



D4.1- Digital Technopole – Intermediate Results

WP4 - Delivery, Deployment and Up-take

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List of abbreviations and definitions

Abbreviation	Definition
B2B	Business-to-Business
BM	Business Model
BML	Build-Measure-Learn cycle
CA	Consortium Agreement
DA	Digital Agora
DIH	Digital Innovation Hub
DoA	Description of Action
DT	Digital Technopole
EC	European Commission
FAQ	Frequently Asked Questions
GA	Grant Agreement
H2020	Horizon 2020
HPC	High Performance Computing
MS	Manufacturing Setting
PDT	Platform Design Toolkit
PPE	Personal Protective Equipment
SEP	Single Entry Point
SME	Small and Medium sized Enterprise
VAT ID	Value Added Tax Identification
VIES	VAT Information Exchange System
WP	Work Package

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Executive summary

The deliverable D4.1 summarizes the activities conducted in WP4 between month 4 and month 12 of the project. WP4 focuses on setting up all the required (technical, operational, strategic) elements to ensure that the Digital Technopole is able to support and assist the European manufacturing companies in view of the repurposing, adaptation and ramp-up of their manufacturing lines to quickly adjust to new and urgent production needs.

In this period, the following activities were conducted:

- The software platform that will serve the Digital Technopole has been set up and it was adapted to the needs and the purpose of CO-VERSATILE. In addition, the project partners have been informed about the available functionality and the kind of interaction and content that they can foster. In addition, legal, privacy, and ethical considerations have been described from a technical perspective, in order to verify the GDPR compliance and adapt if necessary.
- The rules and procedures that will be employed during the operation of the Digital Technopole have been analysed. Among others, the competitors and their revenue streams have been analysed and promising business models have been identified. Furthermore, a preliminary value proposition has been drafted and will be validated with the identified stakeholders.
- The activities related to the strategic plan to facilitate the uptake of the project results and empower external manufacturing companies started earlier than planned. The communication strategy and process to create awareness and to streamline the adoption of the resulting solutions have been discussed and a preliminary plan to generate and publish content has been outlined.

1. Introduction

The manufacturing companies and especially the SMEs that are challenged by the COVID-19 effects require a rapid multidisciplinary assessment of the current circumstances and opportunities in view of the repurposing, adaptation and ramp-up of their manufacturing lines to quickly adjust to new and urgent production needs. The multidisciplinary competences for such an assessment are mostly available at large organisations (e.g. management consulting firms, professional associations, chambers of industry and commerce, industrial clusters, etc.); nevertheless, the standard procedures for this kind of assessments are primarily driven by a set of experts and these might cause substantial costs, which would lead to scalability and accessibility obstacles for the already stressed manufacturing SMEs. Furthermore, the result of the assessment is almost certainly a recommended course of action and its supported implementation will still necessitate the involvement and interaction with other experts, vendors, and suppliers.

Challenging events like the COVID-19 pandemic call for a different mindset in which manufacturing companies can easily get in contact with experts and obtain tailored solutions to tackle their acute and individual conditions. This new mindset has to focus on democratising the whole interaction, accounting for an automated assessment of the status quo, a straightforward matching between requirements and offerings, and a swift and guided implementation of the tailored solutions. To this end, a network of technology, business, innovation, commercialisation, and financial experts and providers will need to be structured and interplayed in such a way that manufacturing SMEs can identify a single-entry point to interact with. To fully exploit the potential behind the structured and interplayed network of experts and providers, a digital counterpart will facilitate the access and the utilisation of the services across European boundaries and regardless of the regional and industrial characteristics.

We refer to this new mindset as the Digital Technopole (see Figure 1). The Digital Technopole combines physical and digital services, elaborated either by consortium members or third parties, meaning that it may also be expanded throughout the project or beyond to offer new technologies and services. Moreover, it supports personal and remote communications, and it provides on-premise and cloud solutions. The Digital Technopole implements multiple business models depending on the characteristics of the solutions and the individual requirements of the manufacturing companies. This flexibility strives to lower the barriers for manufacturing firms (especially SMEs), in order to enter and benefit from the collective expertise of the network in a rapid and effective manner. Moreover, the Digital Technopole also leverages the regional strength of the Digital Innovation Hubs to locally accompany the manufacturing companies, as well as to foster the expansion of supporting stakeholders, in order to complement the access to expertise and solutions. This unique configuration of stakeholders with a flexible operation empowers the Digital Technopole to quickly assist the manufacturing companies in solving their needs.

