

OPEN DEI: DEI Focus Area Cooperation with multi-sector LSPs



**OPEN DEI is a H2020
Coordination and Support Action**
DT-ICT-13-2019

Start Date: June 2019
Duration: 40 Months
Consortium: 10 Beneficiaries
Coordinator: IDC



OPEN DEI: A bit of History

- The DEI Communication on April 2016: The purpose of this Communication is to reinforce the EU's competitiveness in **digital technologies** and to ensure that ***every industry in Europe, in whichever sector, wherever situated, and no matter of what size can fully benefit from digital innovations.***
- Materializing DEI in concrete actions working groups: Partnerships, DIHs & Skills, Platforms & Standards



OPEN DEI's Ambition: Goal and Objectives

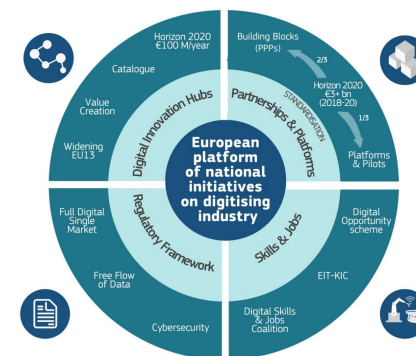
Coordinate & Support EC's efforts in DT for Manufacturing, Energy, Agri-Food and Health & Care Sectors.
Support the Adoption of Digital Platforms and the development of LSP

Coordinate & Support **TECHNOLOGY-DRIVEN DT:**

- Common RAs
- OS Reference Implementations
- Methods and tools for Data Spaces
- Domain-specific Open Standards

Coordinate & Support **BUSINESS-DRIVEN DT:**

- Digital Maturity assessments
- Digital Skills
- Emerging Digital Technologies Uptake
- Business KPIs and Benchmarking



OPEN DEI's Instruments: Task Forces and Working Groups

Cross-Domain and Domain-Specific Instruments

CROSS-DOMAIN TASK FORCES:

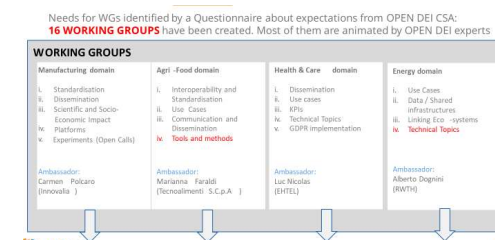
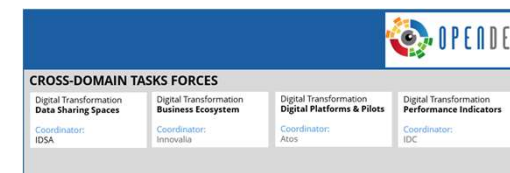
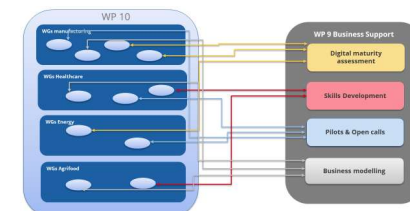
Generate technical and business knowledge in a collaborative, participative fashion:

1. TF1: Data Sharing Spaces
2. TF2: Business Ecosystem
3. TF3: Digital Platforms, Pilots and Standards
4. TF4: DT Business Impact

