
# D5.4 OD&M Value Model

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A knowledge Alliance between HEIs, makers and manufacturers to boost Open Design & Manufacturing in Europe.
Project Number: 575063-EPP-1-2016-1-IT-EPPKA2-KA

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# 1. INTRODUCTION

## 1.1 The Value Model

This document draws on the findings of the Impact report to model the value propositions of the Enabling Programme. The investigation activity conducted employed a mix of methodological instruments belonging to the business model ontology domain, to generate a multi-perspective synoptic representation of the overall OD&M ecosystem.

With this document we describe the follow up activities of the OD&M Alliance, with a clear framework of viable paths to ensure mid and long term sustainability to main results achieved.

The document relies also on the interviews carried on by LAMA with each project partner during the first half of 2019, to fully understand the programmes that each partner is foreseeing to implement during the next years, as a single entity or rather together with other members of the Alliance.

In the next pages the follow – up activities of each partner will be presented, clustered in five National nodes (Italy, Spain, Poland, UK, China), and displayed following the main components of the follow up: research, training, learning framework, platform, mobility and international partnertships.

At the end of the document, the follow up will be described graphically to present a synthesis of the nodes as well as their potential interrelation.



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# 2. ITALY

## 2.1 Research

In Italy, LAMA is bringing forward the research on innovation and collaborative spaces and their hybridation with academic courses, with a special focus on adult training and cooperative models, through the Erasmus + project SCC (Sharing, Collaboration, Cooperation), led by Cooperatives Europe.

"Sharing, Collaboration, Cooperation" is a strategic partnership bringing together co-working spaces, higher educational institutions, innovation communities and international networks / umbrella organizations. The project counts 8 partners and has been co-funded by the Erasmus + programme.

The development and democratization of digital technologies has had continuous and profound socio-economic impacts: it creates the conditions for workers to gain in autonomy, stepping away from job routine to pursue more independent and flexible work arrangements. From this context have emerged new needs and aspirations, especially of three kinds: (i) entrepreneurial (soft) skills enabling individuals to collaborate, design and set up innovative projects and organisations; (ii) physical spaces stimulating such collaborations; (iii) models sustaining spaces combining openness (towards their beneficiaries and local stakeholders) and viability (through relevant business models).

By establishing a strategic partnership between co-working spaces, innovation communities and educational institutions the project aims to stimulate the emergence of collaborative spaces for community-driven innovation, and anticipates the transition towards a digital society. SCC starts from the findings of OD&M and applies them to the spaces and tools enabling to Share, in a view to promote and stimulate Collaboration, around Cooperation as a governance model enabling active participation through equality and democracy. It pursues the following objectives:

- Models: Supporting the transformation of co-working spaces towards collaborative spaces, stimulating community-driven collaborative innovation
- Activities: Fostering the creation and systemization of workflows between co-working spaces, HEIs and innovation communities, for the democratization and improvement of lifelong work-based entrepreneurial education
- Tools: Developing methodologies aimed at systematizing trans-sectoral educational partnerships for community-driven collaborative innovation embedding transnational cooperation and international mobility



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LAMA will involve the University of Florence as well as CSM in the project activities as external parties.

At the same time, CSM will translate the knowledge on this learning framework on the needs and specificities of the Regional manufacturers sectors. More research will be implemented by CSM in collabration with UNIFI on these themes.

## 2.2 Training

UNIFI and CSM will implement short adult trainings within the framework of Regional programmes (Region of Tuscany), coherently with the third mission of the university. These new courses can be in part considered as the follow up of the "Design Driven Strategies" pilot implemented by OD&M project in Italy.

The service design and the role of the designer as a catalist agent towards the resolution of societal challenges, especially (but not exclusively) in urban regeneration contexts, will be brought forward by LAMA together with a large group of international actors, in new projects that LAMA will develop and propose to the Erasmus + agency in the next year.

## 2.3 Learning Framework

The learning framework of OD&M will be partially used for the new programmes of training in Design for Sustainability of the Design department of the University of Florence. This will also imply the participation of CSM as a challenge provider, since the focus will be mainly on product rather than on service development.

