



MANUSQUARE

MANUFACTURING ecoSYSTEM of QUALIFIED RESOURCES EXCHANGE

MANUSQUARE IN A NUTSHELL



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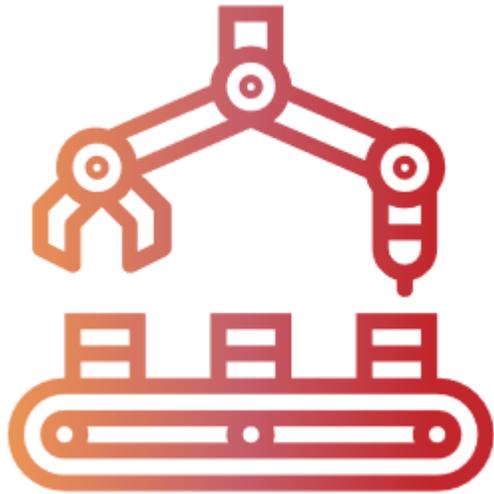
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Manufacturing firms today in Europe are characterised by low levels of capacity utilisation with an average of 20% production capacity being currently wasted in European countries.

Source: EUROSTAT

INDUSTRIAL CHALLENGES



Market dynamics, in contrast to installed capacities, are by nature in **continuous change and characterized by **fluctuations**;**

Companies ability to address specific market opportunities is often limited by the **availability of the installed capacities, capabilities and resources (internal)** or to their ability to pull and integrate available external capacities and resources;

The “**rigidity**” of installed capacities and the **limited ability to integrate external resources** may render **the unoptimized monetization of investments** via:

- (1) the inability to respond to market opportunities;
- (2) the inability to dynamically allocate unused capacities, by-products and capabilities

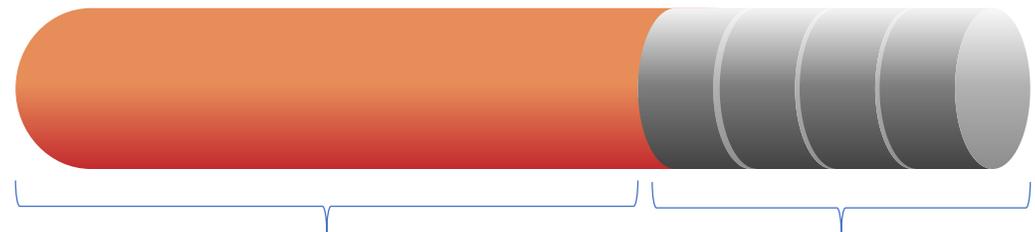
MANUSQUARE SOLUTION



A platform-enabled marketplace that brings **available manufacturing capacity and resources, closer to production demand;**

Integrating the **tools and services** that enable **the establishment of dynamic value networks** capable of **being re-arranged, on demand,** to cope with the needs of both **(1) those seeking for specific manufacturing capacities** and **(2) those who have theirs available.**

To support **new business models** and **increased value to customers and shareholders** via the optimization and reintroducing in loop **the companies' unused potential**



USED POTENTIAL

UNUSED POTENTIAL

BENEFITS AND ADVANTAGES



MANUSQUARE envisioned solution as a **B2B ecosystem** with **safe data transactions** and **highly traceable supply networks**, supporting:

- A sustainable matching between supply and demand of:**
 - manufacturing capacity,
 - knowledge,
 - technologies and
 - by-products;
- Access to unexploited market opportunities;**
- A full exploitation of local capacities, complementarities and (unused) potential;**
- A dynamic integration of companies in new value networks.**

Extend Manufacturing Capacities

Access New Suppliers and Technologies

Monetize Unused Capabilities

A platform-enabled marketplace supporting the access to and monetization of unused manufacturing capacity, engineering and technology services and by-products

— Offer and Demand Matching

— Certifications Management and Reputation Mechanism

— RFQ & Transactions Management

— Blockchain infrastructure

ENVISIONING MaaS business model

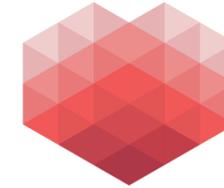
> State-of-play

Sharing of manufacturing capacity as a service (MaaS) today **is the focus of a fast emerging family of platform-enabled networks.**

Nevertheless the myriad of platforms, the context and scope of their development define specificities, e.g.:

- Narrowed focus on manufacturing capacity alone and in specific environments;
- Specific to few subsectors of the industrial ecosystem;
- Other operating aspects (e.g. critical mass, accession, ownership, cyber security, etc...)

Examples of platforms:



3D HUBS

Peer-to-peer sharing network for 3D printing services



MAKETIME

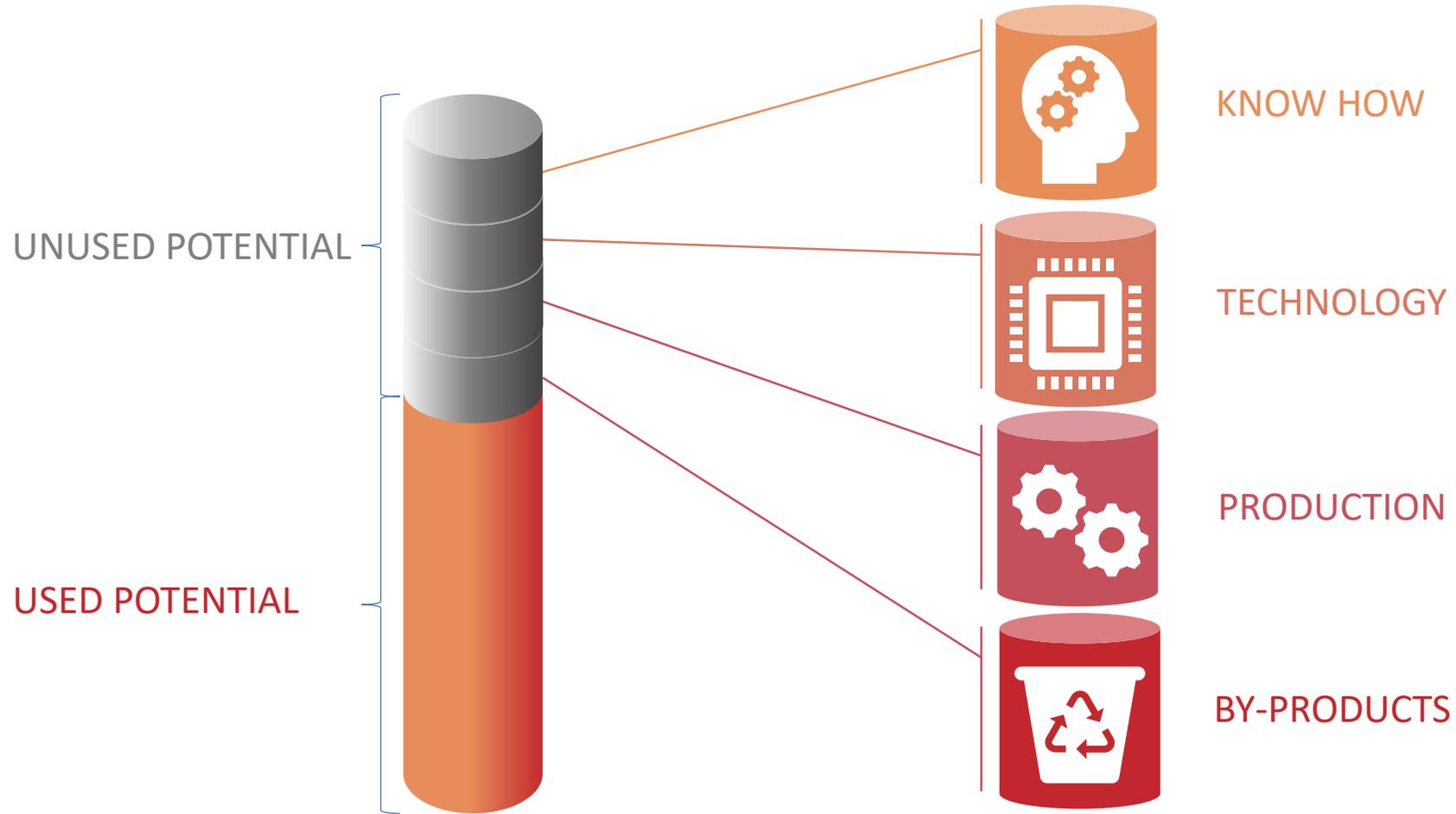
Double blind US-based platform for CNC machining capacity sharing