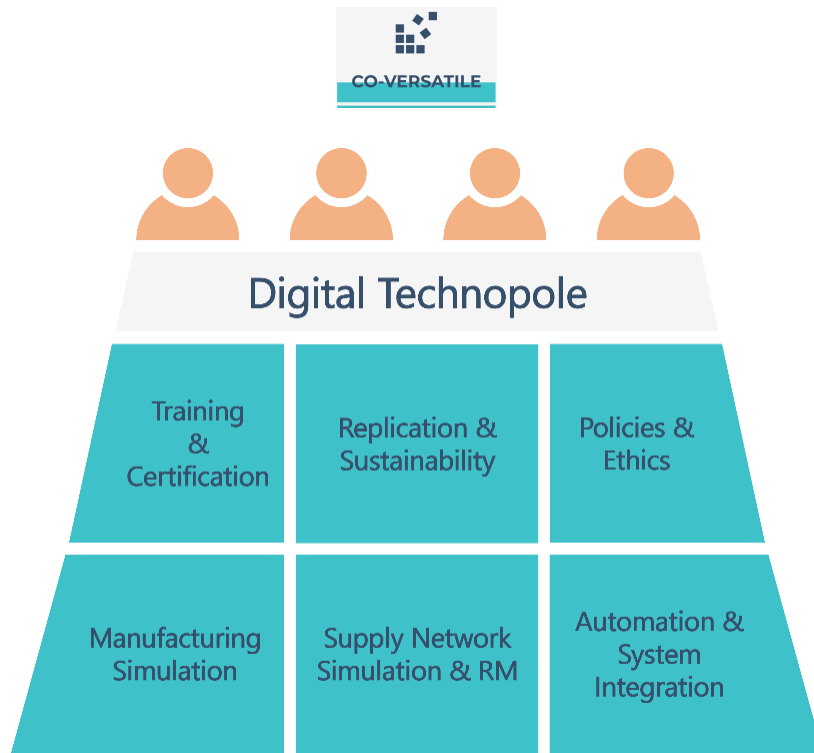


Figure 1. Overall concept of the Digital Technopole within CO-VERSATILE.

1.1. Objectives of WP4

The activities in WP4 focuses on setting up all the required (technical, operational, strategical) elements to ensure that the Digital Technopole is able to support and assist the manufacturing SMEs in view of the repurposing, adaptation and ramp-up of their manufacturing lines to quickly adjust to new and urgent production needs. The main objectives of WP4 are:

- Adapt and extend the Digital Agora, in order to enable the interaction with the manufacturing SMEs and the delivery and deployment of services and solutions of the partners of the Digital Technopole.
- Work out the organisational and financial procedures to operate the Digital Technopole in a sustainable manner, considering the different roles of the stakeholders and the overarching objective.
- Develop a strategic plan to uptake the results and to multiply the support for manufacturing SMEs outside the project, by involving additional vendors and building synergies with key stakeholders.

The activities in WP4 are structured in three tasks (see Figure 2):

- T4.1 Technical backbone of the Digital Technopole: this task will establish the technical platform that will serve the Digital Technopole throughout the project and after its end. To this end, the Digital Agora will be adapted and extended, in order to leverage the loosely coupled solutions and offerings provided by the partners of the Digital Technopole. The technical backbone will support the required functionality to enable the interaction and sharing with the registered users and the promoting and showcasing of services.
- T4.2 Sustainable operation of the Digital Technopole: this task aims to define and formalise the rules and procedures that will be employed during the operation of the

Digital Technopole. Among others, this task will describe the roles, responsibilities, ownerships, policies, and indicators that the involved partners of the Digital Technopole will follow. In addition, this task will also develop the proper business models to facilitate the provision of the services in a loosely manner and the long-term sustainability after the project end.

- T4.3 Replication strategy for the Digital Technopole: this task deals with the development of a strategic plan to facilitate the uptake of the project results and empower external manufacturing SMEs to exploit and benefit from the results of the project. As part of the replication strategy, this task will aim to build further business relationships with key stakeholders by fostering diversification and cooperation across multiple European regions. The Digital Innovation Hubs will play a crucial role in enabling the multiplication and the replication of the services supported by the Digital Technopole.

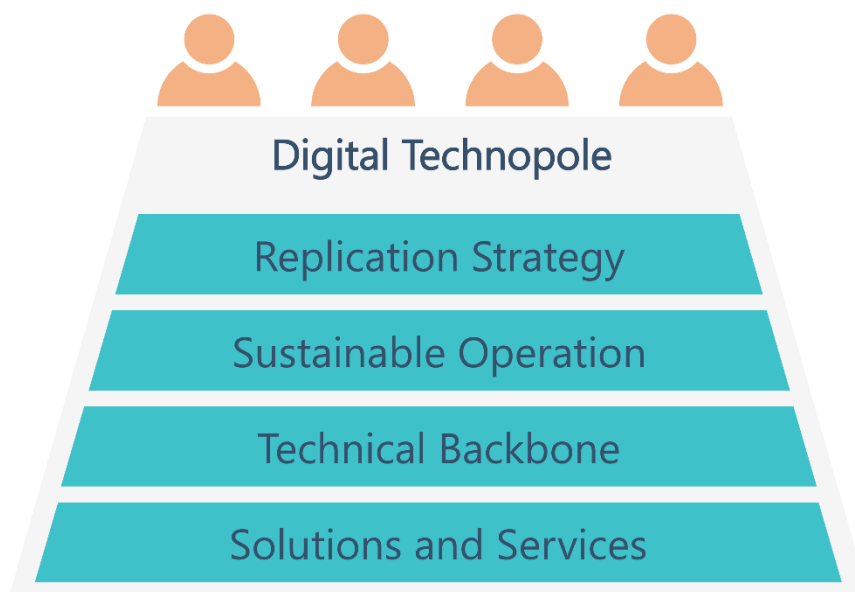


Figure 2. Structure of WP4 within the Digital Technopole concept.