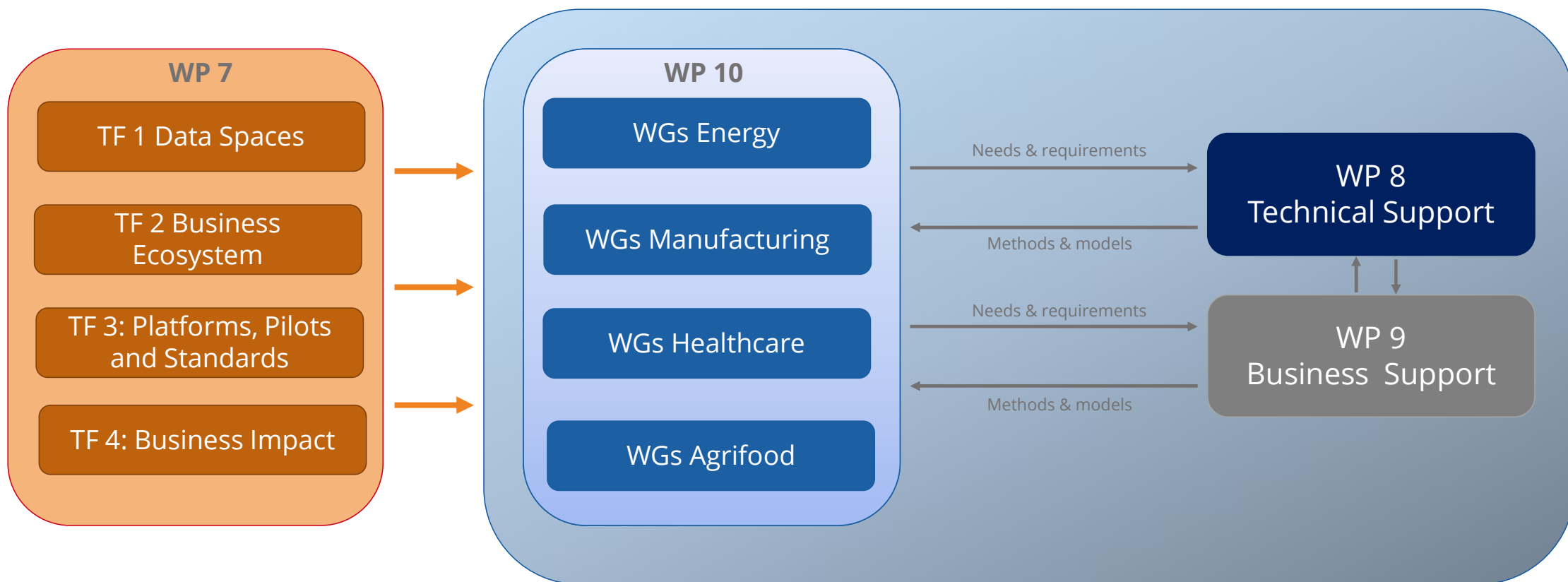
DOMAIN-SPECIFIC WORKING GROUPS

Coordinate and support LSPs ecosystem addressing common domain-specific challenges:

- Webinars
- Calls
- Discussion fora
- Prizes, awards, hack & other - thons, conferences, etc..



OPEN DEI: How it Works



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

Agri-food (7)



Energy (9)



Manufacturing (7)



Health & Care (13)



Smart4Health

Citizen-centred EU-EHR
exchange for personalized health

pharaon

Pilots for Active and
Healthy Ageing

ACTIVAGE PROJECT

GATE KEEPER

Smart Data driven Solutions for
Personalized early risk detection
and intervention



a Federated Artificial Intelligence
solution for monitoring mental
Health status after cancer treatment



SHAPES

Smart and Healthy Ageing through
People Engaging in supportive
Systems



for the smart hospital of the future



AI and Digital
Collaboration for Digital Pathology



AICCELERATE

smart hospital care pathway engine



SMARTBEAR

Smart Big Data Platform to Offer
Evidence-based Personalised
Support for Healthy and
Independent Living at Home



ADLIFE

Integrated personalized
care for advanced
chronic patients



TeNDER

Affective based
integrated care for better
Quality of Life

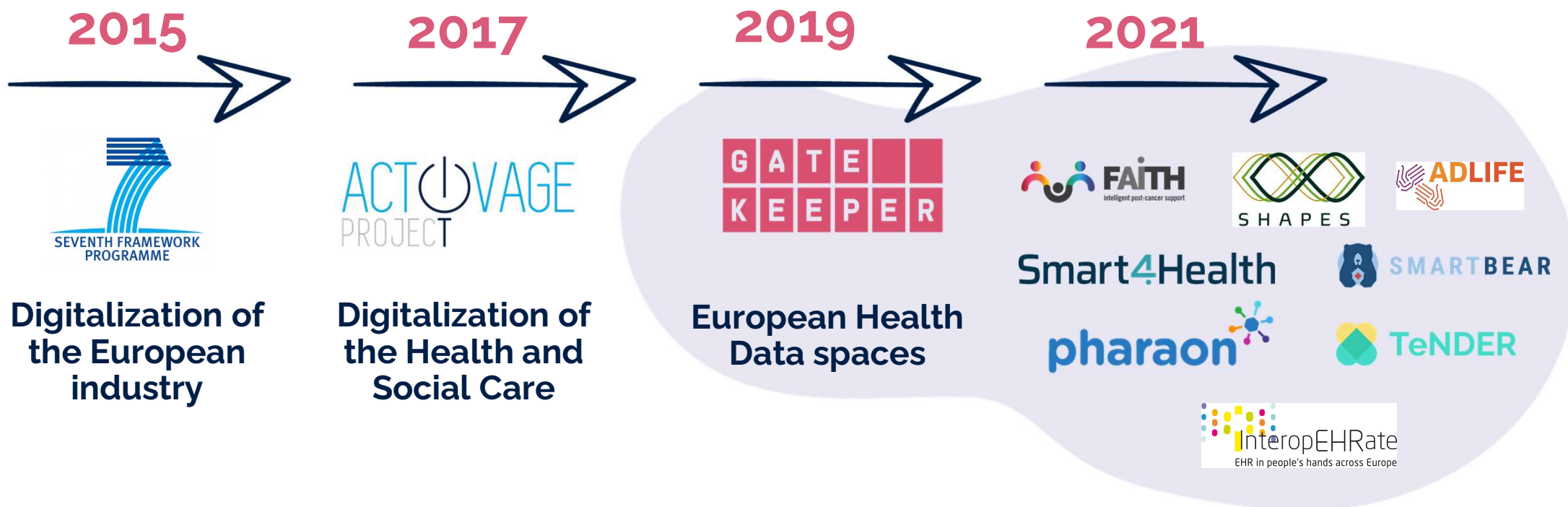


InteropEHRate

EHR in people's hands across Europe

These projects have received funding from the European Union's Horizon 2020 research and innovation programme under grant agreements / contract numbers 857159 (SHAPES), 875209 (ADLIFE), 857172 (TeNDER), 875209 (InteropEHRate), 875209 (AICCELERATE), 875209 (AID PATH), 875209 (HOSMARTAI), 875209 (SMARTBEAR), 875209 (GATEKEEPER), 875209 (FAITH), 875209 (ACTIVAGE), 875209 (PHARAON).