Manufacturing marketplace for professionals and engineers looking for suppliers

ENVISIONING MaaS business model

> MANUSQUARE Solution | Decomposing the unused potential

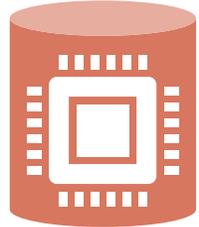
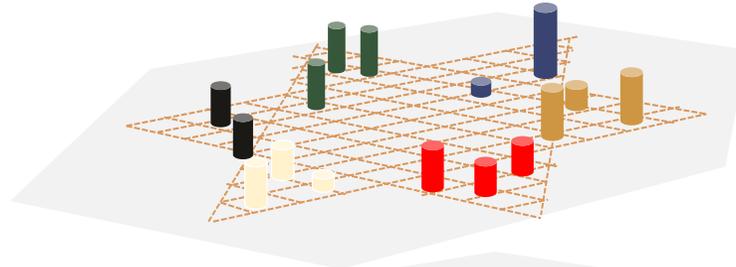


ENVISIONING MaaS business model

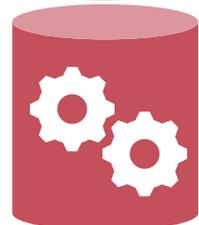
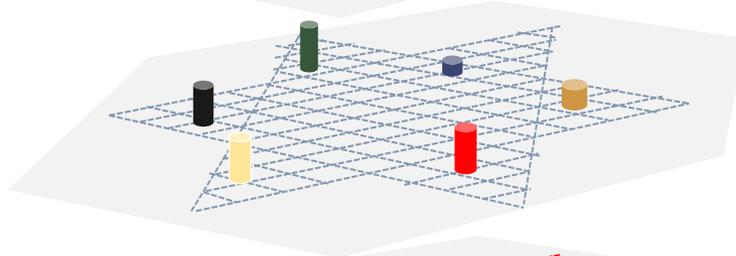
> MANUSQUARE Solution | Giving VISIBILITY to the existent potential



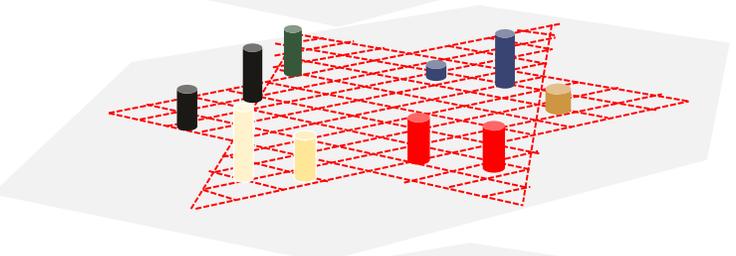
KNOW HOW



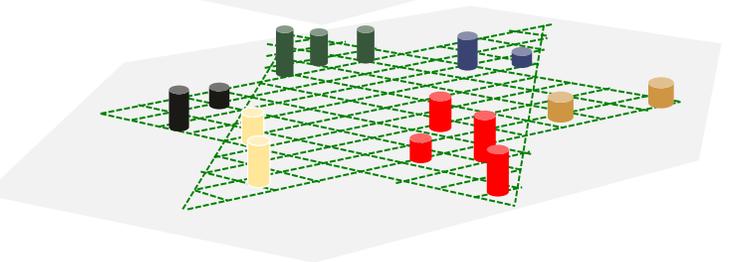
TECHNOLOGY



PRODUCTION



BY-PRODUCTS

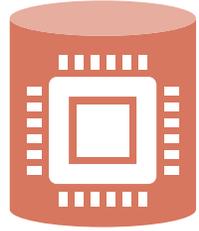
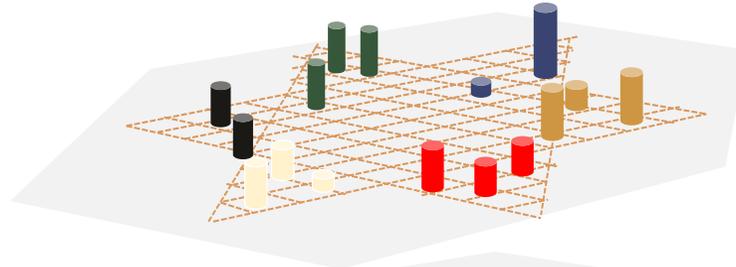


ENVISIONING MaaS business model

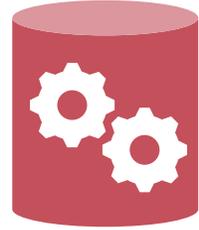
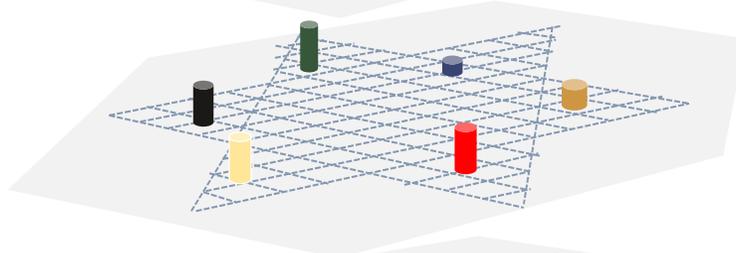
> MANUSQUARE Solution | Enhanced multiplying effect via the cross setorial nature



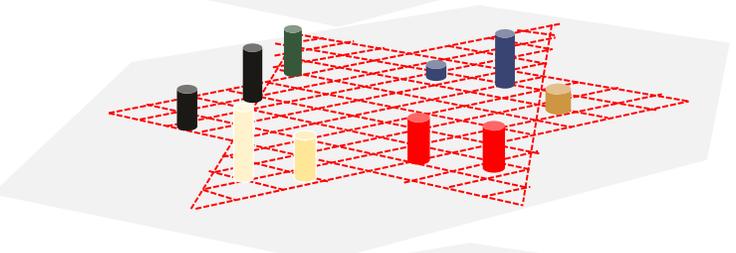
KNOW HOW



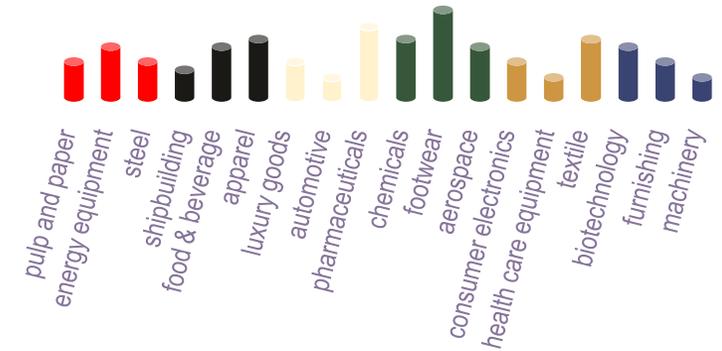
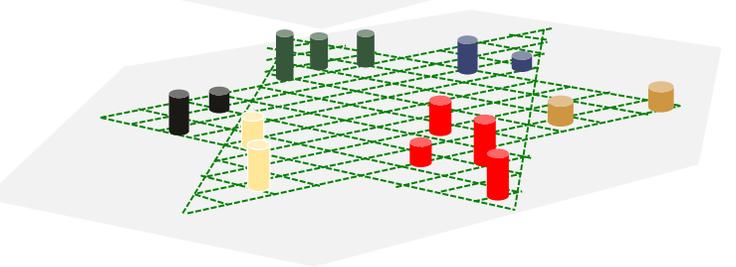
TECHNOLOGY