1.2. Progress of WP4 in the first period of CO-VERSATILE

WP4 – “Delivery, Deployment and Up-take” started at month 4 and focuses on setting up all the required (technical, operational, strategical) elements to ensure that the Digital Technopole is able to support and assist the European manufacturing companies in view of the repurposing, adaptation and ramp-up of their manufacturing lines to quickly adjust to new and urgent production needs. The Digital Technopole aims to enable the democratic access to tailored technology, expertise, and infrastructure for all manufacturers, working on rapidly adapting their production facilities. The Digital Technopole will facilitate the access to software tools, training, consultancies, and production capacities, empowering manufacturers to produce critical resources according to urgent societal needs. The activities related to the Digital Technopole are structured in the following manner:

- Establishing the software platform that will serve the Digital Technopole throughout the project and after its end. To this end, an existing platform is adapted and extended, in order to leverage the loosely coupled solutions and offerings provided by the partners of the Digital Technopole. In this context, the platform has been set up and it is being configured to the needs and the purpose of CO-VERSATILE and the project partners have been informed about the functionality that they will have and the kind of interaction and content that they can foster. In addition, legal, privacy, and ethical considerations have been described from a technical perspective, in order to verify the GDPR compliance and adapt if necessary.
- Defining and formalising the rules and procedures that will be employed during the operation of the Digital Technopole. Among others, this activity will describe the roles, responsibilities, ownerships, policies, and indicators that the involved partners of the Digital Technopole will follow. In the past months, the competitors and their revenue streams have been analysed and promising business models have been identified. Furthermore, a preliminary value proposition has been drafted and will be validated with the identified stakeholders.
- Developing a strategic plan to facilitate the uptake of the project results and empower external manufacturing companies to exploit and benefit from the results of the project. From this perspective, the communication strategy and process to create awareness and to streamline the adoption of the resulting solutions have been discussed and a preliminary plan to generate and publish content has been outlined.

1.3. Interplay of WP4 with other WPs

WP4 interplays with all the WPs within the project (see Figure 3). From the point of view of WP2 and WP3, WP4 determines clear rules and procedures and the results of these WPs are published as generalized solutions and qualified services within the Digital Technopole. In the scope of WP5 and WP6, WP4 outlines the context and the target stakeholders and these WPs generated valuable content to be published on the Digital Technopole and trustworthy guidelines to be adopted by the Digital Technopole.

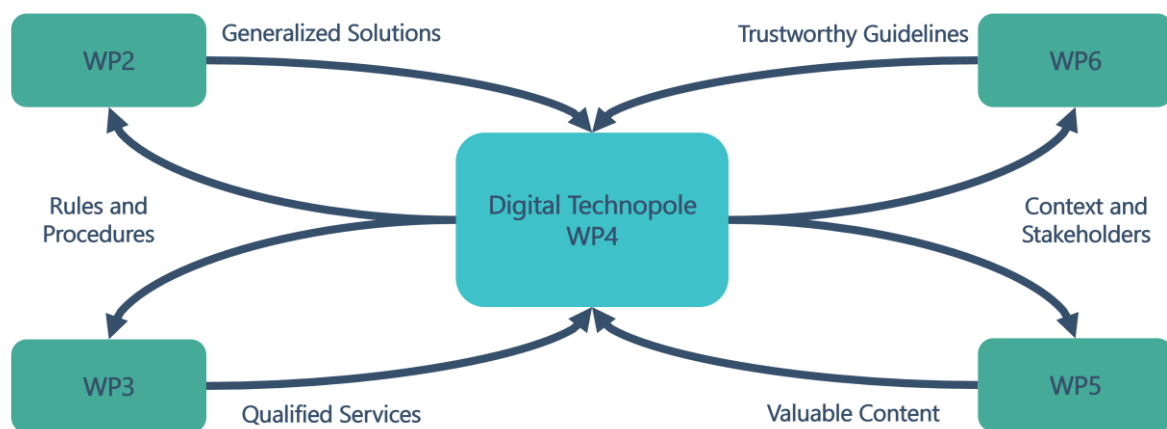


Figure 3. Interplay of WP4 with other WPs.

1.4. Document Structure

This deliverable is structured in five different sections, which describe the different activities performed in WP4:

- Section 2 outlines the technical backbone of the Digital Technopole, including the underlying technology and its adaptation for the needs of CO-VERSATILE;
- Section 3 describes the results of the activities conducted in the context of the sustainable operation of the Digital Technopole, addressing the methodology to identify the value proposition and the analyses of the stakeholders and the competitors;
- Section 4 reports on the foreseen replication strategy for the Digital Technopole, assessing the key stakeholders to communicate with and the processes for doing so; and
- Section 5 summarises the results in WP4 and outlines the activities planned for the Digital Technopole in the next period.

2. Technical backbone of the Digital Technopole

The Digital Technopole is the Single Entry Point (SEP) to enable the democratic access to tailored technology, expertise, and infrastructure for all manufacturers, working on rapidly adapting their production facilities (see Figure 4). The SEP enables the access to software tools, training, consultancies, and production capacities, empowering manufacturers to produce critical resources according to urgent societal needs.