## 2.4 Platform

While CSM and UNIFI, even if interested and open to further testing, will probably not use the platform in its activities in the near future, while LAMA is interested in collaborating to the follow up of the platform, to adopt it as a complementary tool for the recognition of soft skills in informal learning experiences (LAMA) that will be implemented within the Impact Hub Florence programme.

## 2.5 Partnership and mobilities

UNIFI is planning to develop student exchanges agreements with UAL and Deusto, while an agreement with WSB have been already developed, under the framework of the new INTRIDE project where the two universities are partner.

The Erasmus + Knowledge Alliances for Higher Education project INTRIDE is an alliance of 10 partners from Italy, Spain, Poland and Romania, aimed at developing a structured framework for cooperation between universities, clusters / business representatives, technology centers



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and enterprises. Partners from 4 European regions are both higher education institutions / technical experts and clusters / business representatives actively involved in defining Regional Smart Specialization Strategies.

The INTRIDE project aims to develop a joint Master's program that will provide a competent solution to the challenges that Regional Intelligent Specializations pose to traditional manufacturing companies.

The project will also create an international networking platform that is a place of activation and monitoring of innovation, technology transfer, research and development processes as part of cooperation between enterprises, universities and technical centers.



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# 3. SPAIN

## 3.1 Research

Tecnalia will implement in the next 4 years the Horizon 2020 Project "T-Factor" that will involve Cities/Municipalities, NGOs public servants and Urban planners. The peoject has among its partners LAMA, UAL, Tongji University and the Municipality of Lodz, and will deliver an innovative city-making method that combines culture and creativity-led engagement, meanwhile uses and 'prototyping' urban development.

The University of Deusto will also implement some research activities strictly related with Open Design and Manufacturing, listed below:

1. Design and social innovation – Social Innovation Cloud in Public administration

The project is a proposal to break the fear of the open paradigm of solution sharing. When the solutions are of a social nature, nobody doubts the economic benefit generated by sharing.

2. Design and social innovation learning programmes

The proposal of challenges with a common theme delivered in OD&M highlighted that the value of the OD&M paradigm can reside in its approach; to the social field, therefore, it would make sense to consider challenge-led design as a solution to solve these types of challenges.

Both the research fields can benefit from the use of the platform, to the use of the training dinamics in the challenge problem solving.

## 3.2 Training

In the University of Deusto the dynamics developed in the OD&M training will be further replicated and refined. In fact, the subjects involved as challenge providers have used part of the challenge – based training structure generated by OD&M and other subjects such as "Digital fabrication technologies" have been based on the dynamics of solving challenges.

## 3.3 Learning Framework

In the University of Deusto, the learning framework for the creation of new courses has been proposed, and will be surely re-adopted for the next challenge based activities in the engineering and design trainings.



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## 3.4 Platform

Tecnalia will use the Platform to carry out mentoring programmes with current researchers, as well as in the above – mentioned T-Factor project.

In this project, the challenge based open innovation platform can be further developed to facilitate the co-creation processes during this project as different stakeholders with different approaches will have to tackle common challenges.

It will be a learning process for several participants that can take advantage os this platform to gain skills and competences that can be acquired and certificated trough the platform.

An IT Infrastructure has to be built in that project and among other functionalities there is a need to implement a platform that can facilitate this co-creation and learning process that will take place within an open innovation ecosystem working on urban regeneration.

University of Deusto is interested in the platform, but is still not clearly defined how they can use it in their formal trainings. To be fully embedded in the current offer, the platform requires many efforts and resources, as well as a work of simplification of some of its functionalities. We cannot forget that the badges system is not implemented in the Spanish context, and therefore it will be necessary to link it with a system of traditional skills and abilities. On the other hand, there are portfolio platforms and sample projects that could be linked to the OD&M Platform.

## 3.5 Partnership and mobilities

In recent months, steps have been taken by the University of Deusto to develop a partnership relationship with UAL, exploring possibilities for collaboration. On the other hand, there is a common interest with Tecnalia to continue participating in EU projects and initiatives.