PRODUCTION

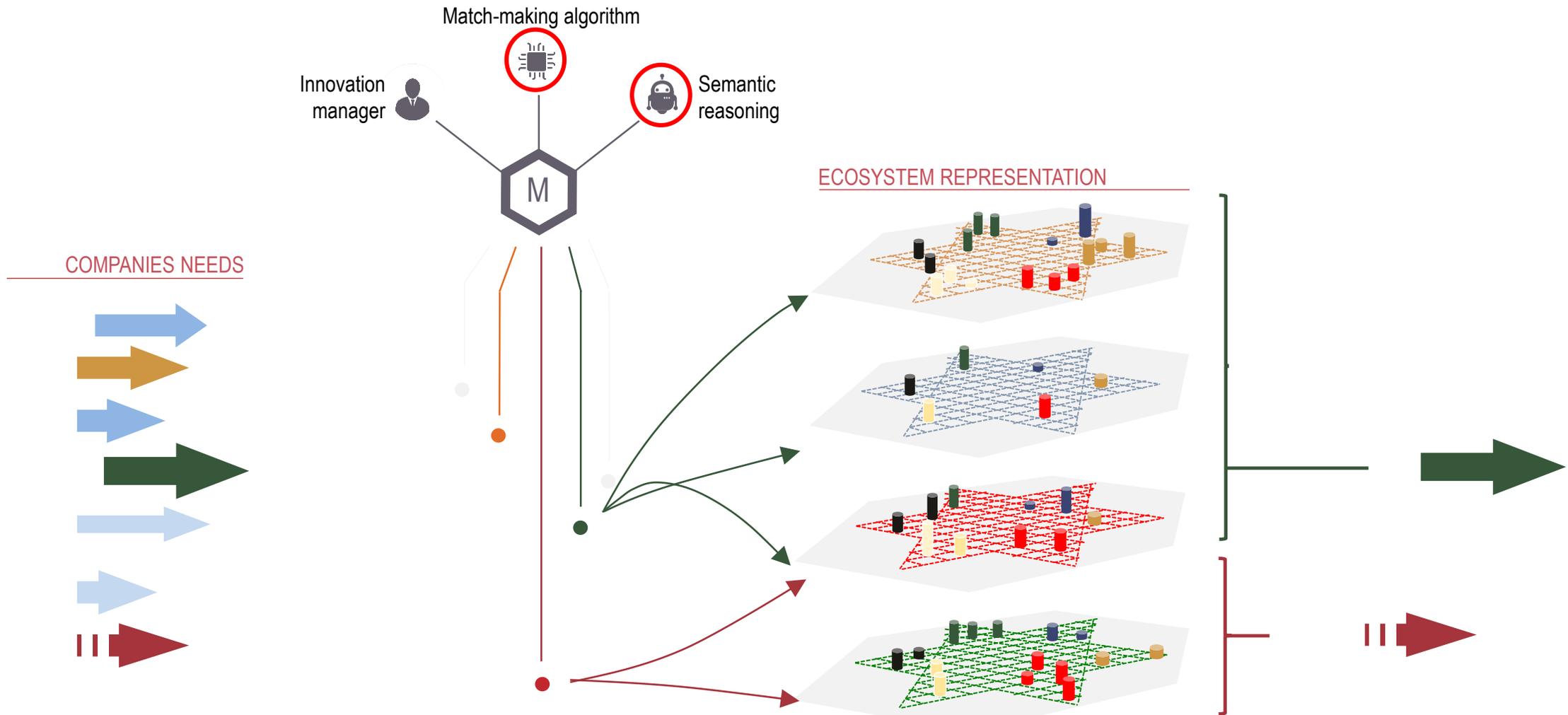


BY-PRODUCTS



ENVISIONING MaaS business model

> MANUSQUARE Solution | Transforming needs in solutions



ENVISIONING MaaS business model

> MANUSQUARE Solution | Example Use Cases



Swiss machine tools company boosts its production by giving access to its manufacturing capacity

An ISO certified machining shop located in Lugano, Switzerland, “Bernasconi metal-constructions SAGL” specializes in designing and manufacturing cantilever roofs, intermediate floors, stairs, metallic carpentry for a wide variety of verticals. “We are a small enterprise of 9 employees that does a little bit of everything,” says Founder Davide Bernasconi, who started the company in 1986. “The sector isn’t as big as it used to be. So we diversified. We got into other areas like production machining and fabrication. And we also do work in automotive, plastics, defence, consumer.”

BUSINESS CHALLENGE

The company, located in Switzerland, strongly suffered the change in the exchange rate among Euro and Swiss Franc that lowered their price competitiveness of about 20%. “Some of our typical customers started buying products from the nearby Italy that is able to provide more competitive offers. We have to cope with periods with very high production saturation and others with a very limited one”.



MANUSQUARE CONTRIBUTION

MANUSQUARE gave the company the possibility of boosting differentiation and finding customers.

“We have 2 CNC machines in our job-shop that, thanks to MANUSQUARE, are now working all the time. Additionally we can exploit the flexibility of the platform allowing us to take orders only when we have a lack of production. Since the platform already provides the CAD and all the information related to the manufacturing, we just have to order the material, put it in the machines and once ready, send the products to the customers.”

ENVISIONING MaaS business model

> MANUSQUARE Solution | Example Use Cases



Manufacturer of aeronautic mirrors transforms wasted by-products in a source of revenue while using MANUSQUARE platform for KET sourcing.

Desia SA is a company settled near Lion, in France, manufacturing high quality mirrors for aeronautic applications. The company relies on very specific and high-end technologies required by the sector it works in. The request from a very important company interested in buying a light signal transmitter based on photonics posed Desia SA in the necessity of being able to outsource part of the product manufacturing to obtain a reliable turnkey solution. “We couldn’t say no to our customer but, on the other side, we weren’t able to fully manage product development due to the lack of key enabling technologies”.

BUSINESS CHALLENGE

The company contacted MANUSQUARE who found an highly qualified technology provider that developed the solution in conformity with Desia’s requirements.

Additionally, and via the Unified System Flow Orchestrator, integrated in the platform that verifies compatibility among processes input and outputs, the company was able to explore a new business opportunity.