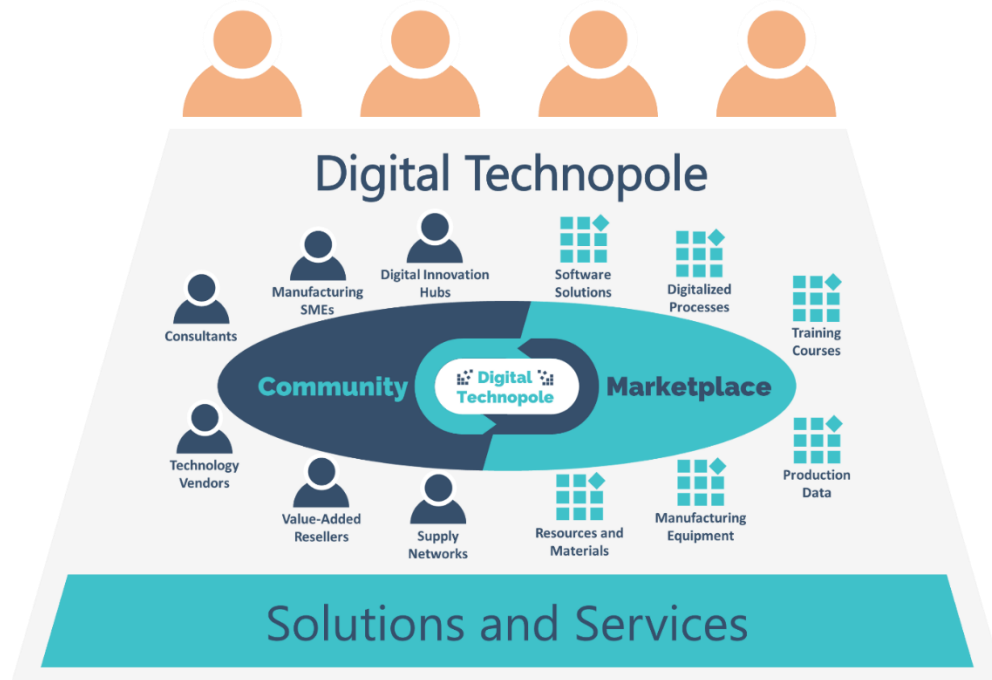


Figure 4. A dedicated Community and Marketplace to realize the concept of the Digital Technopole.

2.1. Underlying Technology

The Digital Agora is the technology behind the Digital Technopole. The Digital Agora is a B2B platform developed in the context of the EU project CloudiFacturing. The Digital Agora is an independent dynamic web application with its own business logic, data management, and API. The Digital Agora is a software platform, providing core functionality support the cultivation of a community and the promotion of (third-party) services.

The Digital Agora offers a diverse set of functionalities and features that empower and enable consumers and providers to get together and benefit from building business relationships with one another. Considering the multiple services and the multiple consumers and providers within the Digital Agora (DA), the DA strives for clean and simple concepts that allow every kind of visitor to find its way through it.

To this end, the DA functionalities and features are clustered into different domains: “Marketplace”, “Community”, “Support”, “Account”, “Operation” (refer to Figure 5). The domains support very concrete types of tasks, assisting the visitors in finding the proper

services in a consistent manner. The relationship between domains and types of tasks is regarded as follows:

- Marketplace is about promoting and showcasing:
 - Apps for boosting your innovation with engineering and manufacturing solutions in the cloud
 - Courses for developing and augmenting your know-how and skills by accessing praxis-driven training material
 - Consulting for fostering your competitiveness with tailored knowledge transfer and proven practices
- Community is about interacting and sharing:
 - Insights for discovering what the members of the community are doing and their outcomes
 - Panels for interacting and exchanging experiences among the members of the community
 - Matches for bringing manufacturing companies and technology experts together
- Support is about guiding and assisting:
 - FAQs: guiding the users in using and getting the most out of their engagements
 - Tickets: communicating with the support team to strengthen your user experience
- Account is about configuring and affiliating:
 - Settings for managing your personal details to optimize your interactions and contributions
- Operation is about managing and monitoring:
 - The operator of the DA has a dedicated domain, in order to conduct all managing and monitoring tasks that are required, for instance to reply to support requests, to audit content created by users, to conduct business processes (e.g. contractual closures, access control, billing and invoicing) or to perform marketing and branding activities.