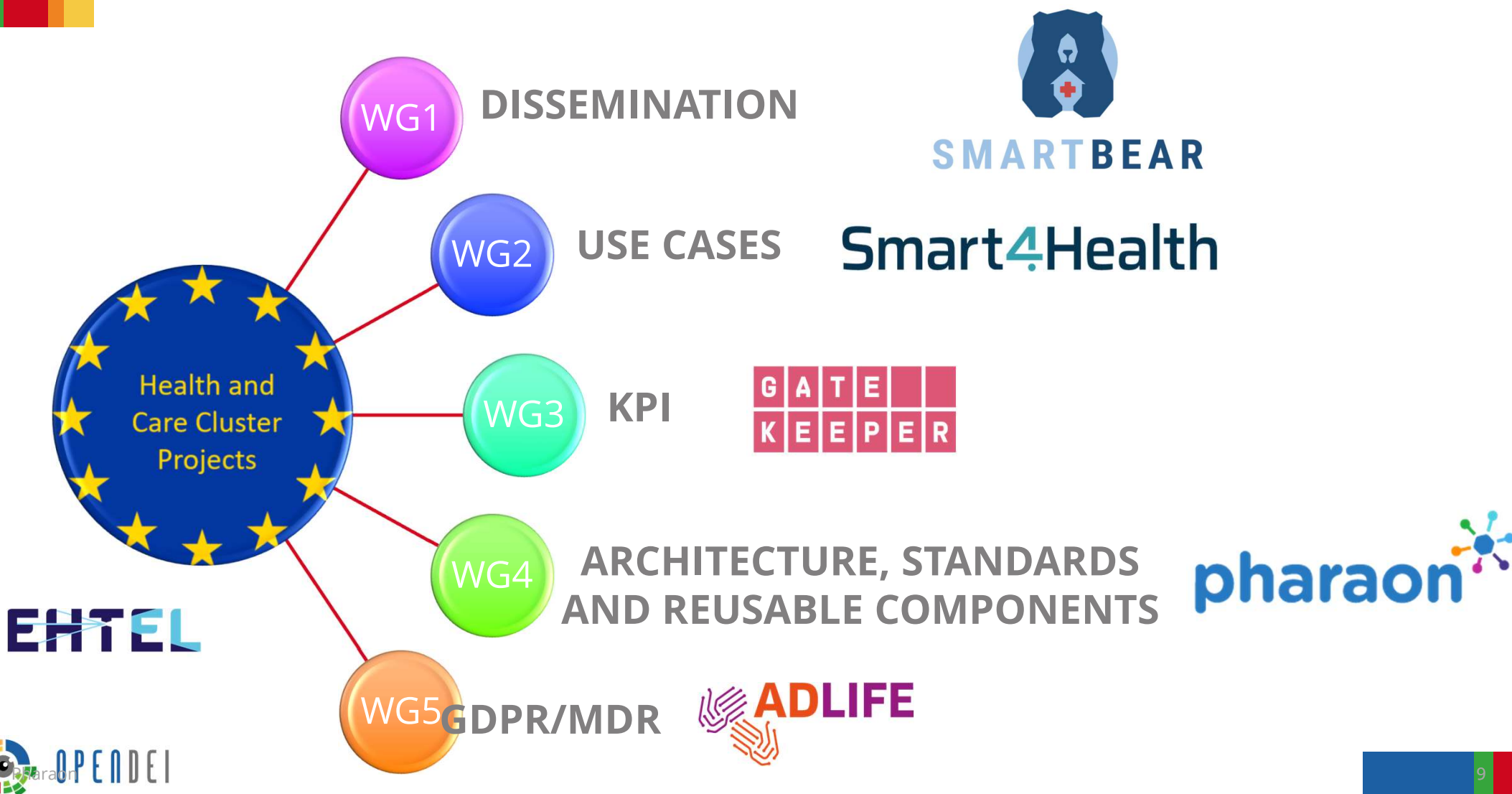
The journey



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

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

The Health and Care Cluster – Working Groups



The OPEN DEI ecosystem: 8 steps approach for governing four domains in LEIT ICT DT Digital Platforms and Pilots