MANUSQUARE CONTRIBUTION

Desia entered the inputs required by the self-assessing Sustainability Assessment Layer and something interesting came out. The process Desia applies to polish their mirrors generates high quality polishing sand that they cannot use two times due to quality reasons. The MANUSQUARE Unified System Flow Orchestrator identified another company Mikron SA that uses fine sand in certain applications for their machine tools. The matching was done! The two companies now an agreement that enables Desia to dispose the sand and Mikron to buy it at a very low price.

ENVISIONING MaaS business model

> MANUSQUARE Solution | Example Use Cases



Company finds its way to market success using MANUSQUARE for outsourcing of design and development of new machines components.

Intellipackaging is a polyurethane packaging company specialised in packaging protection solutions for both the consumer and industrial market. *“If it’s fragile or valuable, it’ll probably be packaged in foam”* says George Bertram, vice president of engineering at Intellipackaging. *“Our foam protects products such as high-value machined parts, castings, assemblies, medical and electronics equipment”*. Whereas now Intellipackaging market is well established, a few years ago it was not the same and the company was trying to find the picklock to open-up bigger markets.

BUSINESS CHALLENGE

“We designed a new concept of packaging machine. As we began finalizing the concept idea a number of issues revealed to be complex to manage without specific knowledge that we didn’t detain internally. We required the design and development of specific parts of our machine that we couldn’t do internally”. The procurement process was very time consuming, e.g. difficult to find suppliers, getting the quotes...



MANUSQUARE CONTRIBUTION

“When I first used MANUSQUARE, quotes came streaming in — and at prices that surprised me. It was so easy to use, so intuitive. I immediately realized I was on to something that was going to be really big, something that was going to change our business for the better. Being able to linkup with quality vendors, able to follow the development of custom components from design to manufacturing, according to our requirements, enabled us to minimize the effort in finding the best solutions required by our business”

MANUSQUARE PLATFORM

> User Groups, needs and value proposition

User Group:
Manufacturers with
unused capacity and
materials

Manufacturing companies with unused production capacity (also including providers of KETs, where the problem of unused capacity is amplified) and, more extensively, materials and by-products (being themselves an unused resource).

MANUSQUARE Value proposition and benefits

1. Quick matching of the most suitable production requests. Being based on a common and shared ontology, both offer and demand for production capacities are described in a comparable way, this enabling easy (also semantic-powered) combinations abating the initial searching costs;
2. Access to a list of potential users for unused capacity and
Access to a list of potential suppliers to ramp up production during peak production periods and
Access to available capacity,
... each qualified with a reputation profile;
3. Decision support tools enabling sustainability-aware choices of transactions (this abating the transaction costs); (iv) transaction security assurance thanks to the blockchain-enabled tracing of information exchanges among transactors.

MANUSQUARE PLATFORM

> User Groups, needs and value proposition

User Group:

Start-ups and innovative
manufacturers

Start-ups (but also single innovators having a concept or innovative idea) or pre-existing (traditional) companies looking for partners supporting them in the transformation of this concept into an actual, marketable product-service solution.

MANUSQUARE Value proposition and benefits

1. Identification of the supporting innovation managers (Especially SMEs need external support from a broker or innovation managing entity that guides them during the project and drives their choices, starting from the product conceptualization up to suppliers identification and selection);
2. Support in value-chain design, with proper algorithms enabling the identification of the more sustainable actors to be involved;
3. Support in best suppliers identification, based on the reputation mechanism;
4. (external) contact with potential financiers: the platform will be linked with external crowdsourcing platforms and venture capitalists aimed at providing valuable contacts with potential financial partners to interested start-ups;
5. end-users involvement in product-service early assessment, supporting early choices on products shapes and functionalities;
6. transaction security assurance, increasing the trust in open-innovation initiatives.

MANUSQUARE PLATFORM

> User Groups, needs and value proposition

User Group:
Innovation managers

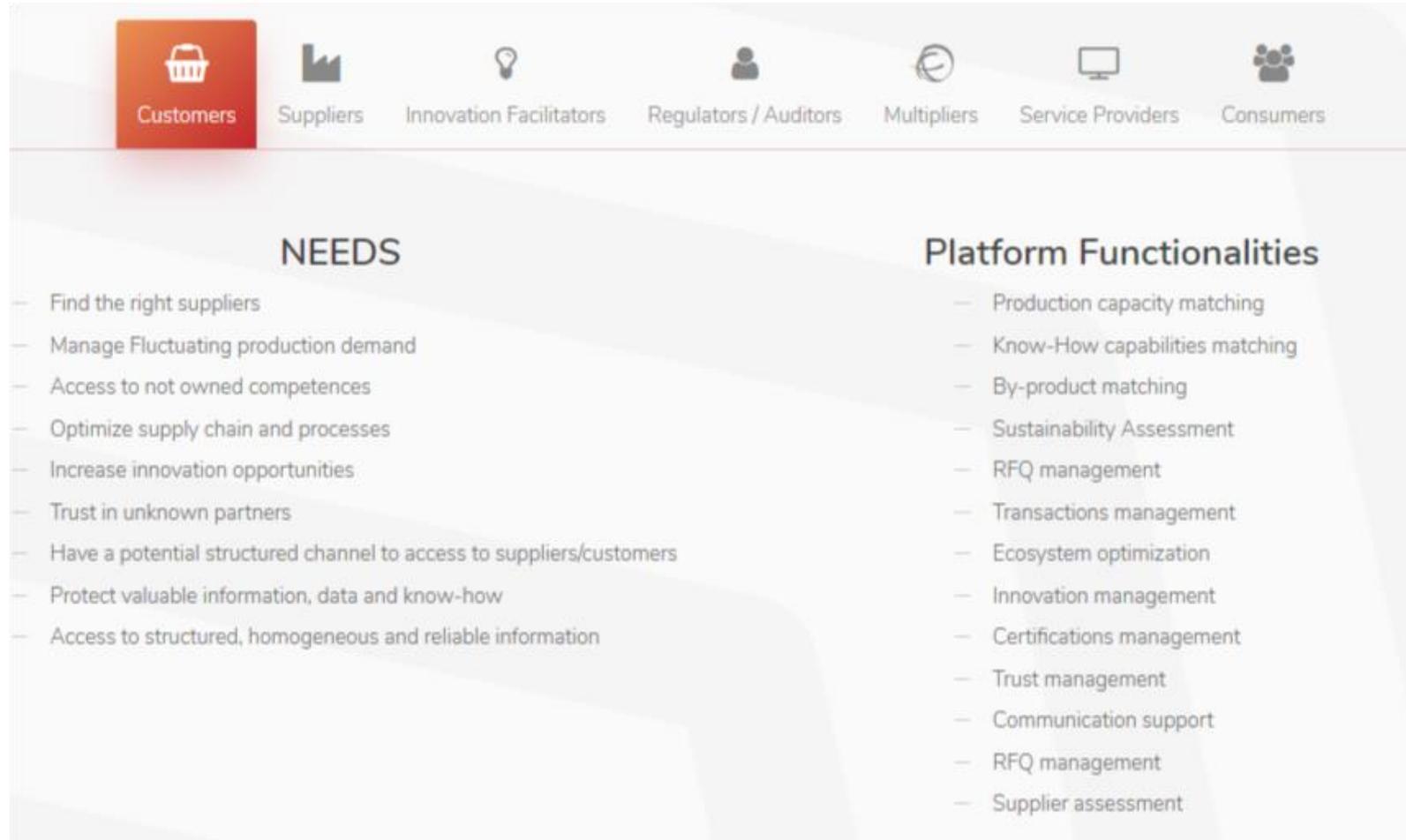
Innovation managers handle a combination of the management of innovation processes, and change management. They usually deal both with product, business process, and organizational innovation. Innovation management allows the organization to respond to external or internal opportunities, and use its creativity to introduce new ideas, processes or products.