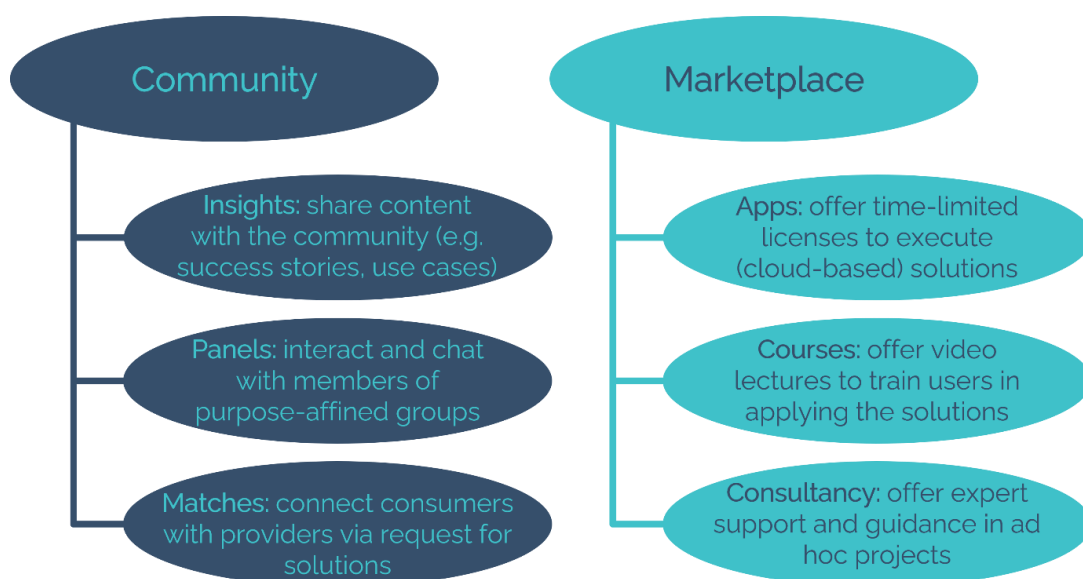


Figure 5. Main functionalities for the Community and the Marketplace.

2.2. Adoption of the Digital Agora

The Digital Agora is a customisable dynamic web application that can be configured and adapted to comply with the needs and the requirements of a given use case. In the particular case of CO-VERSATILE, the Digital Agora was configured and adapted to the corporate identity (e.g. colours, logos, images) of the project, including the notification messages, as well as the registration and management of users. Furthermore, the Digital Agora relies on different categories (like technologies and industries), which are used to classify and ease the identification of the different community interactions and marketplace services that are created by the registered users.

2.3. Data Management and Processes

The Digital Technopole is a B2B platform that leverages commercial cloud resources (e.g., Amazon Web Services) on servers in Europe (i.e., Frankfurt). The collected data is structured in a PostgreSQL database and these data is validated at the collection phase. The data is not expected to be transformed and only special information like email addresses (i.e. sending a confirmation email) or VAT ID numbers (e.g. through the VIES VAT number validation) are externally verified. The data is backed up every day and kept for seven days.

The following data processes are supported:

- Registration of users: every user will need an account; user data: username, password, email, first name, last name.
- Creation of a user profile: the user profile will facilitate the interaction with other members; user-profile data: profile picture, position, short introduction.
- Registration of a legal entity: users affiliated to a legal entity can access the services; legal-entity data: name, description, logo, cover image, selection of related technologies and industries, website, VAT ID number, and physical address.
- Registration of a service: legal entities can promote services; marketplace data: name, icon, short and long descriptions, screenshots, selection of related technologies and industries.
- Interaction with other members: registered users will be able to share community data: best practices, success stories, use cases, exchanges in chat rooms, and matchmaking functionalities.

3. Sustainable operation of the Digital Technopole

Task 4.2 has three complementary goals: development of the most appropriate business models (BM) assuring platform sustainability after project conclusion; definition of roles and responsibilities of the project partners and of other identified stakeholders; formalization of rules and procedures to be adopted in the management of the Digital Technopole.

The main work carried out in T4.2 in the first 12 months of the project (Task 4.2 started in month 7) and reported in this document focuses on the development of the BM of the DT. The chapter addresses four main points: I) description of the tools and templates that will be used in the different steps of BM definition, II) description of the Digital Technopole's value proposition, III) analysis of the DT's stakeholders, and IV) analysis of the competitors in the market. For achieving points II, III and IV, a workshop was organised with all partners of WP4 in order to gather input from the consortium and thus succeed in outlining a common line, which will be fundamental in the next steps of the BM development. The chapter ends with a detailed description of the next steps planned to complete T4.2 goals.

In order to start approaching an appropriate BM, it is necessary to first properly qualify the nature of the Digital Technopole. Namely, the Digital Technopole platform can be qualified as a multi-sided platform since it allows to connect two or more groups of users (e.g., providers and purchasers) with shared economic objectives. To be successful, multi-sided platforms must attract as many users as possible for each of the “sides” to maximize the economic relevance of the platform itself.

Multi-sided platforms, known by economists as multi-sided markets, are an important business phenomenon. They have existed for a long time but proliferated with the rise of information technology. Exactly they are platforms that bring together two or more distinct but interdependent groups of users. They create value as intermediaries by connecting these groups. Credit cards, for example, link merchants with cardholders; computer operating systems link hardware manufacturers, application developers, and users; newspapers link readers and advertisers; video gaming consoles link game developers with players. The key is that the platform must attract and serve all groups simultaneously in order to create value.

The platform's value for a particular user group depends substantially on the number of users on the platform's “other sides.” A video game console will only attract buyers if enough games are available for the platform. On the other hand, game developers will develop games for a new video console only if a substantial number of gamers already use it. For this reason, multi-sided platforms often face a chicken-and-egg dilemma. One of the ways multi-sided platforms solve this problem is by subsidizing a Customer Segment. Though a platform operator incurs costs by serving all customer groups, it often decides to lure one segment to the platform with an inexpensive or free Value Proposition in order to subsequently attract users of the platform's “other side”¹.

1 Osterwalder, Alexander, and Yves Pigneur. Business model generation: a handbook for visionaries, game changers, and challengers. Vol. 1. John Wiley & Sons, 2010.