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# 4. UK

## 4.1 Research

UAL will be heavily involved in the research activities of the above mentioned T-Factor project, together with LAMA and Tecnalia. Therefore, the OD&M paradigm will be further investigated within the context of urban regeneration, and more in general of cities as open learning platforms.

## 4.2 Training

Green Lab is working with UAL to develop an industry 4.0 course acting as a pilot distributed curriculum delivery faculty.

Moreover, the OD&M training structure and teaching and lerning strategies will continue to be implemented in the MA Industrial Design Programme at Central Saint Martins. The challenge - based structure will inform the development of MA Design for Publics for 2020-2021 implementation. Findings will also inform the development of Design for Industry 4.0, a model of postgraduate provision that is specifically siturated in a context of Industry 4.0.

## 4.3 Learning Framework

Green Lab We would like to adopt the learning framework for teaching the principles of material research and innovative food system development. Taking the learnings from the OD&M project and applying these in the context of future learning programmes that Green Lab will develop for its space.

As already mentioned in the previous section, the learning framework will inform future course development aligned with UAL undergraduate and postgraduate credit frameworks.

## 4.4 Platform

Green Lab would be interested in using the platform on an open source basis as they have their own hosting infrastructure. It would be used for training and education purposes to deliver competencies that focus on food systems, material development and sustainable practises. They will access to the code base to independently make improvements and consequently share the new functionality with other users, following an open source approach.

UAL will use the OD&M platform for the delivery of future training with in the HEI context, where there is engagement and input from learners from outside HEI. Even if a need for improvement of the user experience have been highlighted during the project, the platform



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proved to be very useful to manage challenge based projects and activities in research contexts.

## 4.5 Partnership and mobilities

Green Lab would like to continue a partnership and collaboration with the Tongji team. Their approach to rural farming practises is one which resonates with a new Green Lab project that will focus on rural agriculture.

Green Lab will continue their relationship and partnership with UAL and Camberwell sites developing new experiences, workshops and collaborative projects to make use of the Material Lab and Library that has been developed as a consequence of the OD&M project.

UAL will look to develop design related exchange opportunites at Undergraduate level with UNIFI and Deusto. Research collaborations are ongoing with Technalia and Lama in the T-Factor H2020 project.



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# 5. POLAND

## 5.1 Research

The above mentioned INTRIDE - Soft, Digital and Green Skills for Smart Designers: Designers as Innovative TRIggers for SMEs in the manufacturing sector" project co-funded under Erasmus + Knowledge Alliances Programme will last until the end of 2022.The project is implemented locally in cooperation with Zamek Cieszyn (Cieszyn Castle) which is a municipal body aimed to harness the potential of designers to stimulate development in Poland, especially in Silesia region. Zamek Cieszyn is the regional design centre and works mainly to increase the competitiveness of businesses, support innovative businesses and public bodies, we promote new technologies, help in design implementation.

Moreover, WSB is bringing forward its research on IoT System for monitoring weather condition developed as a student project. The project, in cooperation with Infomet Sp z o.o. Katowice, can be considered a practical follow-up of the research in makers knowledges and solutions in Poland. In the same field, WSB is implementing the IoT System for smart Home – Project in cooperation with FriendlyNet Dąbrowa Górnicza.

Both projects are educational and research projects. As part of the projects, prototype installations will be built based on the requirements proposed by external companies. Knowledge management within projects will be based on the assumptions of the OD&M initiative. During the implementation of practical tasks necessary to achieve project results, students will use open hardware and software platforms, which is in line with the idea of OD&M.

Based on WP5 ex-post and ex-ante OD& M student survey and interviews with manufacturers some lacks of digital, soft and green competences in WSB alumni were pointed. WSB found a partner – Zamek Cieszyn which works with manufacturers and designers. Together WSB and Zamek will work on increasing this skills in WSB students.