1
Ambassadors
appointment

2
Definition of
OPEN DEI
ecosystem

3
Definition of
working
groups

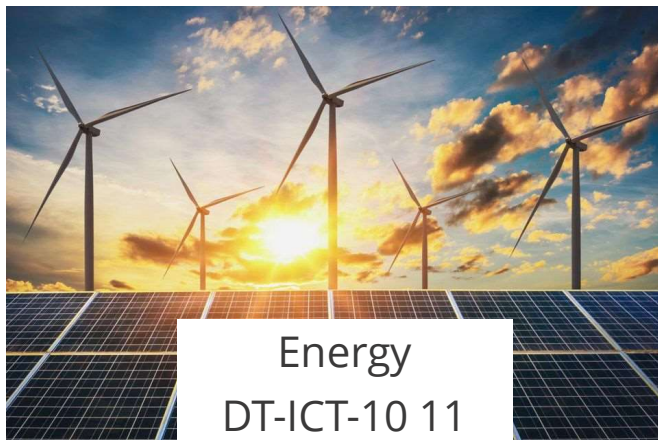
4
Definition of
supporting
tools

5
WGs
activities

6
Cross-domain
activities

7
Creation of
Task Forces

8
Implementation
of TFs activities



Services and knowledge (for today and tomorrow)

• SERVICES

- Mapped to use cases
 - Clinical
 - Technical
- Mapped to Softwares and devices
 - Integration Platforms



• DATA

- Mapped to multiple use cases (Reuse)
- Intermediaries:
 - Trust & consent
 - Interoperability
 - Security
 - Flexibility

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, 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.