MANUSQUARE Value proposition and benefits

1. Identification of innovation projects requiring support;
2. Support in value-chain design
3. Support in best suppliers identification for creating a sustainable value network
4. Exploiting end-users opinions for product-service early assessment

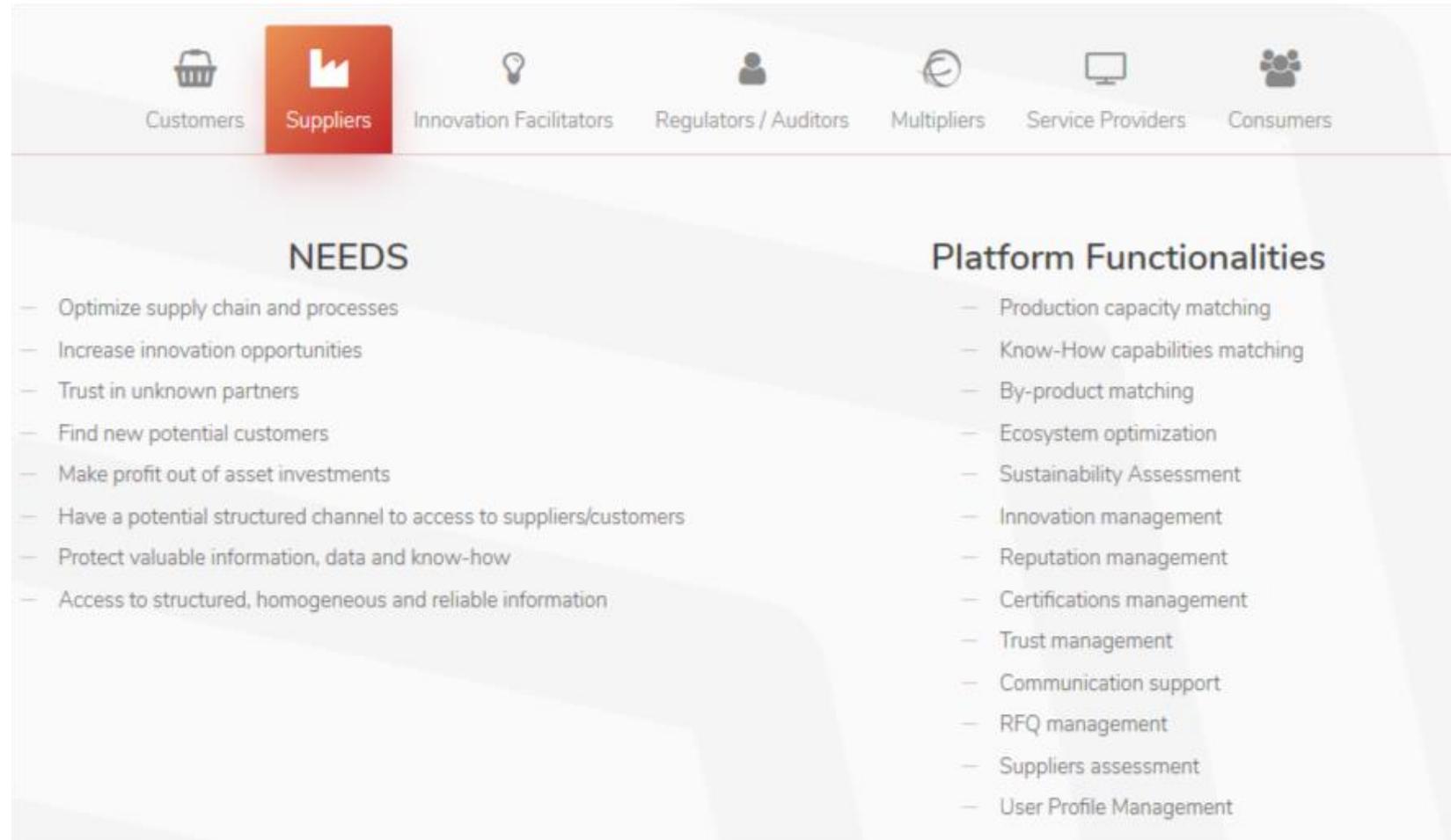
MANUSQUARE PLATFORM

> Functionalities



