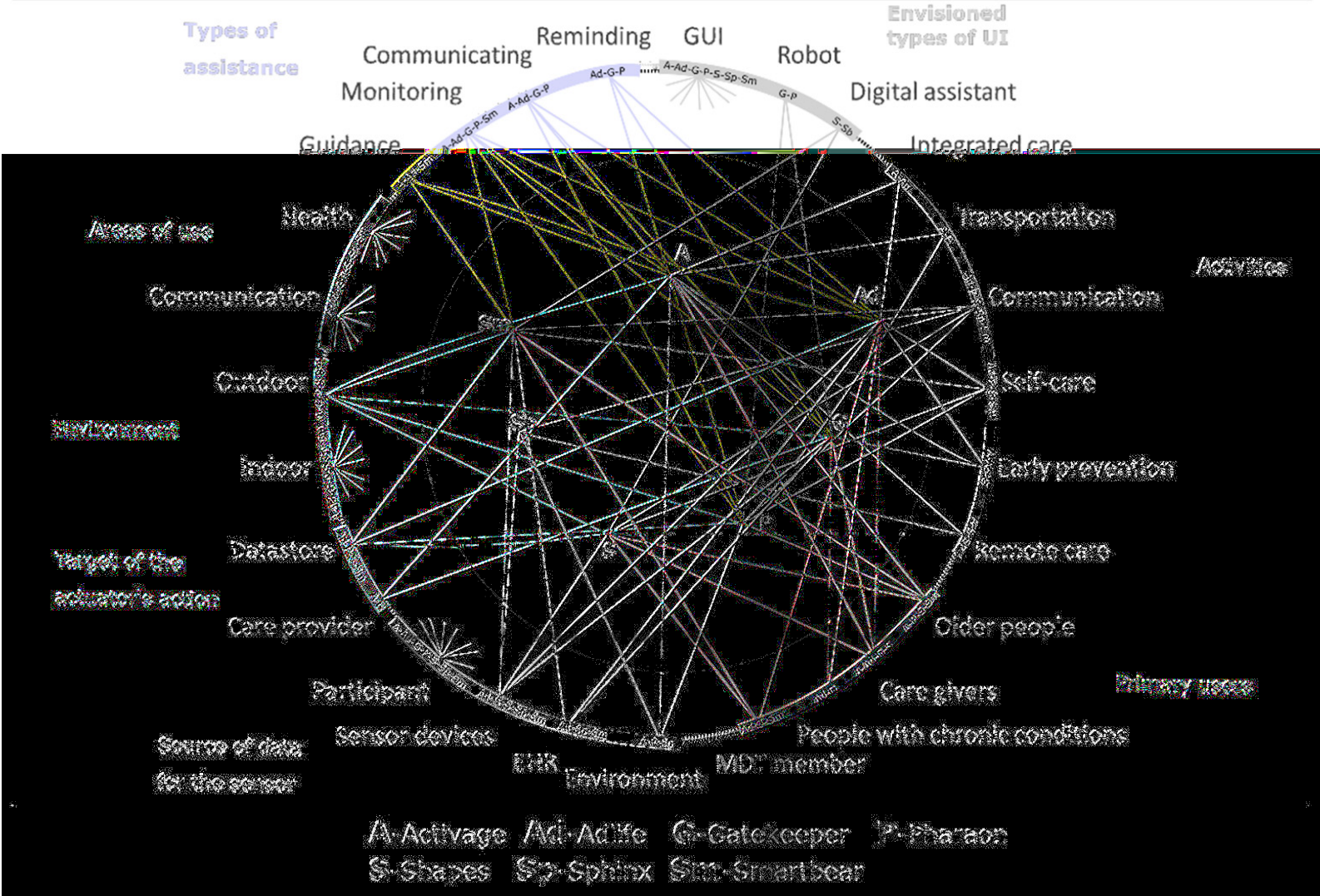
- System properties (addressing global system properties)

- Horizontal functions across layers (reflecting the IoT implementations across various domains)

- Cross-cutting functions (addressing functionalities spanning across several layers)