Due to the recent rising of the multi-sided platforms' business, the body of work supporting the BM creation in this environment is not consolidated yet, and further, the multi-users ecosystem surrounding a platform can make it difficult to build a strategy that can generate profits in the long run. Indeed, the BM definition is a crucial step to achieve the project results, and above all, to successfully bring the platform to the market. Some preliminary analysis is needed to collect all the pieces of information that can support the identification of a robust BM. For the CO-VERSATILE Digital Technopole it has been decided to follow the procedure proposed by the platform design toolkit (PDT) by Boundaryless SRL² whose stepwise and structured process seemed to fit well with the needs of the project: to support step by step the definition of the business strategy and to investigate the role of different actors.

3.1. Tools and methods

As mentioned before, the platform design toolkit has been followed to shape the CO-VERSATILE BM. It includes eight templates to be populated considering as many facets as possible of the same business. The steps are:

1. Mapping the ecosystem: entities populating the ecosystem are mapped on a canvas so to understand the role they might play and to identify possible clusters.
2. Portraying ecosystem's entities: a consistent picture of the entities' context is made by defining what they are trying to achieve, with whom and how they are trying to connect, what potential they can express and what kind of experience gains they are looking for and, finally, what can be provided by the platform shaper.
3. Analysing the potential to exchange value: using what is called "Ecosystem's Motivation Matrix", the entities' potential to exchange flows of value is analysed. It is a mapping of what kind of value exchanges the entities are performing already and what additional type of value they might exchange if properly enabled.
4. Choosing the core relationships to focus on: the platform shaper has to identify the focus of its business in terms of what entities in the ecosystem it wants to focus on, what relationships are going to be the core for the platform design.
5. Identifying the elementary transactions: the "Transactions Board" tool is used to map how the ecosystem is currently exchanging value (focusing on the entities and relationships prioritized in the previous step) and how the platform strategy is expected to help them to transact value in an easier, cheaper and faster way by providing and curating channels and contexts that will make interactions and transactions more likely to happen.
6. Designing the learning engine: with the "Learning Engine Canvas" the step-by-step process to support/enable services that will help entities to embrace the platform strategy is designed. These services will not only help them to evolve and become better producers and consumers, but also to explore new opportunities not intended initially.
7. Assembling the platform experiences: with the "Platform Experience Canvas" the elements emerged from the transactions board (step 5) and the ones from the learning engine canvas (step 6) are assembled so that experiences that summarize the core value propositions arising from the strategy being developed are created. It allows to think about what resources and components have to be put in place and managed to deliver these experiences.

² <https://platformdesigntoolkit.com>

8. Setting the Minimum Viable Platform: this allows to test in the real world if the design assumptions have a future or not. The riskiest assumptions of the strategy are extracted and experiments and metrics to validate them with the ecosystem are identified.

The resulting business model is then summarized in the Platform Design Canvas that is the final output of this procedure. In order to go beyond the objectives of the above methodology and complete the expected results of Task 4.2, the outputs of this procedure will also be enriched by identifying the role of the project partners as active stakeholders with different profiles in the life of the platform, and by defining code-of-conduct and behavioural procedures in compliance with the governance given to the platform. In this mid-term report of the deliverable, in chapter 3.3 the ecosystem canvas will be fundamental to the stakeholder analysis.

3.2. Value Proposition

As mentioned, one of the first goals of the workshop held involving the task partners was to reach a common vision about the Digital Technopole Value proposition to highlight the differentiating points from other competitors, but also for the definition of the "foundations" for the BM canvases proposed by the PDT.

A high-level definition of what the Digital Technopole is was taken from the DoA and extended during a preliminary interaction among a sub-group of partners. The following outcome was then used as an initial proposal to animate the discussion during the workshop:

"DT aims to support European Manufacturing companies, particularly SMEs, to respond to surge in demand during a pandemic and other disruptions. DT will help to lower the barriers for manufacturing SMEs to benefit from collective knowledge and expertise. DT will combine physical and digital services. DT is a single- entry point for manufacturing SMEs to access 5 groups of services and technologies to support them in adapting and repurposing their production lines and supply chains:

1. *Manufacturing simulation (HPC/Cloud-based/GPU-accelerated)*
2. *Supply chain simulation and risk management*
3. *Automation and system integration*
4. *Certification, business modelling and training*
5. *Replication and sustainability services*

Only CO-VERSATILE democratic Digital Technopole provides a single-entry easy and flexible access to customisable services and technologies for European Manufacturing SMEs to respond to a pandemic or a global disruption and scale up the production of vital medical equipment."

3.3. Stakeholder Analysis

A workshop with the other T4.2 partners was organized in order to collect everyone's views about Digital Technopole stakeholders. For the stakeholder analysis it was asked, after explanation on MS Teams, to fill in the whiteboard created using Mural and representing the ecosystem canvas.

The Ecosystem Canvas

Through the ecosystem canvas, it was possible to identify the DT's stakeholders and define for each of them the role within the platform. This will become also the reference classification the next steps are based on.