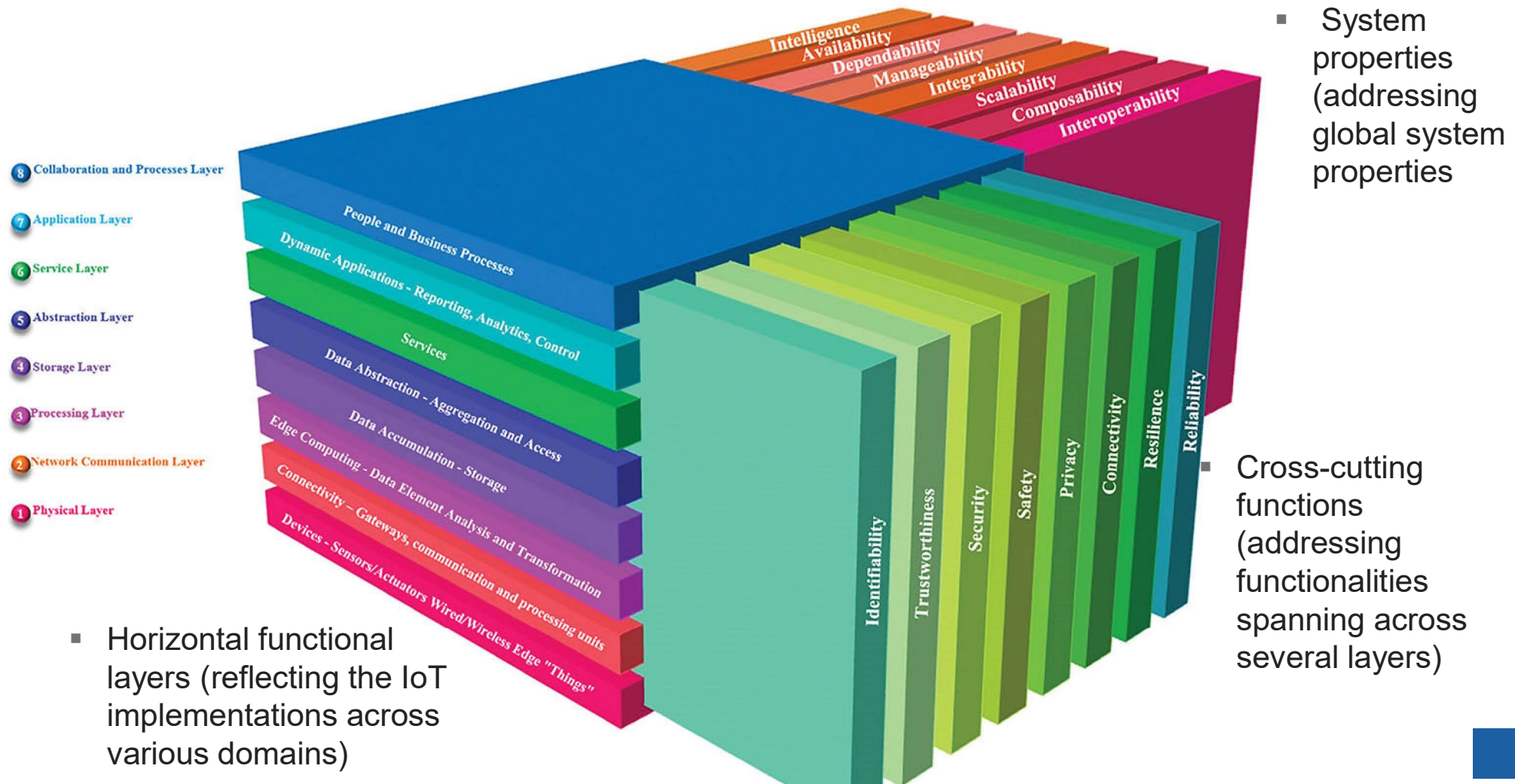


FINDINGS FROM THE HC CLUSTER

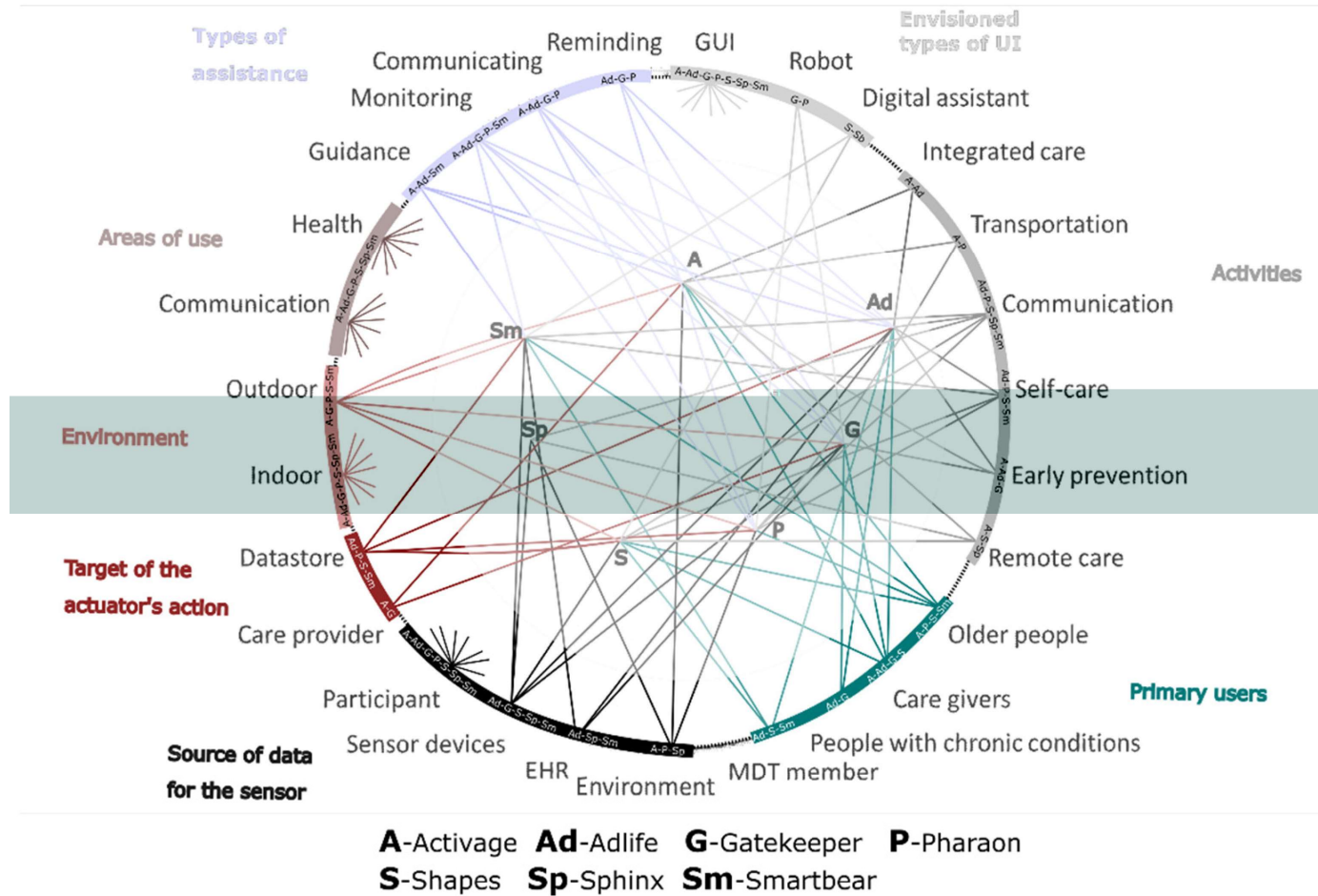
Consensus: RAM to be used should be **technology-agnostic**