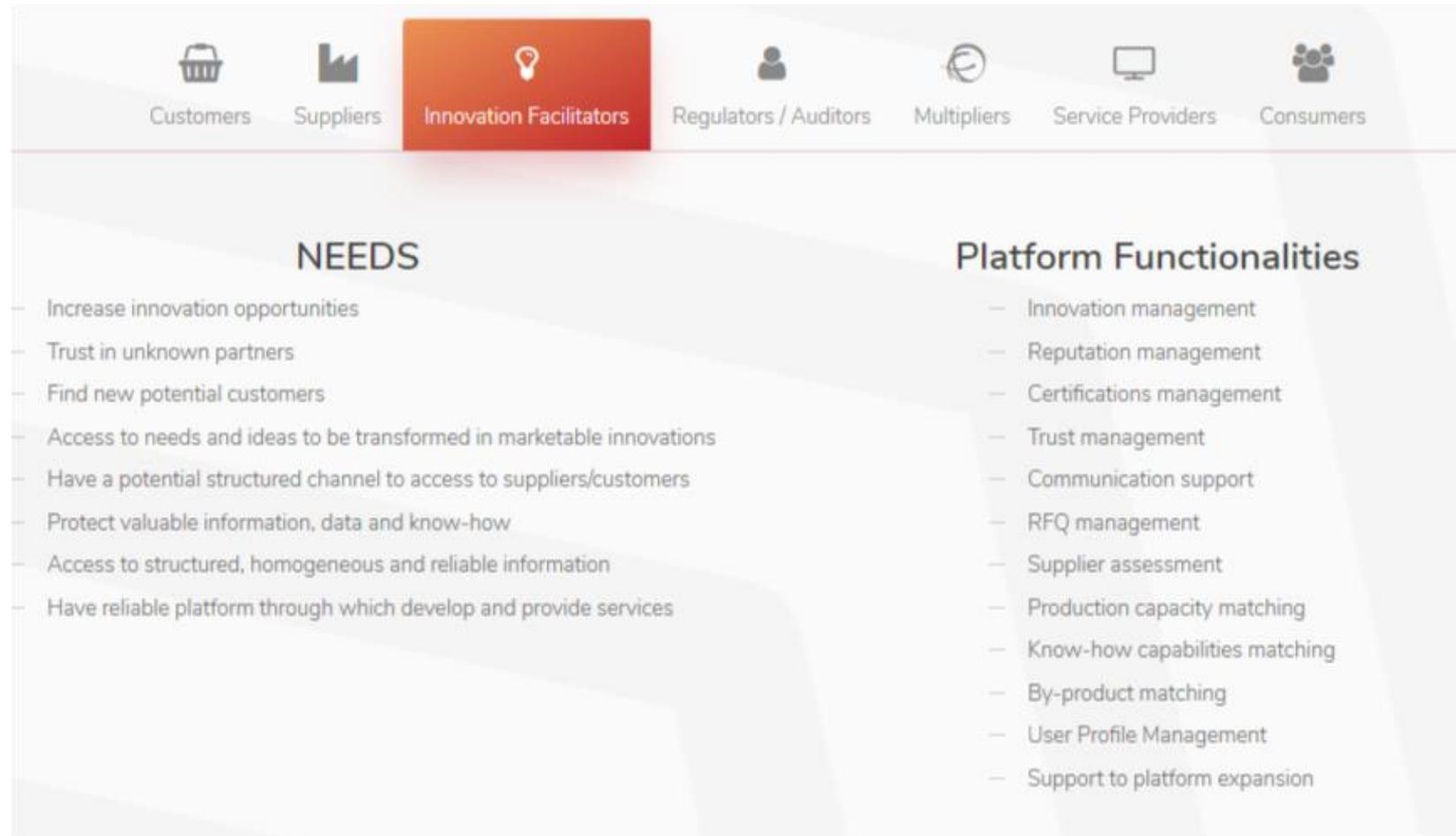
MANUSQUARE PLATFORM

> Functionalities



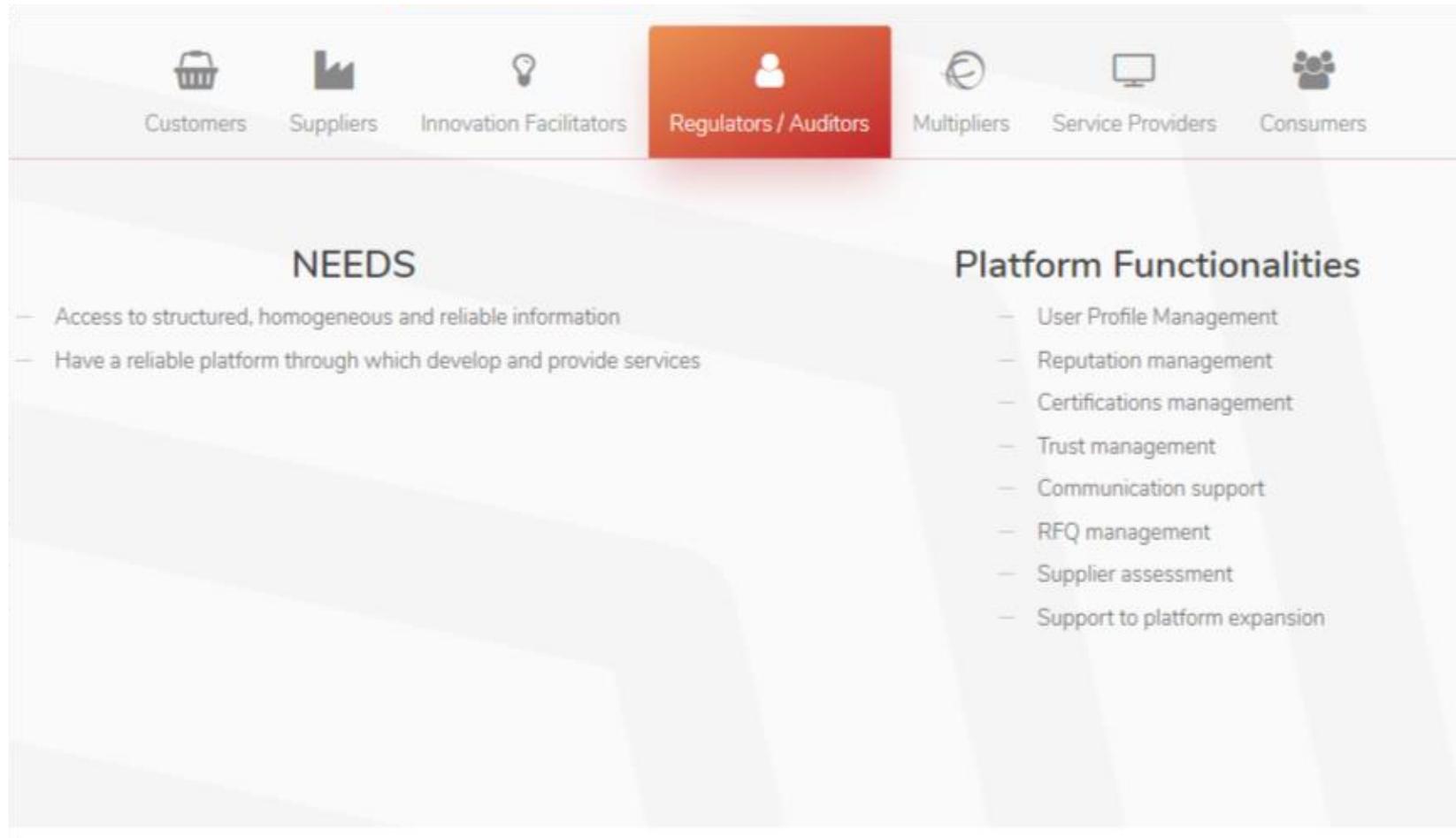
MANUSQUARE PLATFORM

> Functionalities



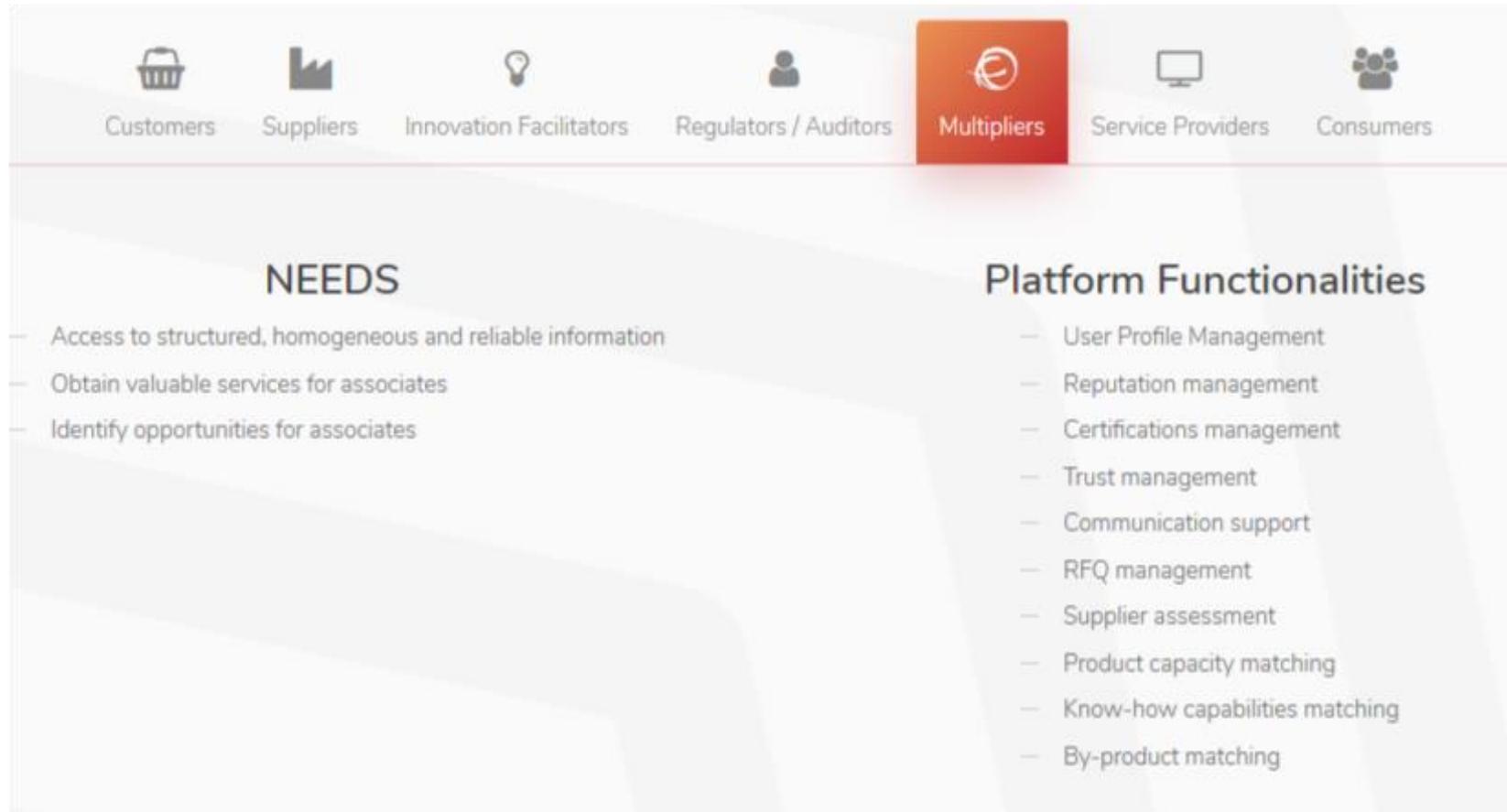
MANUSQUARE PLATFORM

> Functionalities



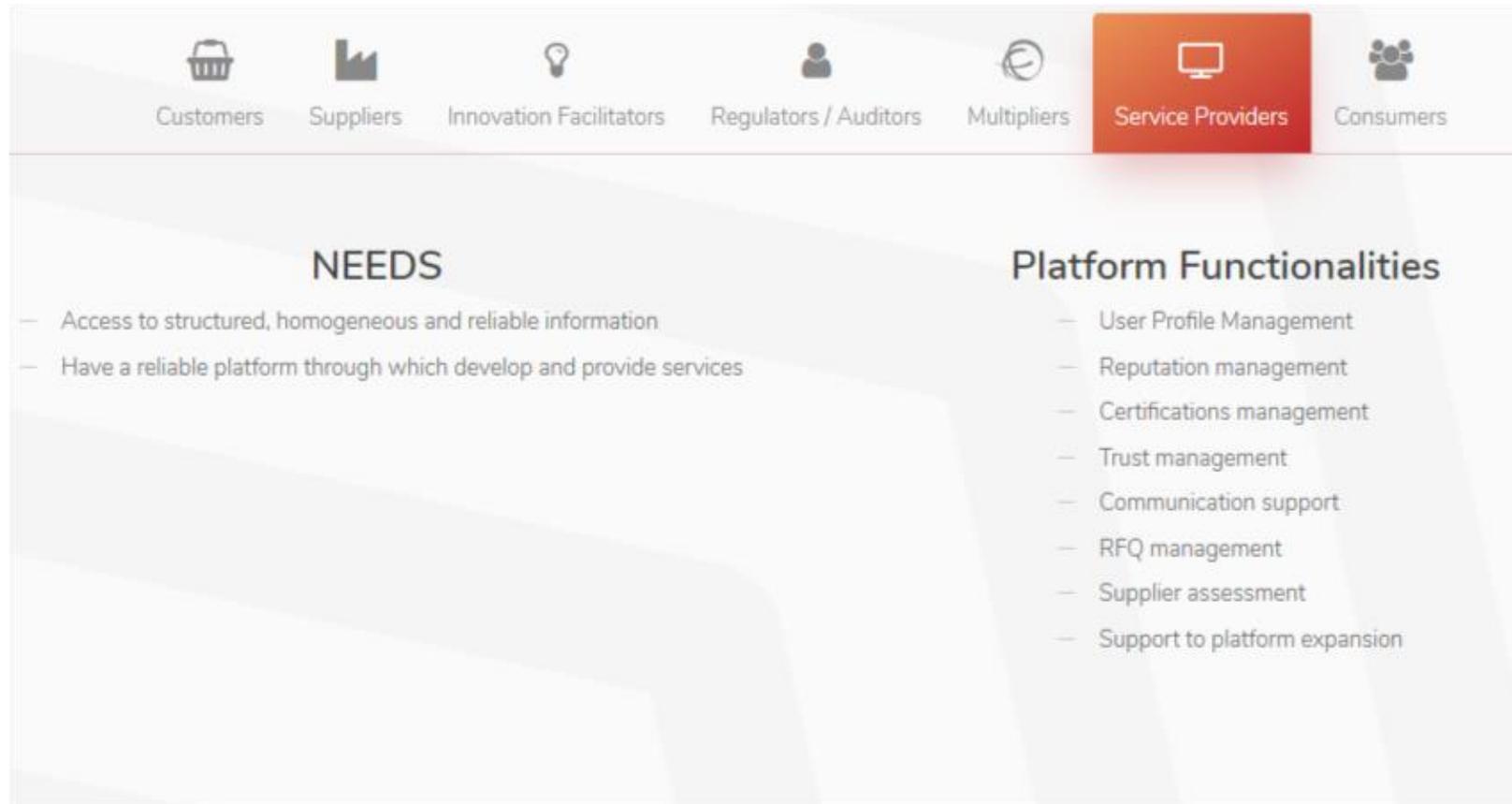
MANUSQUARE PLATFORM

> Functionalities



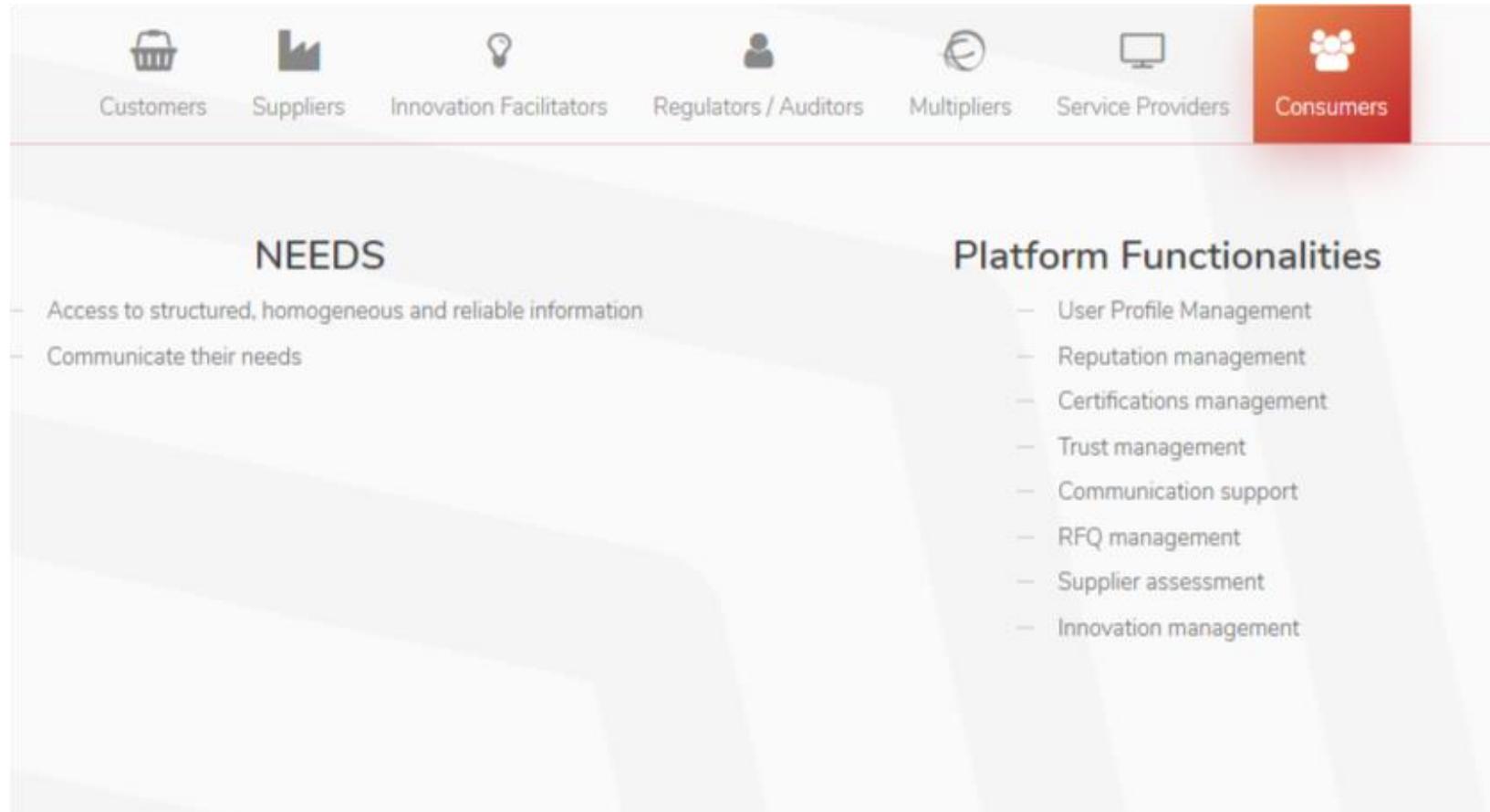
MANUSQUARE PLATFORM