The different roles are described as follows:

- *External stakeholders* - Entities that have a specific interest in the platform success or failure, in controlling platform externalities and outcomes, in regulating it or in exercising rights in the platform governance: public actors or bodies dealing with regulation and control of platforms on a local basis, representatives of communities of peers and partners involved in the value creation, pre-existing institutions.
- *Peer Consumers* - Entities interested in consuming, utilizing, accessing the value that is created through, and on the platform.
- *Peer Producers* - Entities interested in providing value on the supply side of the ecosystem/marketplace, seeking for opportunities to improve their professionalism and honing their capabilities towards better performance.
- *Partners* - Entities that create additional value and collaborate with platform owners with a deeper relation. Professional value creators that tend to specialize in a niche product/service and become better and better with time. Partners can also facilitate, cater, and enhance the value production by acting as brokers, facilitators, and connectors.
- *Platform Owners* - Entities that own the vision behind the market opportunity, responsible to ensure that the platform exists and evolves.

3.4. Competitor Analysis

The world of platforms for providing high-value services has been flourishing in recent years and it is still evolving dynamically with several platforms failing and many others entering the market. As mentioned earlier, Digital Technopole will be a multi-sided platform aimed at lowering the barriers for manufacturing SMEs to benefit from collective knowledge and expertise. For this reason, the search for competitors mainly focused on multi-sided platforms offering knowledge and service sharing functionalities at least between manufacturing companies.

The following competitor analysis is divided into two phases. In the first step a sample of platforms found on the market and in literature is taken and described in high level using four descriptive dimensions. Afterwards a reasoned set of constraints is used to narrow the list to

a number of direct competitors, that are closest to DT in terms of target market, offered services and functionalities.

The four descriptive categories used for the first phase are:

- Platform Type
 - *Innovation Platform* - tools for building and growing ideas. However, innovation platforms also refer to technical solutions where you can build things quickly and prototype tools. Furthermore, for a company, an innovator's growth platform means using products, services and technology in a new way to achieve user's goals (preferably more efficiently than before).³
 - *Transaction Platform* - are intermediaries or online marketplaces that make it possible for participants to exchange goods and services or information. The more participants and functions available on a transaction platform, the more useful it becomes. These platforms create value by enabling exchanges that would not otherwise occur without the platform as an intermediary.⁴
- Main Content
 - *Capacity sharing* - Means that through the platform production capacities and/or assets are made available to SMEs or individuals, usually provided by large organisations with excess capacity.
 - *Innovation marketplace* – Also refer to as user-created challenges; challenges correspond to a project, an idea or a need from innovation companies. Through the platform it is possible to present an innovation-driven solution offer from the "solvers".
 - *Open innovation platform* - All those platforms that bundle several innovation-related functionalities. They will showcase challenges, solutions and material useful and readily available to small companies for innovation. They are typically accompanied by a dense network of experts and/or specialised companies ready to accept and solve the challenges presented by applicants.
- Geographical Area
 - Worldwide
 - Individual countries where the platform operates
- Sectors
 - Multiple Sector
 - Individual sectors where the platform operates

³ <https://sloanreview.mit.edu/article/the-future-of-platforms/>

⁴ <https://alcorfund.com/insight/innovation-platform-definition-types-benefits-and-examples/>

4. Replication strategy for the Digital Technopole

Building on the results, outcome and value proposition of the Digital Technopole, the replication strategy aims at utilising CO-VERSATILE services, targeting the Manufacturing Simulations, Supply Network Simulation and Automation and System Integration service areas (see Figure 6). These services, tried and tested through the seven manufacturing settings, will be ready to be utilised and to be taken up by the specific players of the European Manufacturing Industry. The services utilised through each manufacturing setting listed below will form the core elements of replication, which might be utilised by the European Manufacturing Sector.

	MANUFACTURING SIMULATIONS SZTAKI, Fraunhofer, UNIVERSITY OF WESTMINSTER, ITANNOVA	SUPPLY NETWORK SIMULATION & RM Fraunhofer, ie, BUSINESS SCHOOLS	AUTOMATION & SYSTEM INTEGRATION STAD, MASTERING EXCELLENCE, ENGINEERING	CERTIFICATION & TRAINING SUPSI, ENGINEERING, HSSMI, deepblue
MANUFACTURING SETTING 1,2,3 WML, SKM	Mask material sim. Surface textures sim. Injection process sim.	SC simulation to map potential nearby suppliers	Adaptive injection Control Laser engraving autom. Surface testing automation	Training for new tools to be integrated Testing certification support
MANUFACTURING SETTING 4 TecnBio	Spraying process sim.	Supply chain RM and simulation based on components analysis	Adaptive process control Testing automation	Training for Quality Control (tools and components inspection and machinery usage)
MANUFACTURING SETTING 5 DEMCON	Valve sim. Air flow sim.	Supply chain simulation and RM for key components	Automation for Assembly and burn-in Testing Line Configuration optimization	Creation of a protocol for quick traceable implementation for Engineering Change Request
MANUFACTURING SETTING 6 DEMCON	Material and mask simulation (deformation and air flow)		Adaptive control for FFP1,2,3 Automated inspection	Training for engineering etc and creation of virtual training content to spread the knowledge across the new lines
MANUFACTURING SETTING 7 mtc	Components sim. Components visualization		Robot task planning Adaptive control Virtual Commissioning	System certification for CPAP machines

Figure 6. Services developed and tested in the Digital Technopole

The replication strategy is about creating a strategic plan, which, on the one hand, facilitates the uptake of CO-VERSATILE results, and on the other hand supports external manufacturing SMEs to uptake and exploit the benefit of project results. The replication strategy will include the list and map of key stakeholders forming the CO-VERSATILE external ecosystem, who might take a significant role in mobilising the European CO-VERSATILE network in case a pandemic, or another sort of emergency arises. Creating business relationship with the key stakeholders is also the part of the replication strategy with the aim of creating automatic mechanisms on mobilising the network, in which the mobilisation of the Digital Innovation Hub network plays a key role, as an enabler of multiplication of the services supported by the Digital Technopole.

