

D6.10. RobotUnion Toolkit 2

WP	WP6
WP Leader	MADE
Responsible Author	MADE
Contributors	BLM, FBOX
Dissemination Level	PU
Nature	RE
Dissemination Level:	
PU	Public
PP	Restricted to other programme participants (Including the Commission Services)
RE	Restricted to a group specified by the consortium (Including the Commission Services)
C	Confidential, only for members of the consortium (Including the Commission Services)
O	
Nature	
PR	Prototype
RE	Report
SP	Specification
TO	Tool
OT	Other

Synopsis	This deliverable wants to offer practical information about how to use and take advantage of different resources and information generated by the RobotUnion initiative. It aims to be a toolkit for Regions and DIHs on how to adopt some of the results and solutions of RobotUnion as an Acceleration program.
List of Keywords	Sustainability, regions, acceleration program, robotics, Smart Specialization



Project funded by the Horizon 2020 Framework Programme of the European Union, Grant agreement N°: **No. 779967**

PROPRIETARY RIGHTS STATEMENT

This document contains information, which is proprietary to the RobotUnion Consortium. Neither this document nor the information contained herein shall be used, duplicated or communicated by any means to any third party, in whole or in parts, except with prior written consent of the RobotUnion Consortium.

TABLE OF CONTENTS

1.	Introduction	4
2.	About RobotUnion	5
2.1.	About the project	5
2.2	Robotics Regional mapping	5
2.3.	Regions' need for robotics	7
2.4.	European perspective for Robotics	9
3.	How to boost robotics in your regions	13
3.1	Bring Investors: Odense Kommune success story	13
3.2	Foster Collaboration through DIH: MADE	13
3.3	Connect your SMEs with funding: FUNDINGBOX	15
4.	RobotUnion Instrument	16
4.1	RobotUnion Instrument introduction	16
4.2	RobotUnion Instrument implementation	18
4.3	Future of the RobotUnion Instrument	21
5.	RobotUnion ambition toward regions	22
6.	Annex I: RU Instrument Model for Replicability	23

LIST OF ABBREVIATIONS AND DEFINITIONS

DoA	Description of Action
EC	European Commission
H2020	Horizon 2020
GA	Grant Agreement
OC	Open Call
KPI	Key Performance Indicator
FSTP	Financial Support to Third Parties
RTO	Research and Technological Organization

LIST OF FIGURES

Figure 1. European map of regions with robotics-related innovation priorities	7
Figure 2. European map of regions hosting DIHs with robotics scope	8
Figure 3. Core technologies addressed in the technical support projects from the 1 st RU batch.....	10
Figure 4. Core technologies addressed in the technical support projects from the 2 nd RU batch	10
Figure 5. System abilities targeted in the technical acceleration projects, 1 st batch	11
Figure 6. System abilities targeted in the technical acceleration projects, 2 nd batch	11
Figure 7. RODIN's areas of focus – market segments	13
Figure 8. Model of funding redistribution	16
Figure 9. Proposed model for RobotUnion Instrument	19
Figure 10. RobotUnion Acceleration Program Plan.....	24
Figure 11. RobotUnion map of stakeholders	26

LIST OF TABLES

Table 1: Technological and non-technological barriers	5
Table 2 Summary of feedback about the RU instrument from EU regions, 2020	21

1. Introduction

From the beginning of the project, one of the main goals of the RobotUnion Acceleration Program has been to ensure sustainability of the services and efforts provided by the project beyond the project's lifetime. This includes implementing this approach in the regions linked to the project by Research Organizations or any other intermediate entities and, finally, trying to extend it also to the European Regions focused on Robotics or some of the related sectors in their [Research and Innovation Strategies for Smart Specialisation \(RIS3\)](#).

By standardizing the RobotUnion approach, the Acceleration Program would be able to be commercialized and provided "as-a-service" to regions. In order to do so, it has been necessary to involve European regions and Corporates to encourage them to adopt the setup of the Acceleration Program methodology. For the sustainability goal, regions have been the main target audience while additional third parties could be private companies and other EU projects that are interested in implementing an acceleration model.

European regional innovation is very much fuelled by Smart Specialization Strategies and the RobotUnion Toolkit is aimed at regions that include advanced manufacturing – especially robotics – as part of their Smart Specialization Strategies (S3). The idea of Smart Specialization is based on partnerships between businesses, public entities, and knowledge institutions, who each possesses regional expertise useful for regional growth. While RTOs and knowledge institutions such as universities are key to figuring out the region's research needs, corporates located in the region are very familiar with current and emerging industrial challenges.

Regions are important actors to work with because they are experts on the specific regional business landscape, their needs and resources and potential barriers for regional uptake of advanced manufacturing tools such as robotics. The RobotUnion Acceleration Program could be a valuable tool for regions to increase awareness about technology and innovation happening regionally and supporting regional growth through an acceleration of promising Scaleups within robotics. Regions would also be able to use the Acceleration Program as an innovative instrument to foster entrepreneurial discovery that aligns with their S3 strategy.

With this RobotUnion Toolkit introduction, the Regions might consider taking the following actions:

- implementing the RobotUnion Acceleration Program scheme in their regional strategies/programmes/initiatives dedicated to SME's in order to develop innovative solutions in the robotics sector;

- make use of the experience of the RobotUnion project, described in the Toolkit, to improve and develop the regional Strategy of Smart Specialisation in the robotics sector;

RobotUnion Toolkit was created to serve as a guide on first steps towards creating of an acceleration program dedicated to robotics that would meet the regions' and SME's' needs in the field of new robotics trends development.

2. About RobotUnion

2.1. About the project

RobotUnion is the first pan-European acceleration programme fully focused on start-ups and SMEs in the robotics sector. From 2 Open Calls and more than 400 submitted applications, RobotUnion has selected 20 robotics scaleups¹ with the biggest potential who entered a 16-month acceleration program with support from technical, business, and fundraising mentors. On top of that, each company received a grant with up to 223.000 EUR.

Why program dedicated to Robotics SMEs was needed?

Robotics SMEs can encounter several systemic challenges or barriers when it comes to growing their company and developing their technology, where some barriers are technological, and others are non-technological. The RobotUnion Acceleration Program aimed to remove or minimize some of these barriers for participants through the provided services. Some of the key barriers are presented below:

Non-technological barriers	Technological barriers
Lacking the internal capacity and capability to grow (skills, absorption capability, and innovation)	SMEs' limited access to technology services and facilities in many regions
Deficiencies in the external environment, including the market in which the business operates (access to finance, exports, public procurement)	Lack of awareness of the availability of research organizations and their services which limits SMEs' access to knowledge
The psychological limits or vision of the owner in relation to growth (ambition and misconceptions and business support)	Complexity of integration becomes a key barrier for a lot of smaller manufacturers that do not necessarily have long-term competency and exposure to new robotics technologies
Lack of awareness regarding added value of robotics and automation in non-traditional markets	High cost of technology makes market entry difficult for SMEs

Table 1: Technological and non-technological barriers

2.2 Robotics Regional mapping

Europe starts from a strong position in robotics, having a 32% of current world markets. Industrial robotics has around one third of the world market, while in the smaller professional service robot market European manufacturers produce 63% of the non-military robots. The European position in the domestic and service robot market represents a market share of 14% and, due to its current size, this is also a much smaller area of economic activity in Europe than the other two areas.