- 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



Horizontal functions



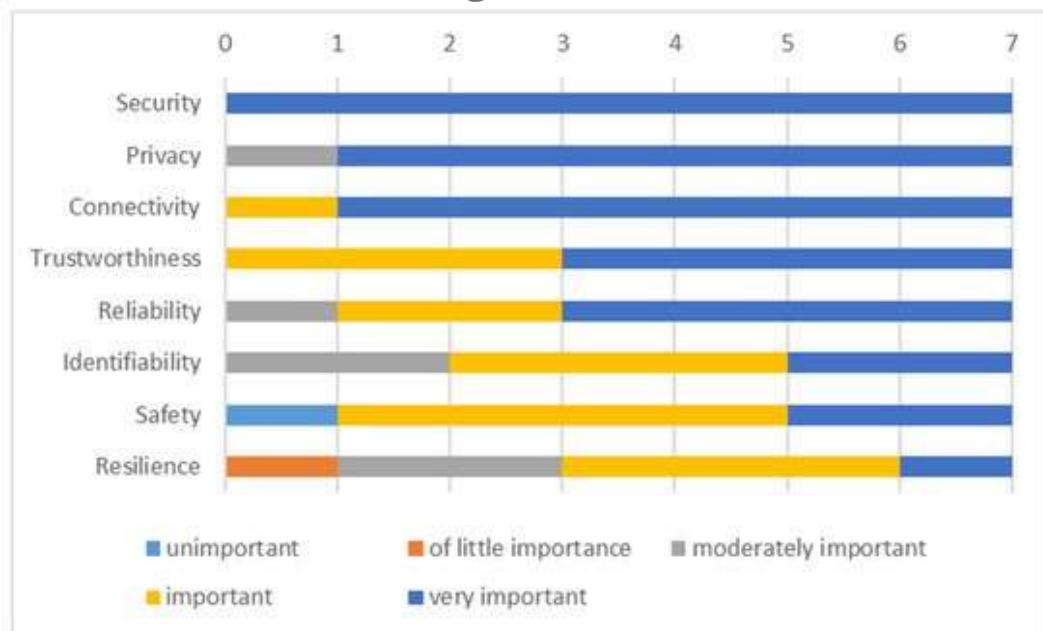


Key messages

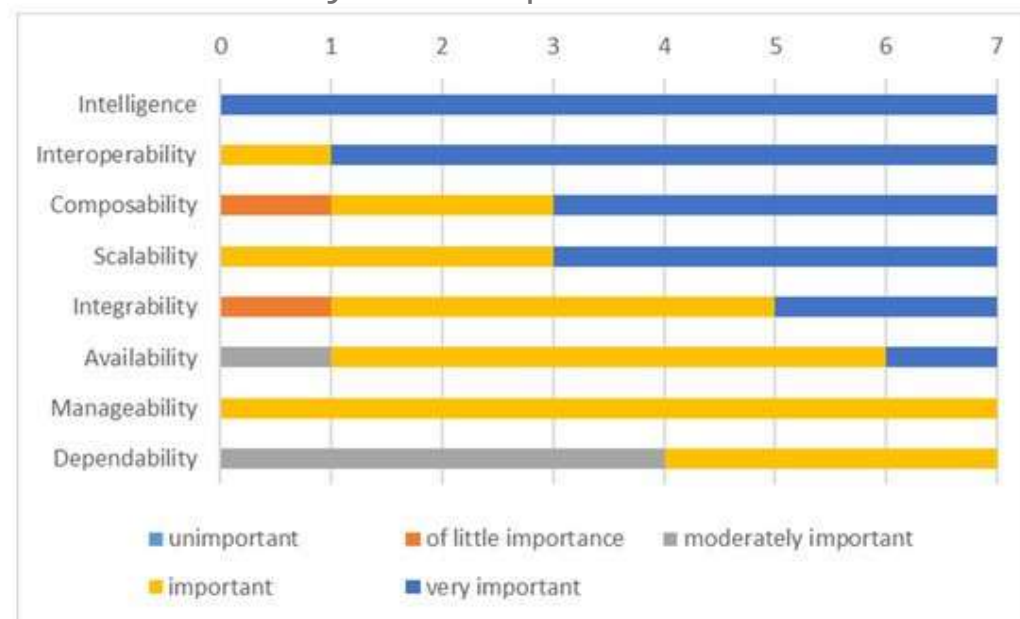
- Five properties, namely **health, communication, GUI, indoor, and participant**, are covered by all projects and can be considered universal in our overview.
- In most cases, the AAL solutions focus on **indoor habitats** and home environments, while those that focus on outdoor are rarer. This is also 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)