Horizontal functions



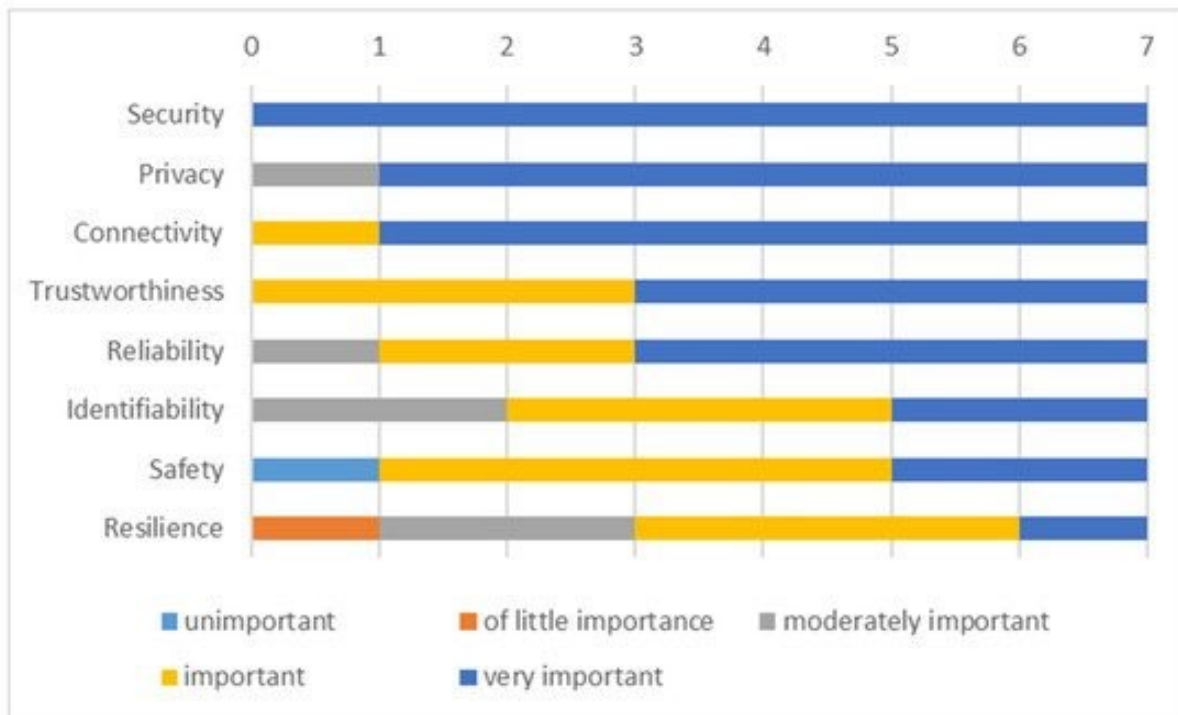


Key messages

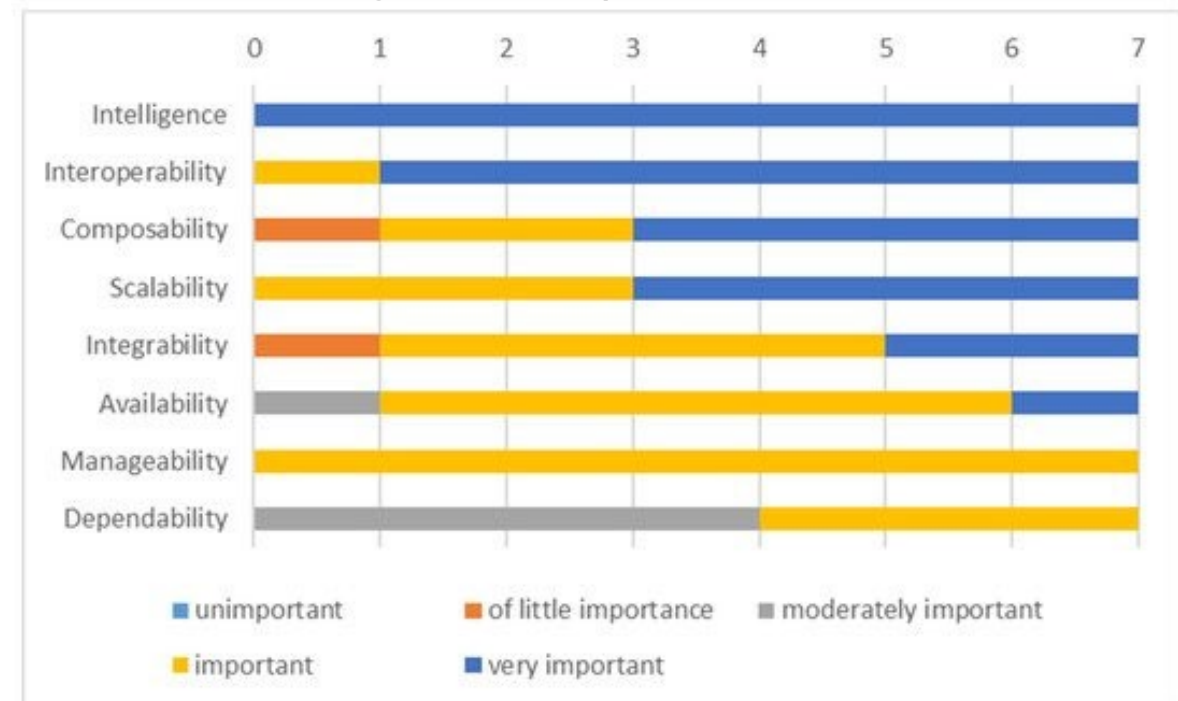
- Five properties, namely **health, communication, GUI, indoor, and participant**, are covered by all projects and can be considered universal in our overview.
- In most cases, the AAL solutions focus on **indoor habitats** and home environments, while those that focus on outdoor are rarer. This is also true for AAL projects in general as they often include IoT and Aml (Ambient Intelligence) technologies.
- Most common type of user interface is still **GUI**, followed by robots and digital assistants
- Most common types of assistance offered are **communication support, reminders, monitoring, and guidance** to address health and communication issues

Comparing cross-cutting functions and systems properties

■ Cross-cutting functions



■ System Properties





Key findings

- Architectural choices, and resulting architectures, are most often made considering functional and non-functional requirements, while **technical and business constraints are in most cases only implicit.**
- Quality attributes such as **performance, interoperability, reliability, maintainability, usability, and security are often vaguely described**
- **Trade-offs**, e.g., between maximum cybersecurity and usability, are also **necessary** to balance the system
- **Clinician-facing functions and systems should be included** as an extension to current AAL taxonomies
- A specific need to apply **privacy-enhancing techniques** in smart and healthy living solutions.
- **Performance reports**, especially ones that observe more extended running platforms and services, **are missing**, since projects end before collecting them.
- Need to compare attributes linked to **Performance** (in terms of latency and throughput), **Usability** (in terms of learnability and user interaction design), and **security** (in terms of confidentiality, integrity, availability)



ASSETS - MATURITY -CONTINUITY: Next proposed step for the Healthcare Cluster

What the Cluster proposes is to:

- Identify a list of “**digital platform essentials**” that can contribute to preserving the digital investments which have been done by all these projects (“Digital platform essentials” refer to a combination of requisites [technical, business, design principles, etc.])
- Explain **why** they are relevant
- Summarize our findings and discussion in light **recommendations**