

D3.4 ECONOMIC RESOURCE/IMPACT ASSESSMENT MODEL

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Technological University of the Shannon: Midlands Midwest (TUS), Ireland*

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Abbreviations

CoARA Coalition for Advancing Research Assessment

D Deliverable

DORA Declaration of Research Assessment

ECTS European Credit Transfer and Accumulation System

EIH European Innovation Hub

ERA European Research Area

FHV Vorarlberg University of Applied Sciences, Austria

HAMK Häme University of Applied Sciences, Finland

IPCA Polytechnic of Cávado and Ave, Portugal

IPL Polytechnic of Leiria, Portugal

KPI Key Performance Indicator

MSA Main Scientific Area

NHL Stenden NHL Stenden University of Applied Sciences, The Netherlands

R&I Research & Innovation

RUN-EU Regional University Network – European University

RUN-EU PLUS Regional University Network – European University: Professional
Research Programmes for Business and Society

SME Small-to-Medium Enterprise

SZE University of Győr – Széchenyi István University, Hungary

TRL Technology Readiness Level

TT Technology Transfer

TUS Technological University of the Shannon: Midlands Midwest, Ireland

UAS University of Applied Sciences

WP Work Package

EXECUTIVE SUMMARY

An Economic Resource and Assessment Model will ensure the scalability and long-term sustainability of the RUN-EU PLUS master's and doctoral programmes. This deliverable addresses the identification of appropriate models of resources, infrastructures and/or partners to implement the strategic research and innovation agenda of the RUN European University. Research infrastructure and expertise, stakeholder partnerships and research funding are all key elements of the RUN-EU R&I strategy and are considered in this document. An analysis of relevant EU funding mechanisms for professional practice-based research degrees and regional supports for collaborative research with industry and business is included.

Measuring impact is critical for success and an extensive range of research performance indicators that define the measures of success and a broad range of impacts arising from successful professional practice-based research degrees have been identified.

The report presents a resource model and an analysis of the added-value and cost-benefit for the proposed professional practice-based research degrees and identifies an Economic Resource/Assessment Model to ensure their scalability and long-term sustainability for the European University.

This deliverable is informed by the RUN-EU PLUS Research & Innovation (R&I) Ambassadors who each prepared a report (**Appendix 1**) providing an account of the financing framework of their research degree programmes, the research key performance indicators (KPIs) monitored by their institution and the added value they recognise which Professional Practice-based Research Degree Programmes offers to the research candidate (student), company/organisation and third level institution. Deliverable reports of both the RUN-EU project (Erasmus+ funded, Grant Agreement No. 101004068) and the RUN-EU PLUS project (Horizon 2020, Grant Agreement No. 101035816) have informed this report, and the findings presented have informed RUN-EU PLUS **D7.5 Sustainability Strategy**.

1. RUN-EU Strategic Research and Innovation Agenda

The aim of RUN-EU PLUS is to develop an integrated long-term strategy for research and innovation (R&I) within our European University. The ‘PLUS’ stands for Professional Research Programmes for Business and Society and the main goal of this project is to reinforce academia-business collaboration in three RUN-EU thematic areas (Sustainability, Digitalisation and Social Innovation), through the development of a framework and programmes at master’s and Doctoral levels across the network.

An analysis of RUN-EU regional priority domains was carried out by the project to identify the focus of future research and innovation (R&I) collaboration activities with business and society partners. This analysis included an overview of the regional research interests and resulted in the identification of those regional priorities which will be leveraged in the creation of the RUN-EU Professional Practice-based Research Degree programmes. Sustainability, Digitalisation and Social Innovation were identified as the priority research areas which will inform the design of the research master’s and Doctoral programmes (**Figure 1**). This analysis and findings are presented in RUN-EU PLUS **D3.1 Strategic Research Priorities Report**.