¹ See the full list of accelerated companies: <https://robotunion.eu/startups-2/>

There are two main sources that gathers current situation of robotics and regions connected to it in Europe:

S3 Platform – 42 regions with innovation priorities related with robotics

Join Research Center: <https://s3platform.jrc.ec.europa.eu/>

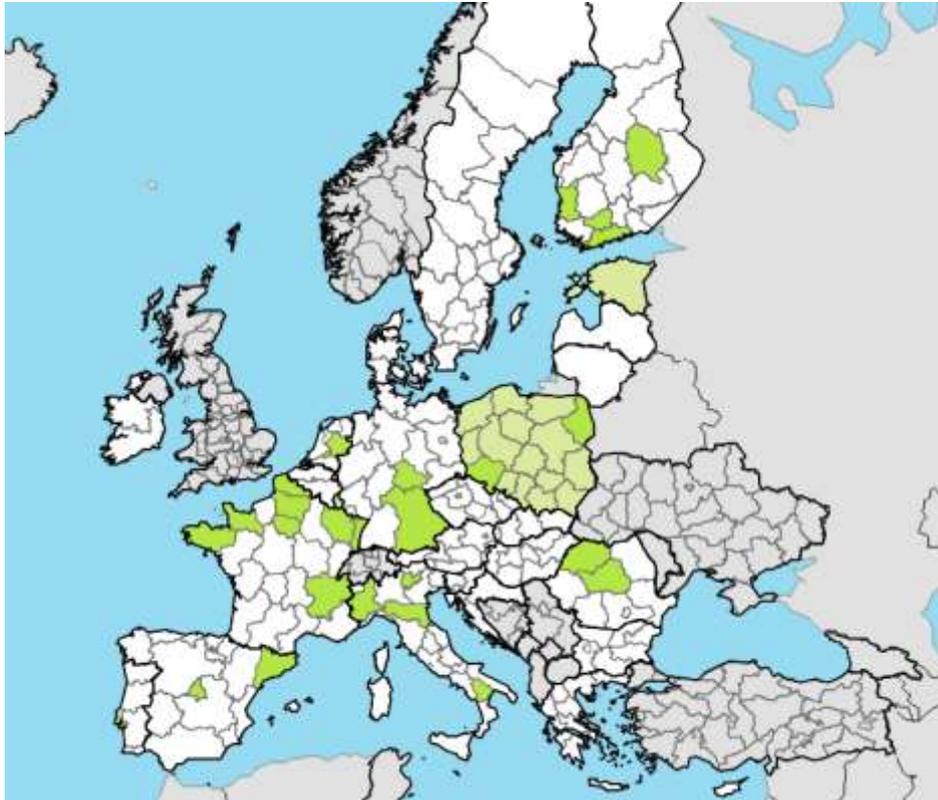


Figure 1. European map of regions with robotics-related innovation priorities (Dec 2020)

S3 Platform – 150 regions hosting DIHs with robotics scope:

Join Research Center: <https://s3platform.jrc.ec.europa.eu/digital-innovation-hubs-tool>



Figure 2. European map of regions hosting DIHs with robotics scope (Dec 2020)

Currently, the DIH ecosystem is expanding, with more companies connecting to the hubs and with the further growing partnerships and competences around the Europe. More robotics companies are emerging and connecting to the DIH especially under the topics of AI, lasers and robotic gripper manufacturers. The industry is also getting more and more familiar with the opportunities that robotics can offer, and more companies are starting to express interest in robotics solutions. The COVID-19 situation has also contributed to this popularity and this is an opportunity to further grow the robotics sector.

During the last year of the RobotUnion project, consortium has contacted 10 European regions for the interviews in order to investigate their needs in field of Robotics and to consult and adapt the future role of regions in the RobotUnion Instrument.

2.3. Regions' need for robotics

Boosting the development of new technologies can be very rewarding for regions by helping local businesses grow and involving local stakeholders like RTOs and educational institutions, the region adds value to itself as a place for investment.

Most of the developing regions struggle to find out proper innovation instruments that could enhance the so-called entrepreneurial discovery process behind the Smart Specialisation concept in Robotics. RobotUnion consortium believes that the processes and methodologies used within the project at pan-European level can generate a spill-over effect for European regions too, leveraging from the 'European Structural and Investment Funds'.

Why should regions invest in Robotics?

- Essential for productivity and competitiveness

- Reindustrialisation, ageing workforce
- Essential to address societal challenges
- Health, ageing population, environment, security
- Growth potential
- Service markets, double-digit growth
- Autonomous systems transforming ICT
- In addition to ICT, automotive and other sectors
- Advanced robotics is one of the key drivers of digital innovation.²

Robotics has a huge potential to contribute to growth, job creation and to solve major societal challenges.³

- advanced robotics technologies with increased flexibility can play a key role in making local **manufacturing** and **civil infrastructure** solutions competitive
- contributing to a greener economy, with the potential to re-shoring some industries (e.g. food supply and **agri-food sector**)
- **health** and monitoring domains also show great potential at the regional level since these cannot be delocalized.

These four verticals were prioritized in the RobotUnion program.

According to the European Commission's Digital Transformation Scoreboard 2018⁴ (part of the Digital Transformation Monitor), implementing new technologies, specifically robotics and automated machinery, can work as an aid for businesses looking to become more competitive in their field, as survey results show that adopting robotics helps businesses get new clients (50 % of respondents) and enter new markets (44 % of respondents) which would not have been feasible without the implementation of the new technology. Among the other important business functions that were reported to be affected by the adoption of robotic and automated machinery are quality assurance, CRM and technology prototyping. The Scoreboard is a monitoring tool for the transformation of existing industry and enterprises covering key technologies, different national policy initiatives and European country profiles, among other topics.

Novel and state-of-the-art robotic solutions require multi-disciplinary competences, which are not always available at the regional or national level. This can create an innovation bottleneck, especially in the emerging economies limiting the full potential and increasing the risk of unnecessary overlap of expertise and specialized equipment and high-class laboratories.

² Source: <https://ec.europa.eu/digital-single-market/en/robotics>

³ Source:

<https://s3platform.jrc.ec.europa.eu/documents/20182/137756/Robotics+and+KETS+special.pdf>

⁴ Digital Transformation Scoreboard 2018 (pp. 44-45): https://ec.europa.eu/growth/tools-databases/dem/monitor/sites/default/files/Digital%20Transformation%20Scoreboard%202018_0.pdf

2.4. European perspective for Robotics

Public Private Partnership for Robotics: SPARC



“SPARC is the partnership for robotics in Europe to maintain and extend Europe’s leadership in robotics. SPARC aims to make available European robots in factories, in the air, on land, under water, for agriculture, health, rescue services, and in many other applications in Europe which have an economic and societal impact.⁵”

RobotUnion has approached the EURobotics in 2020 to discuss the future RobotUnion Instrument implementation. From a general level, EU-Robotics has confirmed that there is an interest to be associated with such a robotic accelerator. It was underlined that proposed model, would have to be marketed towards a very large range of regions. The multiplicity and synchronization of the existing funding in regions is something difficult to manage and it was suggested to try to narrow down the focus to about 30 regions with a specific interest in robotics.

Robotics 2020 Multi-Annual Roadmap

It is a document prepared by SPARC which is a companion to the Strategic Research Agenda (SRA) providing a greater level of technical and market detail and it became a reference to referenced within the Horizon 2020 ICT-24 work programme. Under which the RobotUnion was funded.

The goals of the Roadmap are:

- To provide a common framework of description for robotics within Europe
- To provide a clear set of goals for market-relevant technical development
- To illustrate the relevance of these goals with respect to future market opportunities.

The technical support in the RobotUnion Acceleration Program and technical challenges were based on the core technology areas and system abilities that were chosen from the reference document “Robotics 2020 Multi-Annual Roadmap”⁶ at the beginning of the program.