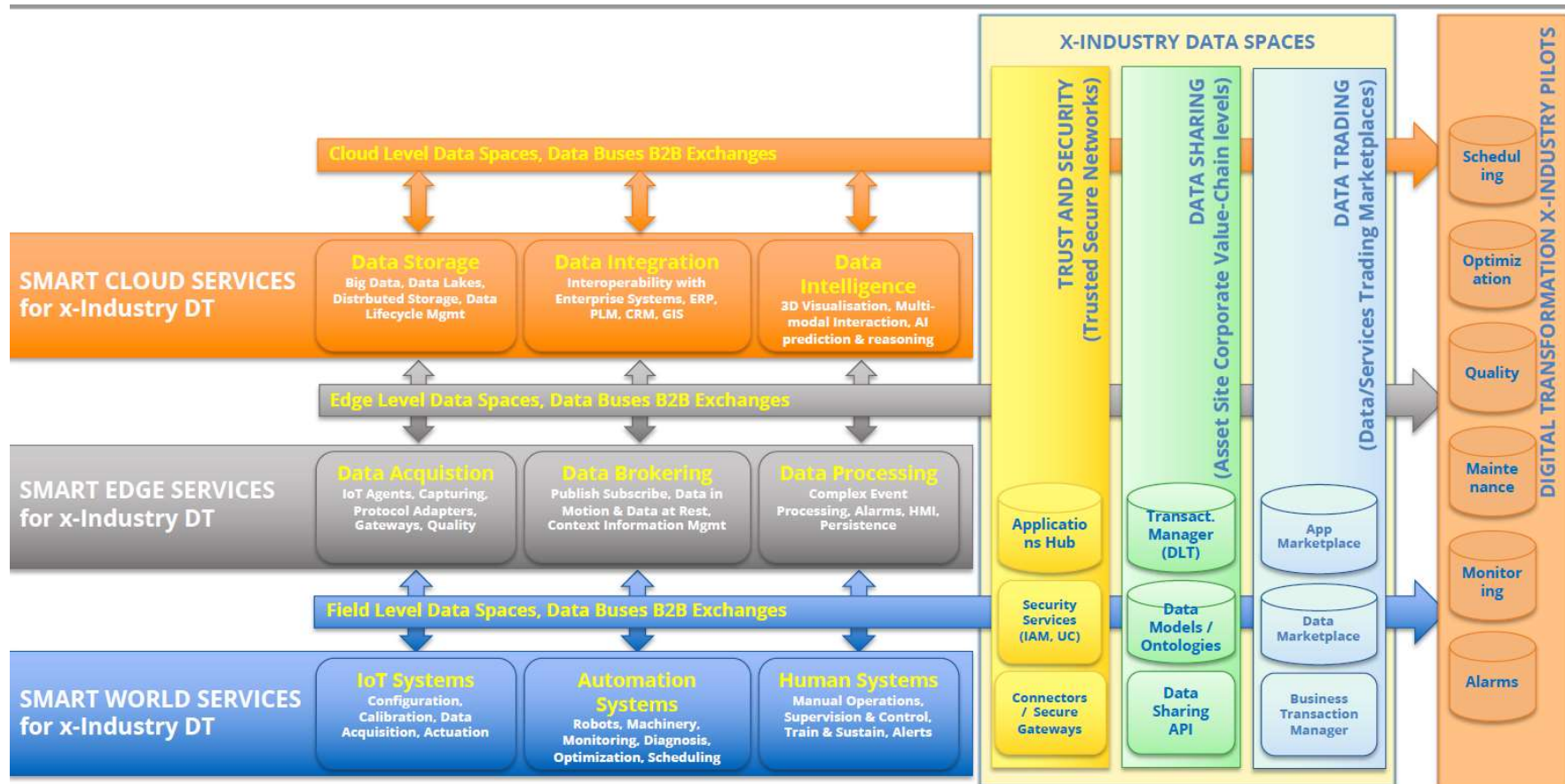


ASSETS - MATURITY -CONTINUITY: next proposed step

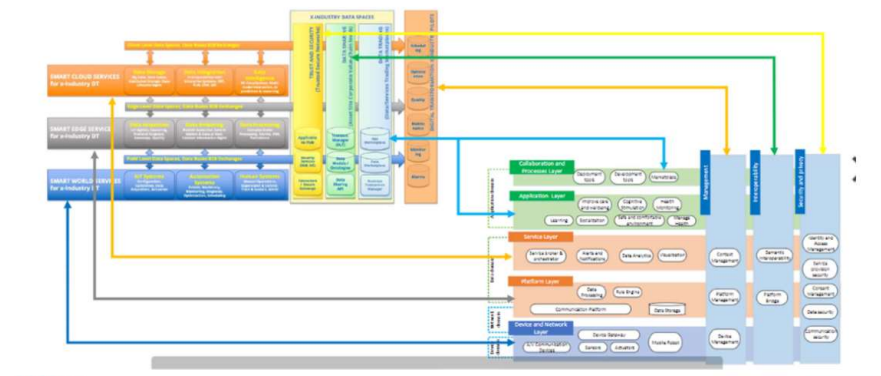
- What the ckuster proposes is:
- Identify a list of “**digital platform essentials**” that can contribute to preserving the digital investments which have been done by all these projects (“Digital platform essentials” refer to a combination of requisites [technical, business, design principles, etc.])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



OPENDEI CROSS SECTORS (IDSA) RA






IDSA DATA SPACES DESIGN PRINCIPLES



DESIGN PRINCIPLE FOR DATA SPACES ENSURING DATA SOVEREIGNTY

INTERNATIONAL DATA SPACES ASSOCIATION

	 Endless Connectivity	 Trust between different security domains	 Governance for the data economy
Generic (reference model)		Identification and Authentication	
Domain specific	Data Standards and formats	Authorisation	Certification and Monitoring
Business case specific	Metadata		Legal Agreements
	Data Exchange		Operational Agreements
			Earnings Models
			Certification and Monitoring
			Governance (e.g. AAS)
			Governance (company)

Soft infrastructure

How do participants interact in and between spaces (solution neutral). General building blocks that are harmonised for each data space. Not all services are obligatory to each case.