The following paragraphs detail the process on identifying the key CO-VERSATILE stakeholders and the main communication activities to reach out to them.

4.1. Identification of Key Stakeholders to build strategic Synergies with

Identifying the key stakeholders who might uptake the services of the Digital Technopole is a key element of the replication strategy. One of the main key stakeholders of CO-VERSATILE

are the manufacturing SMEs, however the replication strategy targets several other target groups listed in Figure 7 below:

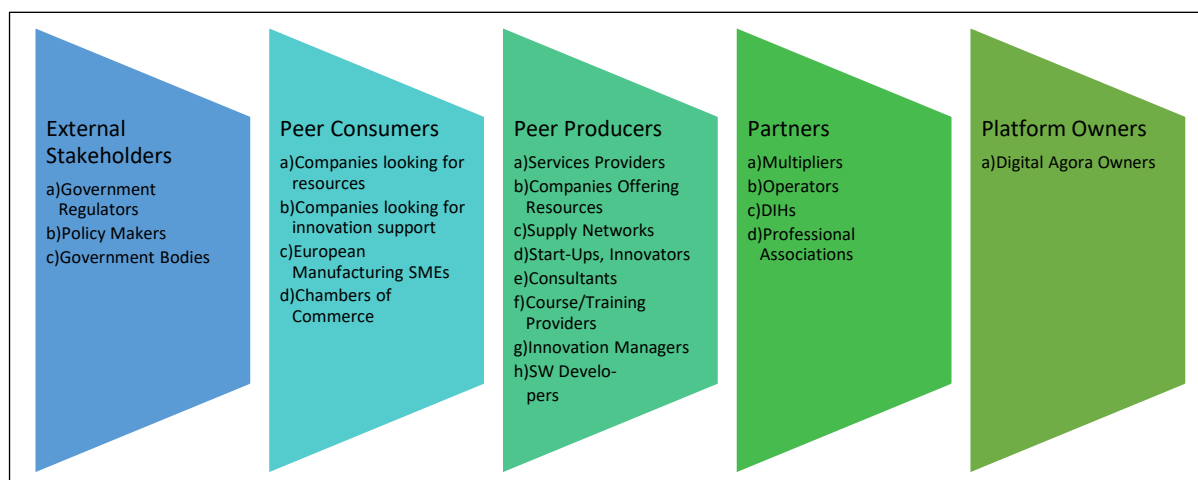


Figure 7. The main Stakeholders of CO-VERSATILE.

As you can see in Figure 7, the key stakeholders include Policy makers and Government bodies, as external stakeholders of CO-VERSATILE, who might facilitate the uptake of project results by creating or aligning novel policies, incentives for the uptake. Peer customers and producers, partners and platform owners will also play a key role in the uptake of the services of CO-VERSATILE.

4.2. Communication Process to reach out and engage with strategic Partners

Through national and regional organizations, innomine DIH is well networked with policy makers and strategy creators. In the past 10 years innomine has participated as author / co-author of multiple strategies and suggestions for the government bodies (example: co-author of Hungarian start-up strategy, co-author of Hungarian Industry40 strategy) and/or participated in consultation processes (like SME strategy of Hungary). By building on innomine's experiences, for the final replication and market uptake of CO-VERSATILE, a list of potential stakeholders will be set, and a matchmaking event organised in May 2022, for creating tighter links between the main stakeholders.

All these activities will be conducted in cooperation with the actions of WP5 with the main purpose to create synergies between WP4 and WP5. However, the communication activities with regards the Digital Technopole will focus on replication, to create a replication strategy and to identify European key stakeholders for the uptake of project results.

5. Conclusions and Outlook

The Digital Technopole aims to enable the democratic access to tailored technology, expertise, and infrastructure for all manufacturers, working on rapidly adapting their production facilities. The Digital Technopole will facilitate the access to software tools, training, consultancies, and production capacities, empowering manufacturers to produce critical resources according to urgent societal needs.

The progress of the WP4 activities is aligned with the objectives of the project and reflects the level of understanding of the partners about the Digital Technopole. The Digital Technopole has been advanced from the point of view of a) the preparation of the software platform and the analysis of the legal, ethical, and privacy aspects; b) the business model and the value proposition, and the analyses of competitors and stakeholders; and c) the strategic roadmap to replicate the results of the projects to external stakeholders.

The following period of the project will focus on progressing with the planned activities, enabling the access and usage of the Digital Technopole for stakeholders external to the project, leveraging a clear value proposition and business models, and the communication and dissemination actions planned within the project, like the Matchathon.