Companies selected to the RobotUnion Support program had to address their research tasks planned to be executed during the program to at least one Core Technology and System Ability.

Core Technologies

Figure 1 and 2 present the division among the core technologies addressed by the 10 Scaleups selected to Stage 2 (Product Acceleration phase) of the 1st and 2nd batch, respectively, of the RobotUnion program. As shown in the figures, the most popular core technologies among the Scaleups participating in the RobotUnion Acceleration Program are **Systems Development**

⁵ Source: <https://www.eu-robotics.net/sparc/about/index.html>

⁶ https://www.eu-robotics.net/cms/upload/downloads/ppp-documents/Multi-Annual_Roadmap2020_ICT-24_Rev_B_full.pdf

across both batches with **Human-Robot Interaction** taking 2nd place in the 1st batch and **Artificial Intelligence** in the 2nd batch,

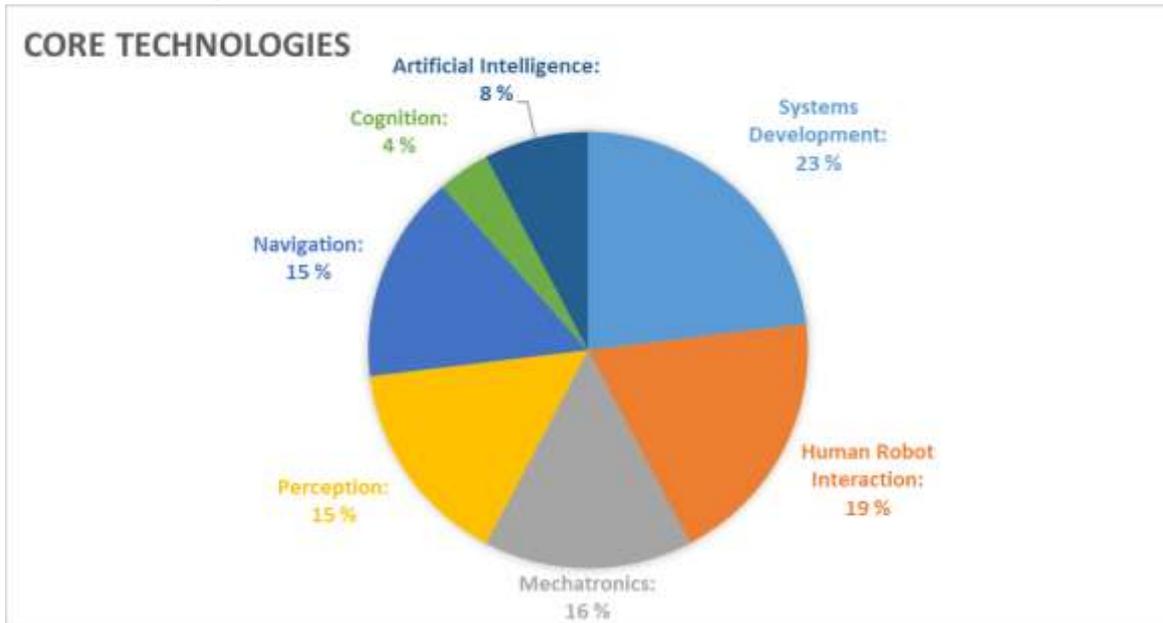


Figure 3. Core technologies addressed in the technical support projects from the 1st RU batch

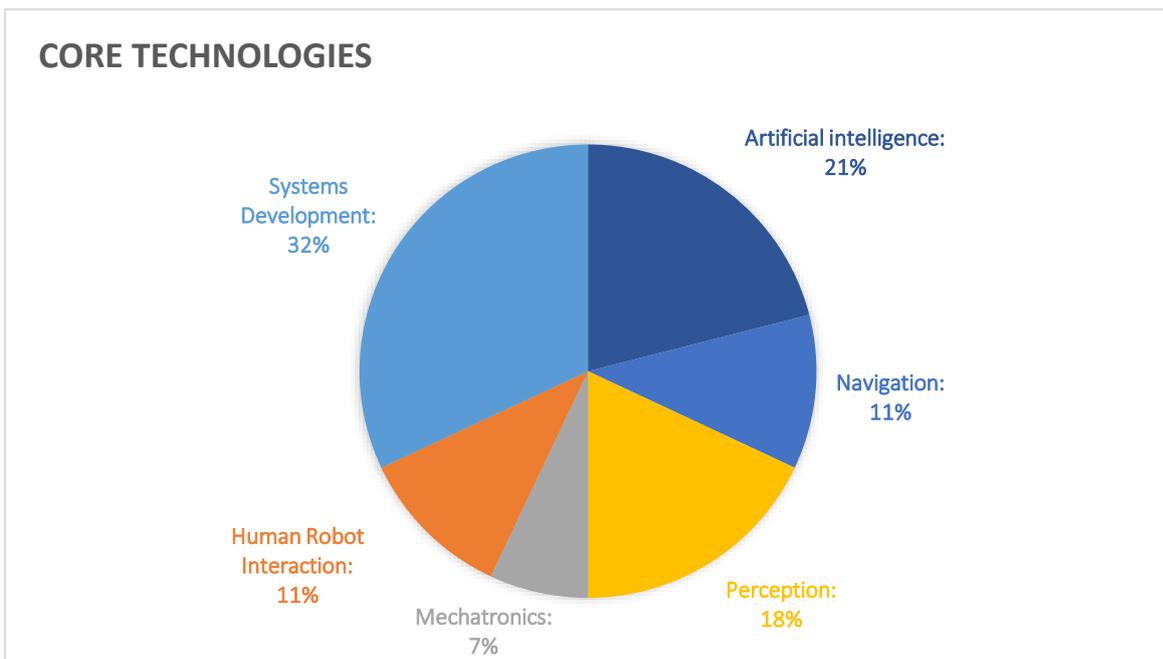


Figure 4. Core technologies addressed in the technical support projects from the 2nd RU batch

System abilities show the state of art of each technical challenge performed under the RobotUnion Acceleration Program. They were matched with the core technologies in order to show the main focus of technological development that Scaleups had to accomplish.

Figure 3 and 4 show the division of robotics abilities developed by RobotUnion Scaleups during the Technical mentoring phase of the 1st and 2nd batch, respectively. As the figures show, the

main focus of technological development were **motion ability and perception ability** for the 1st batch and **perception ability and interaction ability** for the 2nd batch.

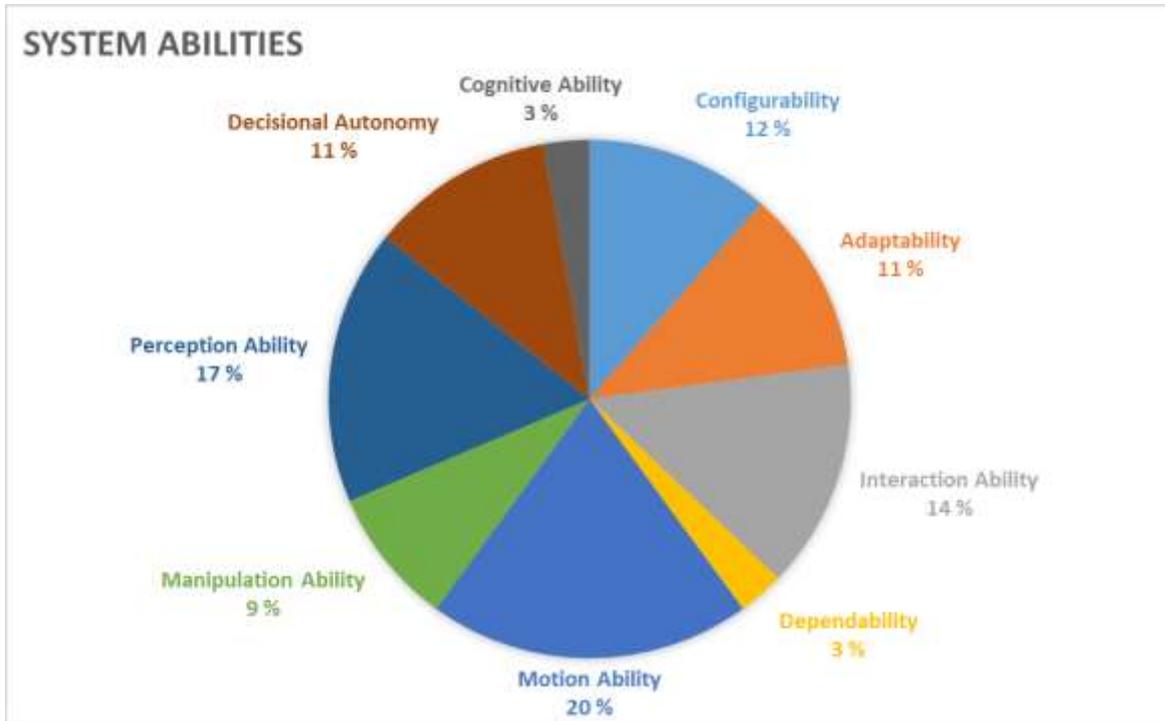


Figure 5. System abilities targeted in the technical acceleration projects, 1st batch

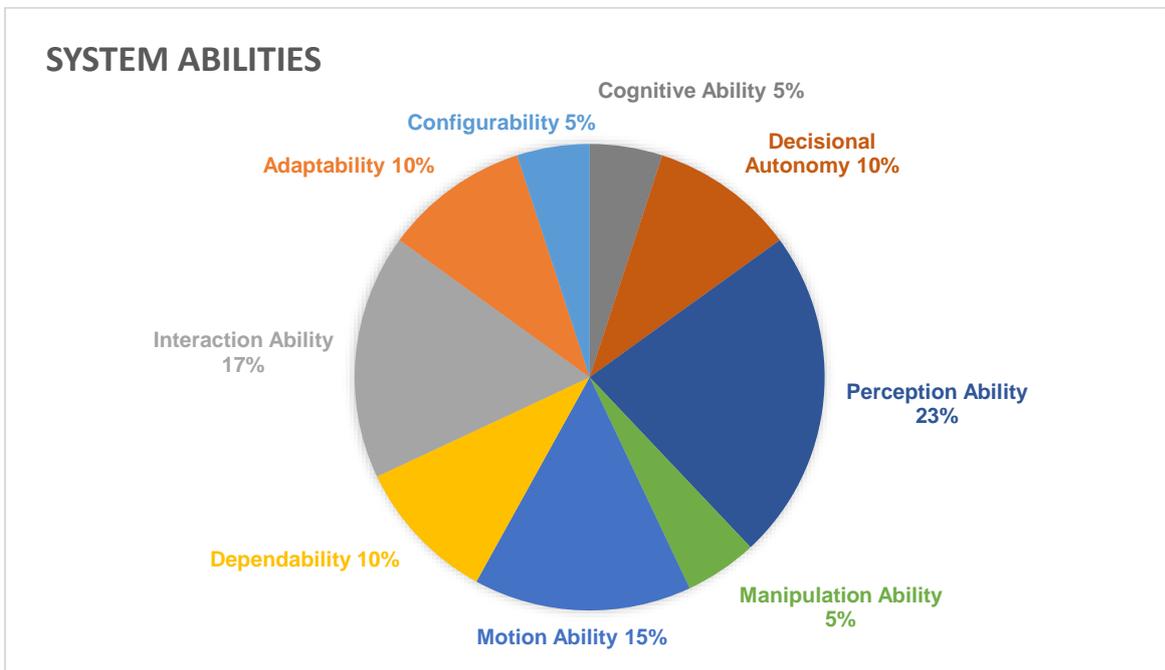


Figure 6. System abilities targeted in the technical acceleration projects, 2nd batch

RODIN CSA: towards DIHs

The RODIN project is a pan-European network of networks aiming to bring together European Digital Innovation Hubs (DIHs) in robotics. RODIN helps robotics DIH networks to cooperate and strengthen the competitiveness of the European robotics market. RODIN is funded under the EU Horizon 2020 programme.

RODIN coordinates activities that are considered important for market segments with a potential of robotization: Healthcare, Agile Production, Infrastructure Inspection and Maintenance, and Agri-food.

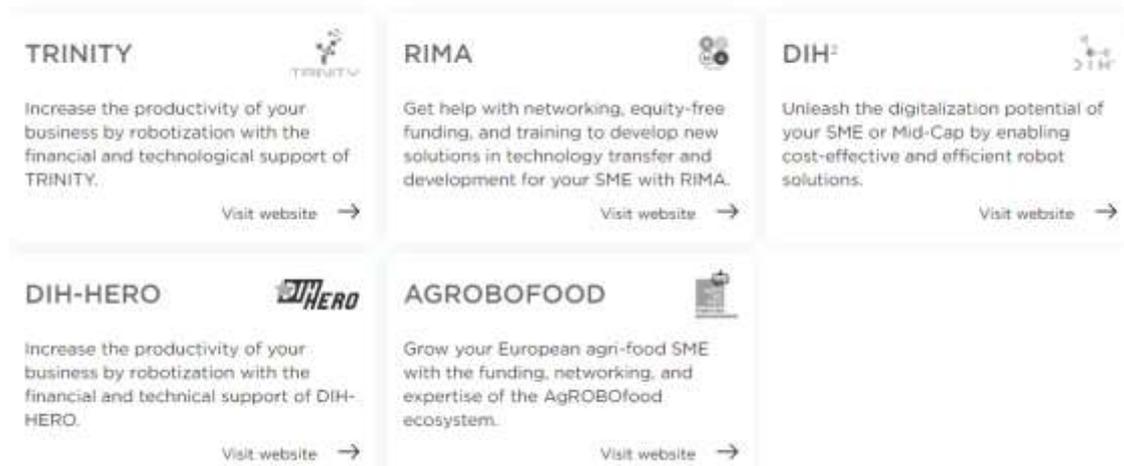


Figure 7. RODIN's areas of focus – market segments

The European Commission granted at least one project in each area to build a network of specialised DIHs. DIH-HERO focuses on healthcare robotics, DIH² and TRINITY work in agile production. RIMA concentrates on inspection and maintenance of infrastructure, while AgROBOfood concentrates on robotics in the agri-food sector. The overall aim of RODIN is to coordinate activities among these projects and support them by increasing the efficiency and effectiveness of their activities.

The project also coordinates communication and outreach activities, promotes the open calls that are issued by the mentioned projects to support SMEs in their digital transformation. This support is done, for instance, via demonstrators and platforms development, technology transfer experiments, or other services. For more information on RODIN and the current and future calls of the Innovation Actions, visit rodin-robotics.eu

RobotUnion partners are involved in most of these projects⁷ and that is why we believe that experience and knowledge gained during the RobotUnion project will be exploited further.