 INTEROPERABILITY	 TRUST	 DATA VALUE	 GOVERNANCE
Data Models & Formats	Identity management	Metadata & Discovery Protocol	Overarching cooperation agreement
Data Exchange APIs	Access & usage control / policies	Data Usage Accounting	Operational (e.g. SLA)
Provenance and traceability	Trusted Exchange	Publication & Marketplace Services	Continuity model

Technical Building Blocks

Governance Building Blocks

On-Going work (TF1)

Data Spaces Building Blocks assessment

- 12 BB and classification review.
- Per each BB:
 - » Definition
 - » Role and scope
 - » Components and technologies
- BB assessment:
 - » TRL
 - » Projects implementation use cases
 - » What works? Best practices identification
 - » What is missing?
- Additional BB
- Recommendations



On-Going work (TF4)

Task Force 4 will cooperatively:

- Develop a **Business Impact and Benchmarking Framework** to support OPENDEI projects in maximizing the socio-economic impact of Digital Transformations in the four domains as a whole and to guide the OPENDEI projects in developing and adopting their **Exploitation Plans**
- **Boost collaboration** with other EU initiatives and projects within the scope of business impact using existing synergies

First iteration – Market analysis
of European Digital Platforms



**Cross-domain and multi-domain
SWOT analysis**

- KoM and market analysis interactive workshop
- SWOT co-design workshop to co-develop the domain-based and cross-domain SWOT for digital platforms

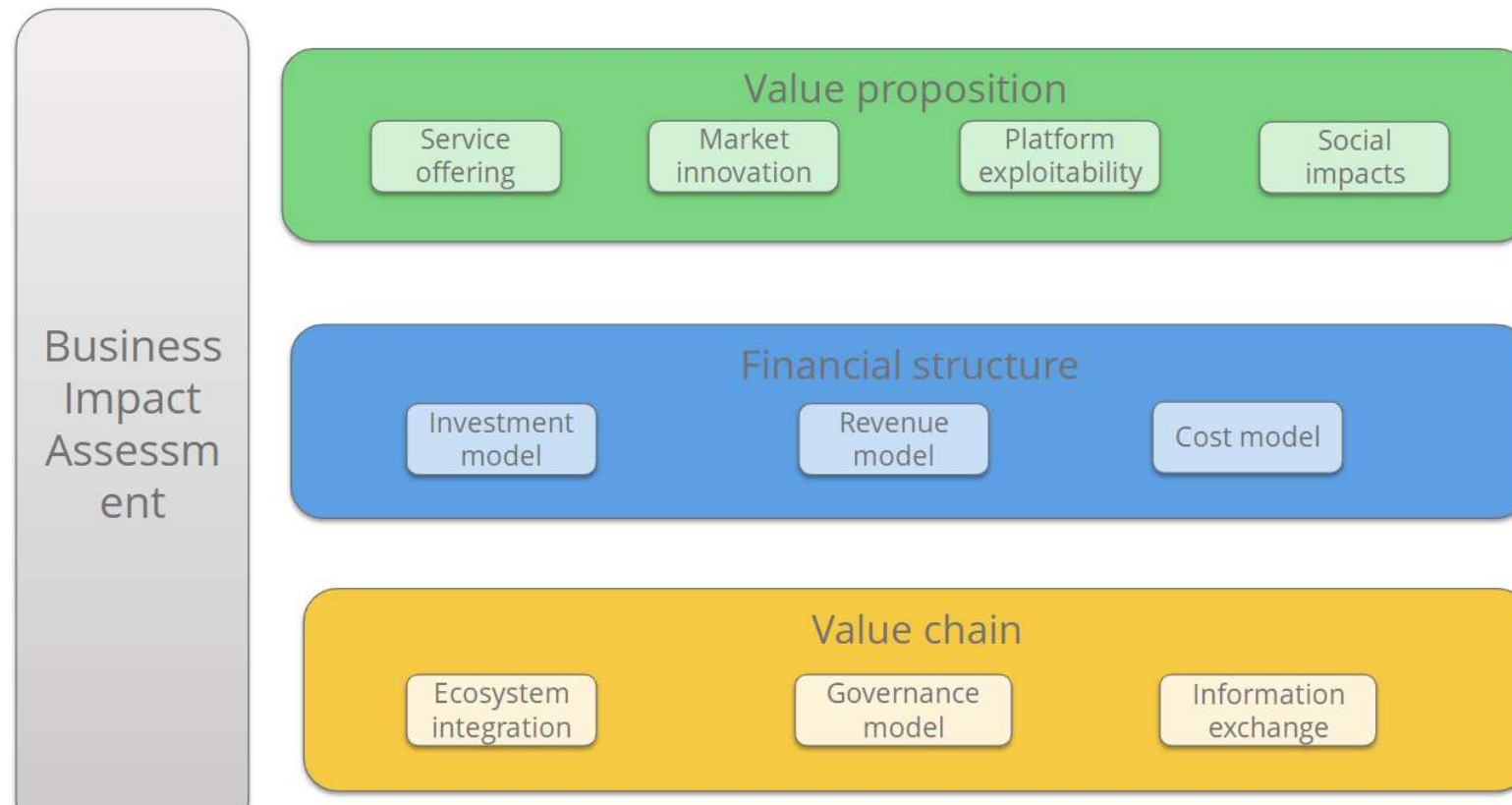
Second iteration – Impact
measurement and benchmark
Framework



**Business impacts methods &
benchmarking tools**

- Interactive sessions to define KPIs and methods for impact measurement benchmark
- Running the survey for KPIs measurement
- Final workshop to disseminate the results of measurement

Preliminary approach for cross-domains BIA





OPENDEI

THANKS!