> Functionalities



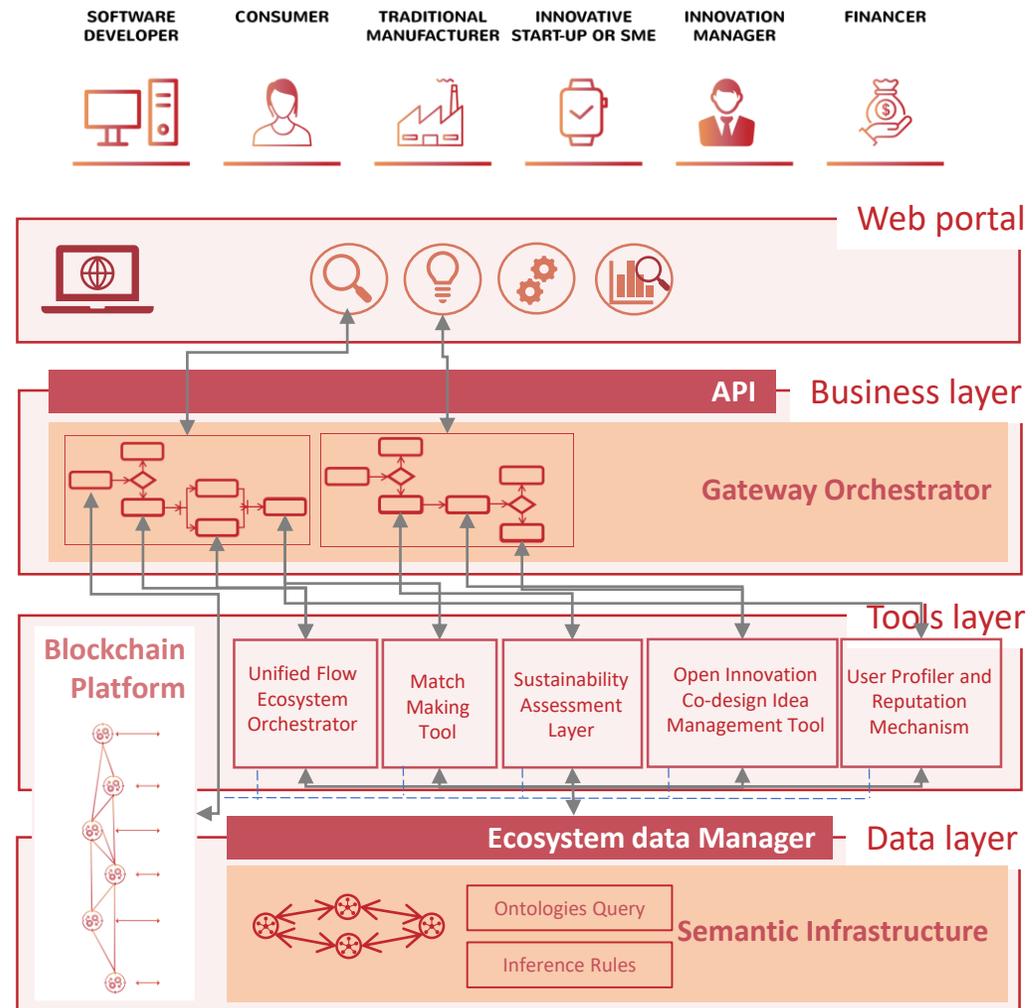
MANUSQUARE PLATFORM

> Functionalities



MANUSQUARE PLATFORM

> Reference Architecture



MANUSQUARE PLATFORM

> Demonstration in industrial pilots

Traditional
manufacturing



Focus on **capacity sharing**

Value coming from **enhanced efficiency** of manufacturing and engineering services sales process