The OD& M projects and Polisg Training Programme was based on activities with usage of IoT systems, as well as open hardware and software platforms for the construction of IT systems. Trainings developed as part of the OD&M project can be a preparatory part for students to perform practical tasks.

All these project are based on the experiences with students that WSB had in OD&M project. Most importantly, students were really involved in challenge-based learning, and this methodology will be further harnessed in the above mentioned INTRIDE project. WSB will also continue working with international and interdisciplinary team of students, given the fact that this proved being a very strong success factor in OD&M.



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The integration of the results of the OD&M project takes place by comparing the effects of student education using the PBL (Problem Based Learning) methodology and the teaching methods used on OD&M platforms

The Fablab of Lodz will implement a Polish Maker movement mapping, that can be considered as a follow up of the polish node research in OD&M. The research will be realized by Grzegorz Belica as the Manager of Fablab Małopolska in Kraków, to track the changes and direction of makermovement evolution in Poland.

Moreover, the cooperation of Lodz University of Technology with Textilab – a local initiative which grew up on the Fablab Lodz Foundation, is envisaged to go on in next years, as well as the Cooperation of Lodz University of Technology with Pokład Makerspace – a local initiative which grew up on the Fablab Lodz Foundation.

Finally, fablab Lodz will continue implementing IoT-TUL Project – continuation of IoT webinars and hackathons at Lodz University of Technology.

OD&M research findings shaped the Fablab Lodz approach, not only through the first maker movement mapping realized by Grzegorz Belica during OD&M project, but also including Makerspaces into the university education, and using IoT as innovative tool for hands-on activities for students, including hackatons in university training activities.

## 5.2 Training

Training in interpersonal communication in IT teams will apply to a group of students implementing research projects.

The Heuristic Methods course, which was developed and used as part of the OD&M project, was used during the training carried out on June 12, 2019 for a group of WSB University students who were preparing to participate in a business competition, which main aim was to develop a business idea along with a business plan, conducted training similarly to the OD&M project, it was aimed at increasing the creativity and ingenuity of participants, which is a kind of common element for both undertakings (OD&M project and competition). The Heuristic Methods course will be used in future to work with WSB students as a part of other courses. It may be run with usage of OD&M platform.

Fablab Lodz or Textilab will need to adapt to possible requests from any University to organize technology based events.

## 5.3 Learning Framework

The framework developed in the OD& project can be adopted as a complementary teaching method for students. The trainings created and the platform for communication with students will be particularly useful.



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Webinars and hackathons will be implemented in Project and Problem Based Learning approaches used at Lodz University of Technology (TUL). Cooperation with Fablab Lodz or other Makerspaces is already planned in future activities of TUL.

## 5.4 Platform

It is planned to use the platform to provide courses for students. Commercial use would require the creation of additional functionality allowing the platform to be integrated with tools commonly used in education, such as Moodle.

The platform, especially Badges, can be a great additional motivating element during e-learning courses, which are an integral part of some subjects implemented as part of study programs. Project experience has shown that acquiring Badges can be a great element of gamification for students and increase their activity in the course. The OD&M platform with prepared Badges can be a great base for this activity.

Lodz University of Technology might consider using OD&M platform to define challenges for students – in non-commercial projects, possibly involving third parties (companies, local government or NGOs).

## 5.5 Partnership and mobilities

WSB is also working with UNIFI on implementation of INTRIDE project. WSB Academy and Cieszyn Castle, thanks to funding from the ERASMUS + Knowledge Alliances for Higher Education Program, in the years 2019-2022 will implement an international project called "INTRIDE - Soft, Digital and Green Skills for Smart Designers: Designers as Innovative TRIggers for SMEs in the manufacturing sector," which was recognized by the Education, Audiovisual and Culture Executive Agency based in Brussels (EACEA).

WSB will also cooperate with Lodz University of Technology and Fab Lab Lodź staff on next students activities which will incorporate creative businesses/industries and makers movement.

WSB worked with Grzegorz Belica from Fab Lab Łódź on implementation of Project “V4& I4” funded from International Visegrad Fund. Grzegorz ran a workshop for WSB international students to introduce Makers movement as a alternative career path for WSB alumni.

Lodz University of Technology considers to include expert visits or consultancy of LAMA, GreenLab, Fablab Deusto or UAL in projects related cooperation between designers, technology and Makers. TUL will continue to work on creation Fablab space at the University, Fablab Lodz experts are open to support this work. Fablab Lodz experts will continue to cooperate with WSB in the same activities. OD&M experience will be directly used by Grzegorz Belica during his new job – Fablab Manager in Fablab Malopolska in Kraków. OD&M experience will be directly used by Grzegorz Granosik during his work at TUL as Professor.



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# 6. P2P FOUNDATION

## 6.1 Research

P2P Foundation is a broad community of communities and individuals dedicated to research and advocacy around alternative production and business models, like the ones developed and tested in OD&M. As such, many of the affiliated communities and institutions have been engaged in projects, which however do not formally involve the P2P Foundation legal entity per se.

P2P Foundation is working with public and private institutions to promote and consult on emerging economic models. As such, it will build on OD&M research findings by:

- Providing consultation on successful economic and social practices around OD&M;
- Raising awareness and promoting OD&M practices in grassroots communities; and
- Coordinating further documentation of OD&M examples from research and civil society.

## 6.2 Platform

P2P Foundation, from a non-commercial point of view, is interested in working with communities, networks and organisations that can utilise the OD&M platform to design peer-to-peer and participatory forms of governance and coordination. As P2P Foundation is committed to the principles of openness and sharing, all improvements, adaptations and modifications, and the accompanying knowledge, will be encouraged to be released as commons.



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# 7. TONGJI UNIVERSITY

## 7.1 Research

Tongji University is exploring opportunities to prototype sustainable development and social innovation as a factor for local impact and economic growth, in China, employing a sustainable design driven approach for social innovation to link economic policies to social ones in local areas in China - finding a possible new role for local makerspaces with Chinese characteristics.

Through research, Tongji has found that in China high-technology and business achievements are the main factors to value, measure and incentivise development. A similar approach have been applied on the makers community. The 'high-tech for business' makers' role area is saturated in China, while several social and growth Chinese challenges may benefit from a novel interpretation of the potential makers' role.

## 7.2 Partnership and mobilities

Facilitating students's exchanges between the ODM partners' Fablabs and the Tongji FabLab could foster a deeper mutual understanding of the different approaches and challenges, providing the students and the makerspaces with new glocal visions.

Thanks to OD&M, Tongji can now facilitate new connection between the ODM partners and Chinese makers, through the wechat group "CN makers movement" that they have created. On specific implementative activities, inviting the ODM partners' Fablabs to actively collaborate on projects and realizations.



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# 8. CONCLUSIONS

OD&M proved creating local value in for follow – up activities of each partner in five National nodes (Italy, Spain, Poland, UK, China), in all the components of the follow up: research, training, learning framework, platform, mobility and international partnertships.

The project has been a propeller for multiple projects and research activities which are currently underway, and that will continue in the next few years.

Tecnalia, LAMA and UAL are planning to reuse the Digital Platform in the context of the H2020 project T-Factor, to facilitate challenge-based learning in the context of the training, acceleration and enterprise incubation activities which will be delivered by T-Factor in 6 European cities. They are currently at work to define the specific business model of the platform and licencing aspects. However, it should be noted that many other potential uses for the platform are possible: Deusto, WSB, Fablab Lodz, UAL, all showed interest in using the platform to introduce a badging system in their respective trainings. The definition of the specific business model for the further development of the platform to adapt it to different settings and courses is still under definition, with Tecnalia leading the process as platform developer.

Training follow up activities will take place mainly (but not exclusively, considering the INTRIDE project that will create a bridge between Poland and Italy) at national level, in some cases with the bilateral collaboration of partners at each territorial node.

Finally, mobility agreements have been signed or are under investigation among University partners.

A graphic presentation of the value model that will sustain the follow up of the OD&M project is displayed hereunder, to present a synthesis of the follow up in the four nodes as well as their potential interrelation.



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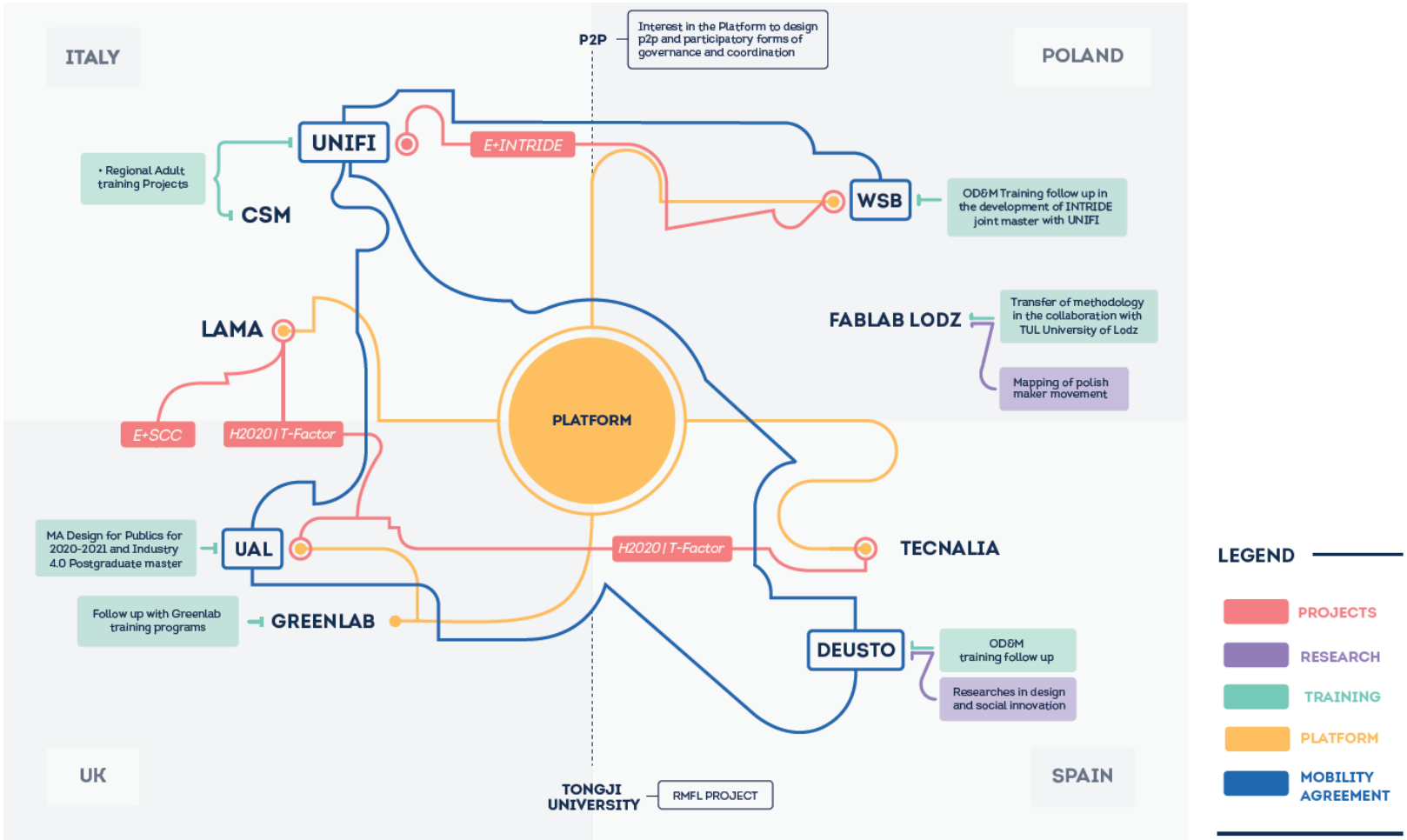
## 8.1 Figure: OD&M Value Model



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