⁷ DIH²: VTT, FBOX, BLM, ISDI, PIAP, TU DELFT,
RIMA: FBOX, VTT; DTI, PIAP
DIHHERO: Tecnalía, DTI
AGROBOFOOD: TU Delft, DTI

3. How to boost robotics in your regions

3.1 Bring Investors: Odense Kommune success story

A region involved in the RobotUnion project that has really embraced and prioritized robotics as an investment and development subject locally is Odense Kommune through the **creation of the robotics cluster Odense Robotics**. Odense Robotics is dedicated to accelerating robotics SME's and boost their innovative capabilities by connecting local businesses, people, and research organizations and educational institutions and work closely with policymakers in order to create the best conditions for robotics and automation companies and create regional growth and jobs.

In 2015, Odense Robotics launched its StartUp Hub, which is an **incubator for robotics start-ups**. Here start-ups are provided with office and prototype testing facilities as well as coaching services free-of-charge so start-ups can focus on technology and business development and bringing their robotics concept to life. Since the launch 20 start-ups have been part of the StartUp Hub.

In the end of 2019, the cluster itself had 133 companies involved and a key contribution of this network is collaboration opportunities. According to the Odense Robotics Insights Report 2020⁸, 83 % of the companies are collaborating with another company within the cluster. Additionally, up to 85 % of the companies have collaboration activities with research and education institutions in Denmark.

Out of the 133 active companies in the city of Odense, three have been selected to join the RobotUnion program. The companies are: Proxima Centauri, Smooth Robotics, and Tendo. The three winners have helped create jobs in Odense and attract foreign investment.

According to Odense Robotics, there are three key activities to successfully develop and implement a regional specialization strategy:

- Identify local capabilities
- Establish a strong communication strategy and keep direct contact with local companies
- Commit to long-term engagement and ambitions.

3.2 Foster Collaboration through DIH: MADE

The RU partner MADE – Manufacturing Academy of Denmark, is a national non-profit association aiming to make Denmark one of the world's leading manufacturing nations based on a strong ecosystem for manufacturing in Denmark. **MADE works as a cluster and is recognized as a DIH** with the core members being five universities, three RTOs, seven

⁸ https://www.odenserobotics.dk/wp-content/uploads/2020/01/Odense-Robotics-Insight-Report-2020_web.pdf

educational institutions and +200 companies. Five out of six member companies are SMEs. MADE strives to support and strengthen the manufacturing industry in Denmark through

- 1) Research, i.e. the implementation of state-of-the-art manufacturing technology via applied industrial research projects
- 2) Innovation including a range of various innovative activities and demonstration projects and educational initiatives, such as MADE Learning Factory and skills development.

MADE has +6 years of experience in leading and coordinating the development and uptake of advanced digital technologies by Danish industry, with special focus on development of I4.0 solutions adopted for SMEs & mid-caps. This also includes a wider scope of automation technologies and in addition a sustainability perspective and use of Learning Factories. Robotics is clearly a key focus area included in a large number of the research and innovation initiatives and is an integrated part of most automation projects.

Seen from the perspective of a Danish SME, this is what MADE as a DIH can offer:

- Information about EU project openings, e.g. cascade funding through RobotUnion
- Participation in demonstration and cluster projects led by MADE RTOs
- A role in a MADE research project
- Invitations to join Open Labs, networking groups, seminars, company visits and/or training
- Matchmaking between Danish SMEs and competence owners in Danish or European companies and institutions

According to MADE, there are three key points to successfully develop and implement a regional specialization strategy:

- understanding the challenge,
- linking entities and people,
- supporting collaboration and pushing for impact.

The DIHs are focused on providing value to the ecosystem, as well as offering quality services with the available resources. The focus is therefore not on expansion but rather on a controlled growth, offering quality services.

Looking at MADE as a DIH and the City of Odense as a Regional player what they offer are:

- Inspiration and encouragement to reach for success,
- Connections in the 'Competence Landscape' and the formal + informal dialogues needed to connect to valuable partners and build mutual beneficial collaborations,
- A range of services, i.e. proven project set-ups and financial aid that helps the SMEs to start or continue their business journey ,
- To be part of a network of like-minded and may be role models too.

The figures (large number of successful robotic start-ups/SMEs and project participation rate) indicate that such environment and offerings coming from DIHs and regional supporting players foster a good basis for the intended development.

3.3 Connect your SMEs with funding: FUNDINGBOX

Despite of the fact that RobotUnion is reaching its end, there are still open calls and opportunities to match knowledge with SMEs' demands. Those can be found through Cascade Funding opportunities which [FBOX](#) is leading in many projects.

Cascade funding is a funding scheme proposed by the European Commission in which consortia are in charge of distributing money to SMEs in different prioritized topics.

The general scheme is that European Commission delivers money to a consortium and the consortium is responsible to redistribute the financing among selected SMEs. This means that the consortium is liable towards the European Commission for the start-ups to which it provides financial support. This is the scheme in which RobotUnion project works.

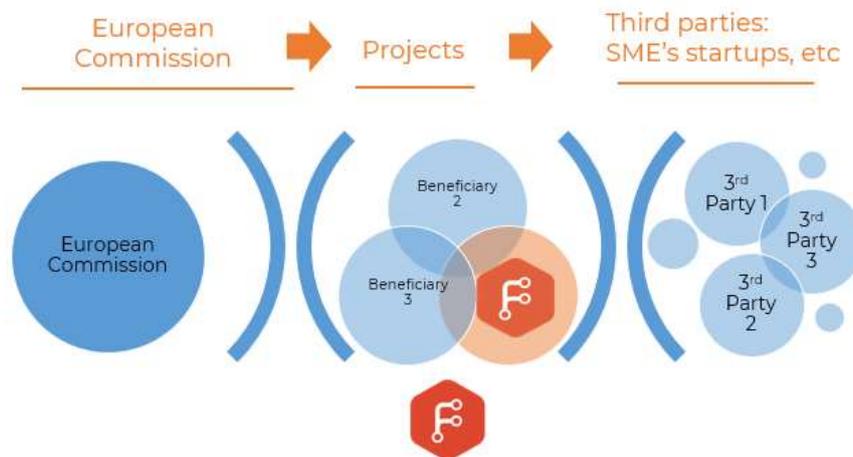


Figure 8. Model of cascade funding redistribution

This funding method aims at simplifying the administrative procedures, creating a light, SME-friendly application scheme, since each consortium has specific goals, and the applicants are able to focus on those which are closer to their needs.

These processes are structured in what is known as Open Calls whose goals are:

- Select tech Start-ups, or Scaleups for acceleration or incubation;
- Support pilots, demonstrations or experiments undertaken by Start-ups or SMEs on specific innovative technology or frameworks;
- Support extensions of the existing experimentation support capacity of the project adding new platforms or partners to extend its scope or to address specific tasks.

Each consortium can decide how to organize their open calls, and this means some of them can offer direct funding and vouchers for support services or free access and support to use their testing facilities. In any case, this support usually ranges between 50.000 and 250.000 €

In short, the basic information of this funding opportunity can be summarized as follows:

- Start-up/SME participation: As FSTP beneficiary.
- How to apply: Directly through each of the projects' website
- More info: [Funding and tender opportunities portal](#) AND [FundingBox.com](#).

4. RobotUnion Instrument

4.1 RobotUnion Instrument introduction

The driving ambition of the RobotUnion Consortium was to become a pan-European Accelerator to boost the growth of Robotics makers in Europe while disseminating the technologies in various industries.

The RobotUnion project resulted in one innovative model in which a consortium of technology, business, and investment partners have successfully demonstrated how to cooperate to support Robotics Scaleups.

The future acceleration model would include the lessons learnt during 3 years of accelerating robotics companies under Horizon2020 program. It has followed 2 main tracks that worked in parallel:

- Technical Support track including the support from RTOs and the Proof of Concept demonstration in partnership with a Corporate.
- Business coaching and fundraising support.

The objective of the future sustainability model is to lead the future acceleration with the team of consortium partners who worked together in the RobotUnion program.

The principle of future instrument is that for each Euro invested in the RobotUnion Instrument by a Region or a Corporate, one Euro will be invested by the RobotUnion Instrument in the future of European robotics companies.

Who will be involved?

- **Regions:**

Regions are currently challenged by SMEs' needs for support on a lot of different topics and technologies. Also, many regions lack awareness of existing solutions and tools that they can promote to the SMEs in their regions. Globally, robotic solutions are in high demand because of the increased focus on automation, and statistics show that in Europe the number of industrial robotic installations rose by 14 % from 2017 to 2018⁹, and keeping this in mind, European regions have a lot to gain from prioritizing boosting robotics SMEs and their technology and business development. Awareness of solutions is complemented by awareness of European project opportunities. By increasing regions' awareness of European projects relevant to their S3 strategy and have regions adopt European project solutions such

⁹ Source: Executive Summary World Robotics 2019 Industrial Robots

as the RobotUnion Acceleration Program, regions can channel their efforts into already existing efforts that also provide support, experience, and knowledge on execution.

The value for the regions is to support their local ecosystem with the creation of new companies with high potential while giving them access to expertise and business opportunities at the European level. The regions can outsource their acceleration program to the RobotUnion Instrument. The selection process also brings value with an analysis of the company's status from experts in the robotic domain and it influences on the Robotics Smart Specialization Strategy. The key value proposition for the Acceleration Program is that regions will get an acceleration program model that can be easily replicated in their specific regional set-ups taking into account their needs and requirements. The Acceleration Program will give regions the opportunity to anchor innovative technical solutions regionally and strengthen the local eco-system of Scaleups within robotics.

In this new instrument, the robotic companies apply to the RobotUnion program under the condition that they have a local authority as a sponsor. The funding provided from the region is a direct support to the company and will be doubled from the European investment perspective, as Regional support will convert into the European-level support. That way the model generates a leverage effect from the regional fund.

By getting access to the RobotUnion Acceleration Program framework and resources, regions obtain a more or less plug-and-play type of solution meaning that actions can be taken on day one of implementation. Access to the Acceleration Program will contribute to the development and boost of the robotics sector regionally.

- **Corporates:**

Corporates will become sponsors of the program with the commitment of placing orders to the supported companies. The corporates sponsoring the program, would contribute to the RobotUnion definition of the investment strategy. The fund would then be driven by the market need of European companies in need of robotic solutions.

The corporates expressing interest in the accelerator will contribute to the selection of the companies, they will drive the technical directions of the accelerator, providing insights on the market need and trends. In this way, the companies selected in the accelerator will stimulate their ecosystem and can initiate demonstrations and proof of concepts.

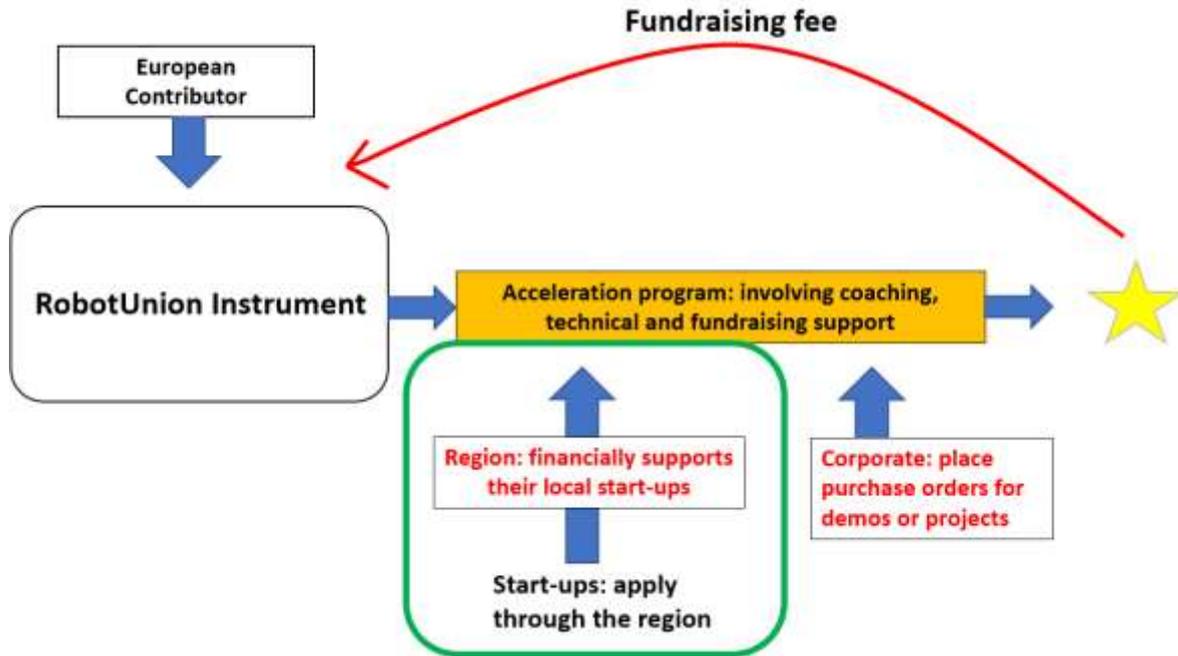


Figure 9. Proposed model for RobotUnion Instrument

4.2 RobotUnion Instrument implementation

Scoping regions' interests and needs

Since the publication of the first version of this Toolkit in December 2019, RobotUnion consortium partners have been scoping the interest of regions and other public entities in taking up the Acceleration Program either as a whole or partially. These scoping conversations included presenting the RobotUnion Instrument, Acceleration Program methodology and good practices, to receive regions' feedback before the project ends.

RobotUnion partners performed individual interviews with 6 regions connected to ecosystem in order to get their feedback about the future RobotUnion Instrument:

- DigitalNorway (Norway)
- AFIL (Lombardia, Italy)
- Region Adrvest (Romania)
- EMC2 cluster, (Pays de la Loire, France)
- Copenhagen Regional Office (Denmark)
- BIC Gipuzkoa/BIC Biscay (Spain)



During the interviews regional entities were asked the following questions in order to identify if the RobotUnion Instrument could raise their interest:

- Is robotics and promotion of this area a priority in the region's (smart specialization) strategy?
- Does the region have any (structural) barriers for implementing the Acceleration Program, and if so, what is required for the Acceleration Program to accommodate these barriers?
- Does the region have a financial model that has a level of flexibility that enables them to implement the RobotUnion Acceleration Program format?
- Can the Acceleration Program be connected to existing funding or acceleration initiatives already in place regionally?
- Does the region have RTOs in the region that would be interested in being involved as technical partners or other roles in the Acceleration Program? And if not, from which alternative sources could the needed RTO skills could be secured?

Main conclusions made about the proposed RU Instrument after the interviews are presented below and summarized in Table 2:

- interest depends on the accessibility of the technology in the region, those that do not have RTOs specialized in Robotics (**Digital Norway** and **Adrvest**) are very interested in the RU Instrument. Regions with strong robotics background could see the potential conflict of the services provided by RU Instrument with those provided by their local RTOs
- Many regions run their own programs and it is difficult for them to make a commitment to RU instrument. In some cases, it even goes against the region's competition rules which needs to be followed on public money. Competition in general is a concern among a few of the regional entities (**AFIL** and **EMC2 cluster**), since the RU instrument could offer similar services to existing regional entities (and their programs). This makes it difficult to commit to adopt the RobotUnion instrument.
- Management Role of regions in the Instrument should be clearly defined, so they would see the control on the funding invested. It is crucial for regions to know what influence they would have in the Instrument decisions.
- It is important for Regions to have influence on selection criteria of their regional companies that would be involved in RU Instrument.
- Each region showed big interest to promote their Technology Providers in RobotUnion Marketplace and through voucher services. There is a big need for connections at multinational level in order to: boost visibility of suppliers, contact end-users, support suppliers to adapt to global state of the art, and to connect develop and test in EU environments to tackle global markets.
- In order to fully implement the RU Instrument it is important to work with all Ecosystem interrelated between regions + intermediary organisations + National funding - all 3 layers should be addressed, not only the regional one.
- **BIC Gipuzkoa/Biscay's** showed an interest based on the fact that robotics is a key industrial vector for the Basque Country.

- The region already has a well-established framework of financing entrepreneurship in different stages, meaning that instruments such as the RobotUnion would not be a completely new way to involve in Scale-up acceleration processes and might potentially competing with existing services.
- The instrument would need to have a form that would fit into existing financing elements as well as an official establishment in the Basque Country.
- BIC is involved in very early-stage investments for start-up creation and would therefore not be able to add finance to already selected companies.
- BIC is willing to connect potential investment/acceleration subjects (like RobotUnion beneficiaries) to investors in the region.

- **Copenhagen Regional Office's** (CRO) feedback included initial interest in continuing talks of adopting the RobotUnion instrument. The three-part solution of connecting, supporting and accelerating Scaleups was seen by the regional entity as an interesting model to pursue in the future.
- Doubts were raised regarding the source of funding and whether non-profit and charitable foundations could replace private funding bodies.
- CRO could take on a role of helping robotics companies involved in RobotUnion apply for existing grant in the region: Innobooster grant (Innovation Fund Denmark) that aims to support companies to develop a new product or service ready for the market or to improve a process that increases the company's competitiveness and creates growth.
- Simplicity is key for regions to be able to adopt the Acceleration Program. By lowering the level of complexity, regions will be more likely to see themselves in and their role(s) in the program.
- Regions prefer a smaller setup of the program, meaning fewer "consortium partners"/involved entities and also smaller funds. Therefore, a smaller scale of the project would enhance regions to engage in RobotUnion
- Since regions are short on both funds and time, it might be easier for them to contribute through dialogue and coordination with an existing partners (for Ex. CRO through MADE).

Table 2 below presents a summary of the interviews made with regions and their interest in RU Instrument:

	DigitalNorway (NO)	AFIL (IT)	Adrvest (RO)	Pays de la Loire (FR)	Copenhagen (DK)	BIC Gipuzkoa (ES)
Level of interest in Robotics industry	5	3	4	4	4	5
Regional funding and Innovation programs in the region	InnoFin	Structural Funds	Structural Funds	Investment bank backing innovative companies	Innobooster	Regional Funds

Interest in the RU Instrument	5	2	4	3	4	3
Main conclusions	support SME, strengthen Robotics in their region	Avoid creating competition to regional RTO	focus on automatization and digitalization in the region, big interest to be connected to RU resources	RU might be in competition to regional initiatives	Initial interest. Well defined model would allow to define further interest.	Regional role as connector. Not interested to contribute financially

Table 2 Summary of feedback about the RU instrument from EU regions, 2020

4.3 Future of the RobotUnion Instrument

Since the previous version of the RobotUnion Toolkit, submitted in November 2019, the RobotUnion consortium established a Sustainability Working Group (SWG) that had the specific task of investigating ways to ensure sustainability of the project beyond its lifetime in the original setup. The working group was primarily organized by BLUMORPHO. Actions in the SWG have included but are not limited to

- developing potential sustainability models for implementation and identifying main actors/roles
- formulating proposals for ownership structure of the acceleration program
- benchmarking sustainability efforts made in other Horizon2020 projects
- developing potential funding schemes
- researching potential collaborating organizations/corporate investors and developing a pitch for the sustainability model
- interacting with main stakeholders such as regions, industry representatives, European funding entities

Through monthly SWG meetings in combination with bilateral talks and correspondences, the SWG could present a vision for the sustainability model either being anchored in a fund or in an instrument. The main difference between these two setups is how to secure funding for the operation of the acceleration program and for both setups this has proven challenging. Another main challenge has been finding a suitable host/operator for the acceleration program. A suitable host would live up to at least a few requirements including being placed within the EU and being an organization with a strong focus on robotics to ensure a single focal point.

While extensive investigations and considerations have been made in order to implement a sustainability model, it has not been possible to anchor this model ¹⁰in an organization and thereby ensure sustainability of the RobotUnion Acceleration Program. The sustainability of the acceleration program will rely on individual regions implementing its parts (See Annex I) and the RobotUnion partners exploiting the results individually.¹¹

¹⁰ For a more in-depth analysis of the observed barriers for anchoring of the model, please see deliverable 6.8. Continuity Fund Private Placement Memorandum 2 (Confidential)

¹¹ For more details see Deliverable D.6.7 PEDR 3 (Confidential)

5. RobotUnion ambition toward regions

RobotUnion has been conceived to be a sustainable pan-European Robotics Accelerator beyond the project by providing a sustainable path for Scaleups (Path based on Private Funding support and Corporates agreements exposure to scaling hand-in-hand with the corporations). And a continuity strategy for the Acceleration Program through the standardization of “RobotUnion Accelerator”, as an innovative instrument for European Regions to foster the entrepreneurial discovery in the framework of their Smart Specialization Strategies [RIS3].

How regions can boost robotics locally

If you want to boost the robotics sector regionally, RobotUnion consortium partners suggest the following actions:

- Bring investors to the region, e.g. through structural funds and/or incubators
- Get to know SMEs in your region and connect them to entities in the local ecosystem
- Become a Digital Innovation Hub¹², and become a one-stop shop that helps companies become more competitive with regard to their business/production processes, products or services using robotics and related technologies.
- Act as a funding liaison for local SMEs and connect and promote cascade funding opportunities to them.

How regions can collaborate with RobotUnion

- Adopt the RobotUnion Acceleration Program methodology. First steps were introduced in the Annex I of this documents. For more details and further consultations please contact RobotUnion at info@robotunion.eu
- make use of the experience of the RobotUnion Acceleration Program, described in the **RobotUnion Toolkit**, as an innovation instrument both for Smart Specialisation Strategies and Traditional Accelerators.
- participate in the joint events offering expertise or/and encouraging Scaleups to participate in the European programs under RODIN initiative where RobotUnion is represented through the project partners.
- Invite Technical Providers and SMEs from your regions to register in [Robotics Marketplace](#) and join [RU Community](#)
- Help us to promote and further support [robotic champions from RobotUnion program](#)

RobotUnion Instrument and the lessons learned about the deployment of a smart regional specialization strategy were officially shared by the consortium partners during the Week of Regions and Cities organized by EC on 13th October 2020t through the workshop “Regional smart specialization: Robotics”. The summary of the event is included [under this link](#). The video from the session is available [here](#).

¹² Read more here: <https://ec.europa.eu/digital-single-market/en/digital-innovation-hubs>

6. Annex I: RU Instrument Model for Replicability

Phases and milestones

The RobotUnion Acceleration Program (see Figure 10) was organized into four stages that were called the Feasibility Phase (2 months), the Research & Product Development Phase (12 months), the Live Due Diligence Phase (6 months), and the Pre-Seed Round Phase (3 months). The Acceleration Program is preceded by a selection process where the final 20 Scaleups per Open Call are selected during the Jury Day to enter the Acceleration Program.

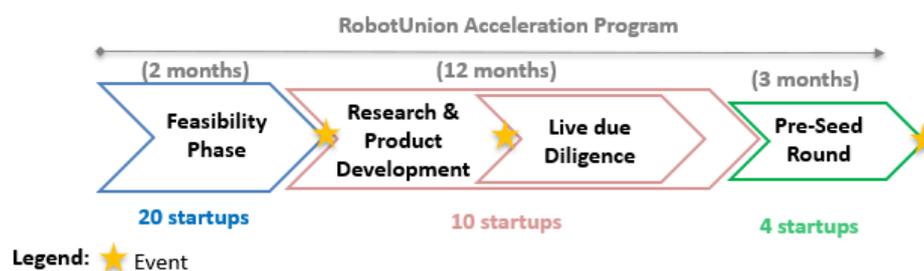


Figure 10. RobotUnion Acceleration Program Plan

Two important conclusions made during the program execution which would be simplified and implemented in the RobotUnion Instrument:

- Remove the Feasibility Phase (or try to execute it during the selection process by including additional information in application form).
- Pre-Seed round which includes fundraising support and go to market actions should last longer in order to reach desired goals. A company must initiate its fundraising roadshow about 6 months before the signature of the expected deal. Technically, the objective of the coaching in RobotUnion is to train the companies to be ready for fundraising. It means that ideally, this training should take place about 9 months before the deal, if we consider 3 months preparation.

The RobotUnion Acceleration Program is articulated as a completely customised service, where high-level researchers and top business professionals are specifically selected to address Scaleups' needs and guide Scaleups through the whole program. Once selected, the Scaleups will go through an exhaustive sequential filtering process. Only the four or five most outstanding projects will reach the final stage.

In order to replicate the RobotUnion Acceleration Program successfully, regions have some important considerations, decisions and actions to be made. The phases of the model replication process are reviewed chronologically as a guide for execution of the Acceleration Program below.

Defining the problem to be solved

To get the project started in a constructive way, it is important for regions to have specified goals in mind. In the case of replication of the RobotUnion Acceleration Program, goals are most likely related to boosting and accelerating SMEs and their solutions, connecting corporations with SMEs for mutual benefit and experiencing regional growth as a result of the project.

Essentially, regions should look for answers to the following questions:

- What do we (regions) want to provide?
- What are our needs?
- What do SMEs and other stakeholders want to have provided?
- What are their needs?

Answers to these questions will identify whether goals within the project consortium are aligned and attainable, meaning that they are not conflicting with the regions' own goals. The leading entities must also align the project goals with potential Smart Specialization Strategies (S3) that in this case should refer to robotics and automation technologies.

Identifying stakeholders and their motivations

Once the main problems and goals have been defined, it will be important to define the project's stakeholders, that is, the organizations or entities affected by the project both positively and negatively. This identification will also make clear which organizations' resources are crucial for the execution of the project. After the identification of stakeholders and their needs, the leading entity will be much better equipped to communicate and collaborate with them as well as get their support for the project.

It will also be valuable to map out the stakeholders in terms of how critical their individual support is and their overall level of support for the project. For this particular Acceleration Program, the most critical stakeholders for regions to have support from are, on the one hand the beneficiaries, and on the other hand the service providers (RTOs, universities, investors). For RobotUnion, this map could look like the figure below (Figure 11), but the shape of the map depends on the region's stakeholders and can, therefore, differ tremendously from region to region.

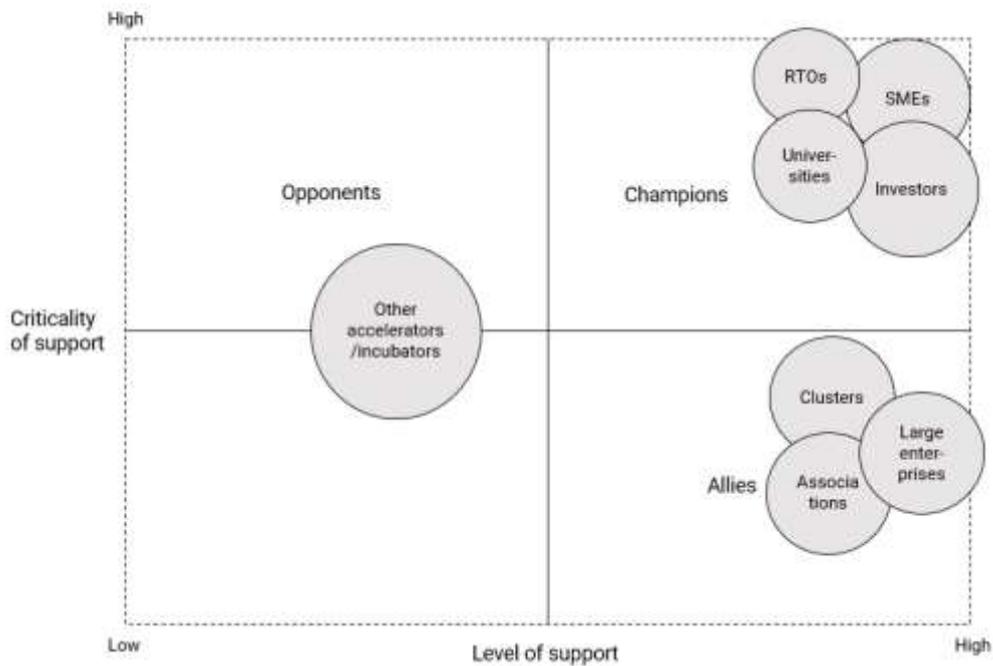


Figure 11. RobotUnion map of stakeholders

When it comes to identifying the stakeholders' motivation, it is very important to start a dialogue with them early in the process. The sooner stakeholders are involved, the more likely they will feel heard and experience that their observations, needs and motivations matter. If stakeholders experience that their realities are being taken into consideration in the development of the project and that the project is a viable solution to whichever issue, they want to fix by joining the project, they will be more likely to commit resources to it.

Defining project goals and tasks

Project goals should be defined by merging – to the extent that this is possible – the needs of the region with the needs of the stakeholders. The stakeholder map can be helpful in this process because it visualizes whose involvement is most crucial for project success and therefore whose needs are most important to meet. It is also a good idea to include stakeholders in the definition of goals to make sure that all actors are on the same page. The SMART framework is a useful tool in this process, since it makes sure, that the goals have been considered **S**pecific, **M**easurable, **A**chievable, **R**ealistic and **T**imebound. Well-defined goals have these five characteristics.

Once goals are defined, the next step is to develop and plan the necessary tasks that enable the project's stakeholders to reach their individual and collective goals. Tasks can then be set up in a Gantt chart or similar to create an overview of both the interdependent processes as well as resource allocation for all involved parties.

There are many approaches to choose from when developing and planning tasks. One method is Work Breakdown Structure (WBS) where each identified goal is accompanied by the tasks that need to be completed in order for the team to reach the goal. Tasks can be divided into

subtasks until no further division can be made and a visual representation of this will show the necessary order of task completion.

The documents contain our previously gathered experiences and considerations when executing the Acceleration Program which will be useful for the implementation process of the program. In case of further interested in the RobotUnion methodology and implementation RobotUnion will enabled the necessary materials and start the conversations.