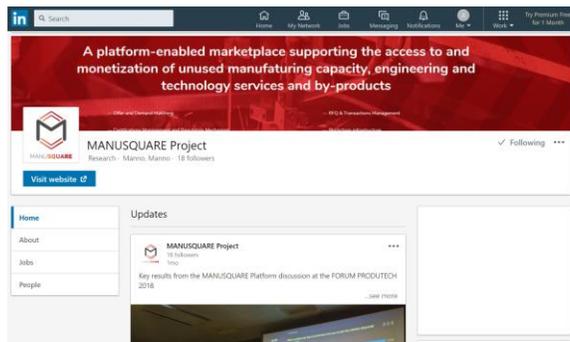
Silk & Cosmetics



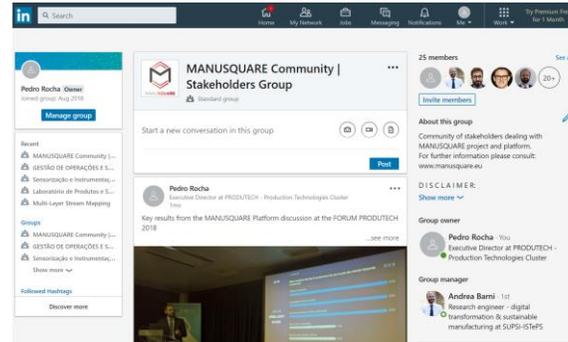
Focus on **innovation**

Value coming from expansion of **know-how portfolio** and **network effects** in the cross-sectorial ecosystem

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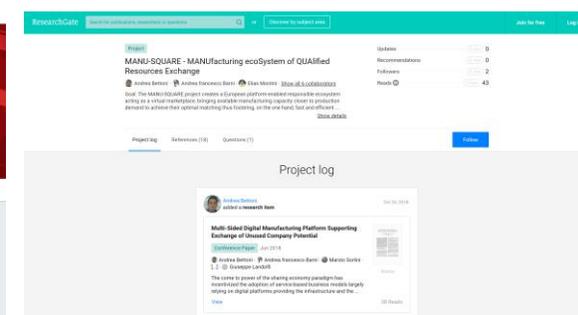
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Consortium:

