Analysis of the drivers and barriers for the adoption of digital platforms

Golboo Pourabdollahian, IDC
• **Analysis of the drivers and barriers for the adoption of digital platforms** (Golboo Pourabdollahian – IDC)

• **Technology, organizational and regulatory aspects for the adoption of digital platforms in the Energy sector** (Tasos Tsitsanis – Suite5)

• **Panel Discussion**
  • Alberto Dognin (E-On, RWTH Aachen)
  • Alena Siarheyeva (NuMINT)
  • Marina Rodés Sanchez (Predictby)
  • Sergio Gusmeroli (Politecnico di Milano)
  • Monique Calisti (MARTEL Innovate)

• **Wrap-up and conclusions**
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
- Business Models
OPEN DEI in a Nutshell

Task Forces

- WP 7
  - TF 1 Data Spaces
  - TF 2 Business Ecosystem
  - TF 3: Platforms, Pilots and Standards
  - TF 4: Business Impact

Working Groups

- WP 10
  - WG Energy
  - WG Manufacturing
  - WG Healthcare
  - WG Agrifood

Internal Support

- WP 8 Technical Support
- WP 9 Business Support

Needs & requirements
Methods & models
TF4 is a **Think Tank** to create **knowledge and tools** to foster effective **sharing and assessment** of experiences and lessons learnt on analysing the **drivers and barriers** for adoption of **platforms** supporting Digital Transformation and on assessing their **business impact**.
OPEN DEI TF4 Position Paper

- Public on OPEN DEI website

Contributing organizations

Contributing Projects
Digital technologies need a digital ecosystems, and digital ecosystems need digital platforms to scale.

34% of European organizations are active in ecosystems focused on developing new digital products and services for enterprise own use.

35% of European organizations are active in ecosystems focused on sharing and exchanging information related to customers, suppliers and business operations.

31% of European organizations are active in ecosystems focused on sharing operational capabilities and expertise.

34% of European organizations are active in ecosystems focused on developing new digital products and services to monetize/commercialize.

Source: IDC European Industry Acceleration Survey, May 2021 (N = 1316)
IDC defines B2B platforms as: *virtual environments facilitating the exchange and connection of data between different organisations* through a *shared reference architecture* and common governance rules.

**What are the top 3 technology investment areas required to enable your participation in digital industry ecosystems?**

- Cyber security: 36%
- Data management technology: 28%
- Systems integration: 21%
- Internet of things (IoT): 21%
- Cloud applications/infrastructure: 20%
- Advanced/Predictive analytics: 17%
- ERP (enterprise resource planning): 17%
- Customer Data Platform (CDP): 16%
- AI/machine learning: 15%
- Edge-based cloud: 15%
- SCM (supply chain management): 12%
- Blockchain: 11%
- Process orchestration platform: 10%
- RPA (robotic process automation): 10%

*Source: IDC EMEA, Future Enterprise Resilience 2021, Wave 3, April 5 - April 16, 2021 (N = 497)*
Examples of B2B Platforms

Commercial Market

- Bosch IoT platform
- AGRICOLUS platform
- ESTFEED platform

European R&I Landscape

- Digital Factory Alliance platform
- SYNERGY platform
- DIEMETER platform
What are the **internal and external factors** in both environments (commercial market and European R&I Landscape) that **boost or impede** the adoption of digital platforms?

What are the specific **domain-based factors** and what are the factors that are **common across different domains**?
Methodology

Domain-based SWOT from commercial market perspective

Domain-based SWOT from EU R&I perspective

Consolidated Domain-based SWOT

Consolidated cross-domain SWOT
Domain-based SWOT analysis

Example of manufacturing

**Strengths**
- Digital platforms can act as the orchestrator of manufacturing ecosystems addressing the increasing trend of open innovation and new business models (e.g., servitisation) in the sector.
- Digital platforms enable the creation of regional or "worldwide" consortia and initiatives that bypass the single national markets (which is strong in manufacturing).
- Digital Platforms favour new eco-system based trends such as sustainability, green transition, circularity and environmental impact.

**Weakness**
- Platforms do not fit in all manufacturing environments due to different nature of value chain structure and digitalization (i.e. challenging for harsh industrial environments such as steel or metal).
- Economies of scale of platforms could be a challenge due to the extreme granularity and fragmentation.
- Interoperability of platforms is a challenge.
- Existence of large enterprises as big players in manufacturing could be problematic for a well-balanced governance model of platforms.

**Opportunities**
- Maturity level of digital technologies and existence of open APIs and cloud-based applications strongly facilitates uptake of platforms by manufacturers.
- Strong initiatives at EU level to boost inter-collaboration is a big opportunity to accelerate uptake of platforms.
- Raising importance of process re-engineering and personnel upskilling highlight the key role of platforms as enablers.
- Emergence of new standards addressing data sovereignty and continuity issues.
- Existence of DIHs in EU to accelerate the uptake of platforms.

**Threats**
- Large number of SMEs in manufacturing market and their lower rate of technology adoption poses a risk of stranded initiatives for uptake of platforms.
- Lack of balance between technology level of platforms and the traditional structure of manufacturing organization could be a potential threat.
- Data security issues and the risk of losing competitiveness by sharing data and confidential information.
- Heterogeneity of innovation ecosystem across EU could be a potential challenge for balanced effectiveness of platforms.
Domain-based SWOT analysis

**Energy**

**Strengths**
- Digital platforms facilitate value chain integration in a highly multi-stakeholder ecosystem such as Energy
- Economies of scale of digital platforms is promising considering the extremely wide consumer energy market
- Digital platforms act as the orchestrator for a collective energy ecosystem for operationalization of data-based energy systems

**Weakness**
- Local nature of utilities market, heterogeneity of EU member states in terms of data governance and regulatory model and market structure and thus difficulty for Pan-EU harmonization.
- Interoperability of Energy digital platforms is a challenge
- It is difficult to generate a "new-platform fits all" reference due to different core functionalities.

**Opportunities**
- Decentralize trend of energy market creates a significant need for distributed platforms enabling broader market participation, value chain integration and transparency.
- There is a significant trend of business model change in Energy market and platforms can play a crucial role in business model innovation.

**Threats**
- There is a risk of data security for data providers and data privacy for consumers and in general a lack of data sharing framework act as barriers.
- Energy is a safety and security intensive domain and has a significant amount of regulatory drag.
- Technology adoption is typically slow (though it has been accelerated in recent years) which poses a risk of stranded initiatives and technology leapfrogging.

**Healthcare**

**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 of healthcare value chain from professional to patients
- Digital Platforms offer the required flexibility to diversify 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 centralised and decentralised approaches highlighting the flexibility of domain for their adoption apart from the approach.

**Weakness**
- 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-cases adoption and economies of scale even though ICO like GDPR could help.
- Healthcare platforms with advanced functionalities are usually received better at regional and community level due to cost challenges.
- Limited engagement of industry stakeholder with cloud technology could hurdles the effective development of patient value-based platforms.

**Agri-food**

**Strengths**
- Digital platforms provide a wide service portfolio with numerous services and technologies which is a strong added value for end-users in rural areas
- Digital platforms accelerate the integration of agri-food value chain through providing a coherent digital space
- Increased awareness and interest of the players of agri-food ecosystem (companies and end-users) through existing demos, drives them for adoption of platforms
- Different types of Platforms (centralized, decentralized, service-oriented) are fit for agri-food domain

**Weakness**
- Agrifood companies do not usually own required digital skills for platforms adoption
- Lack of proper innovative business models to uptake platforms in agri-food domain
- Interoperability and Standardization are important issues.

**Opportunities**
- Maturity level of technology drives more companies to uptake digital platforms
- Based awareness and increasing trend of digital transformation in agriculture generates a push of market towards digital platforms
- Favourable policies to support the adoption of platforms in agrifood

**Threats**
- Low level of digital maturity in agrifood domain, particularly in the SME market, poses a risk when it comes to technology adoption and vision
- Fragmented agri-food value chain poses a threat if proper penetration market strategies won't be considered.
- Cultural barriers to share data could be seen as arisk in agri-food domain to slow down the adoption of digital platforms.

**Strengths**
- 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 consumer oriented system provides an opportunity to 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.
Cross-domain SWOT analysis

**Strengths**
- Orchestration and integration of value chain in different domains supporting the convergence of digital ecosystem.
- Bridge the demand and supply market.
- Wide service portfolio
- Scaling of the value chain globalization
- Flexibility of approach

**Weakness**
- Interoperability and standardization
- Economies of scale
- Lack proper business models
- Lack of proper governance models
- Lack of proper reference architectures

**Opportunities**
- High maturity level of technologies
- Strong initiatives and funding mechanisms at EU level
- Rising trend of data economy
- Rising awareness for digital transformation
- Covid-19 pandemic as an accelerator

**Threats**
- Low digital maturity level of the demand market
- Data security and privacy
- Fragmented value chains
- Heterogeneity of innovation ecosystems
Drivers for the adoption of digital platforms

**Technology**
- Technology maturity
- Generic and domain-based technologies
- Flexibility and agility of platforms

**Market**
- Shift towards data sharing economy
- Favorable environment for uptake
- Pandemic effect

**Operation and Value chain**
- Operationall efficiency
- Value chain Integration
- Business resilience

**Policy**
- Platform economy
- Data Act
- EDIH
Barriers for the adoption of digital platforms

**Regulatory Compliance**
- Insufficient level-playing field for security and data protection
- Fraud and safety risks

**Economic Efficiency**
- Balancing scale with fair competition
- SMEs inclusion

**Technology**
- Data quality and interoperability
- Cloud adoption barriers

**Business and Organizational Models**
- Lack of proper business models
- Lack of proper governance models
- Cultural resistance
Summary Recommendations

- Promote the development of technical solutions to **automate governance, risk and compliance**.

- Promote **exchange of best practices** across EU Member States for dispute resolution mechanisms for data governance.

- Closely **monitor high market concentration and its persistence** over time and then enforce open competition policies.

- Ensure that the implementation EU SME Strategy for a sustainable and digital Europe includes measures that support **SME inclusion in B2B platforms**. For example by setting up Digital Innovation Hubs (DIHs) dedicated to digital platforms.

- Disseminate the usage of open source tools and common technical standards and architectural approaches (e.g. APIs) for **data portability and interoperability**.

- **Collect and disseminate cloud best practices** in particular for SMEs and encourage academia and industry associations to support the effort.

- Create **regulatory sandboxes** for the experimentation of new business models.

- Scan current **national and international initiatives** to identify pre-existing ecosystems, or partners to build projects with **critical mass and identify best practices**.
Thank you!

Find more:
https://www.opendei.eu/
gpourabdollahian@idc.com