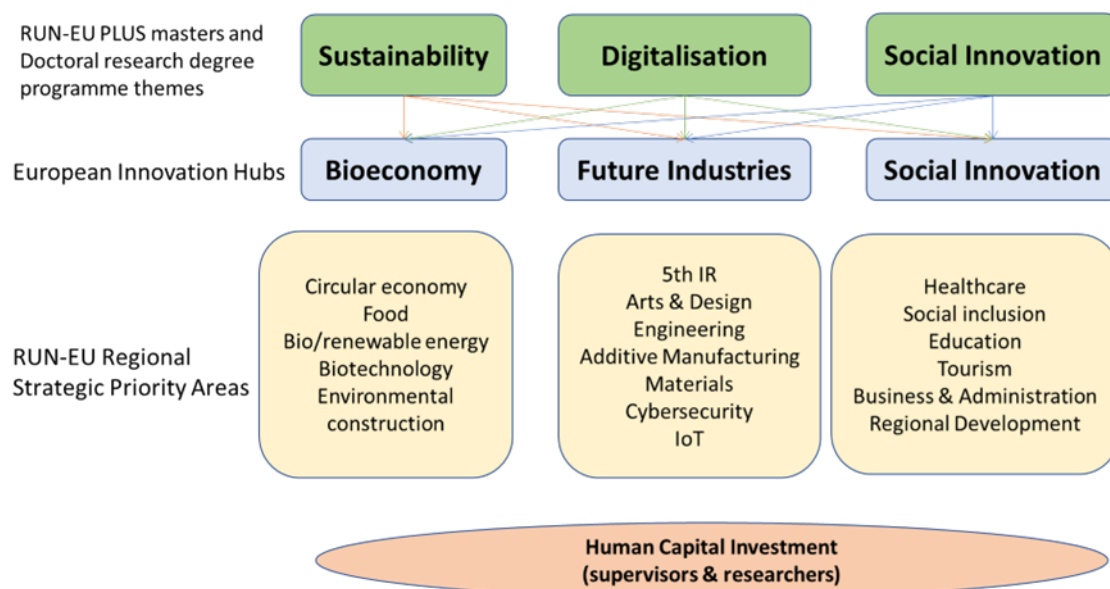


Figure 1 - Alignment of RUN-EU PLUS master’s and Doctoral Programme thematic areas to RUN-EU regional strategic priority areas

RUN-EU PLUS defined a roadmap (**D3.2 Degree Development Roadmap**) and accreditation action plan (**D3.2 Accreditation Action Plan**) for the development of these collaborative professional practice-based research master's and Doctoral programmes. The programmes will be accredited, scalable, interdisciplinary, and focused on business and society development needs. The roadmap and accreditation action plan will ensure that the programmes created are producing research that has a significant impact and will address pressing societal challenges. At least four European Collaborative Professional Practice-based Research Degrees (three master's and one Doctoral) will be designed by the end of the project in the Regional Strategic Priority Areas mentioned above.

Key to the implementation of the RUN-EU PLUS R&I strategy is the creation of a vibrant Innovation Ecosystem for our European University. This Ecosystem is designed to promote a knowledge sharing approach and knowledge transfer capacity, valorising the entrepreneurial mind-set amongst our researchers and innovators. Building on innovative partnerships between RUN-EU researchers and industry partners and other stakeholders, the aim is to remove existing obstacles to innovation and revolutionize the way the public and private sector work together to bring research developments and advancements to the marketplace for societal benefit. Since its launch in 2020, the RUN-EU Erasmus+ project (grant agreement no. 101004068) has already developed key pillars of this innovation ecosystem which include the introduction of 3 RUN-EU European Innovation Hubs (EIHs) and 8 Research Cluster Areas. It is through these cutting-edge knowledge networks that innovation will be driven through nurtured collaborative activities enabled by unique educational platforms such as the professional practice-based master's and Doctoral programmes being developed by the RUN-EU PLUS project.

EIHs collaborate with associated partners in government, business, society and uniquely with the OECD Secretariat of Higher Education and its labour market relevance and outcomes. The outcomes of this collaborative approach will not only feed back into education, research, and innovation development opportunities within the regions of the alliance but may also inform innovative solutions for labour market relevance and outcomes which would be adaptable to different regions of Europe. The EIHs play a key role in the societal impact of the new knowledge created by the Innovation Ecosystem of the RUN European University as they will be the vehicle which supports industry-academic collaboration (**RUN-EU D2.6 Establishment of European Innovation Hubs**).

The RUN-EU Discovery Programme (Work package 5 of RUN-EU) has built 8 future-looking Research Cluster Area teams across the RUN alliance comprised of researchers, research students, academic staff, and regional partners (businesses and social) with a focus on addressing societal challenges in a multi-disciplinary approach thus delivering innovative solutions adaptable to different regions

in Europe. The 8 thematic areas include Creative art and design and materials thinking; Food and Biotechnology; Tourism; IoT and Cybersecurity; Advanced Manufacturing; Climate change – Circular economy & decarbonisation and Education and Social Sciences. Research Cluster Areas have been aligned to the Horizon Europe Vision research cluster areas and the broader EU initiatives and directives encompassed with the Sustainable Development, Digital compass, Green Deal, Erasmus+ and other research, innovation, and educational programmes.

2. Resources necessary for implementation

2.1 Infrastructure

Agreeing on best practices for sharing research infrastructures and other resources for implementation of the common R&I agenda is key to delivering a coherent research ecosystem.

In the RUN-EU PLUS project, our new student-centered collaborative Professional Practice-based Research Degree Programmes are being created using module building blocks of all the partners, thus allowing students the opportunity to select the structured elements of their research programme curriculum. We aim to strengthen mobility of RUN-EU researchers and increase the flow of knowledge using a research co-supervision model and a sharing of individual institutional research infrastructure, equipment and knowledge, incentivising investment in research by engaging with our regional industry partners in identifying our regional challenges informing the design of the research programmes and enhancing transnational innovation and knowledge cooperation within our research ecosystem. The members have committed to the creation of joint policies and procedures, as well as the joint provision of services, databases, and access to teaching and scientific infrastructures.

The master's and Doctoral programmes developed by the RUN-EU PLUS project are practice-based research programmes which are co-designed by a supervision team comprising of RUN-EU academic researchers and industry partners. The research undertaken by these programmes will be focused on the development or improvement of a product or process of relevance to the industry partner. Researchers will be based in industry/organisations and/or RUN-EU research institutes and will not only have access to the research facilities of their regional home institution (i.e., where their principal supervisor is based), they will also have access to the state-of-the-art research facilities of the RUN-EU Research Cluster Areas across the RUN alliance. This access will be supported by Researcher Mobility Programmes of the RUN European University.

2.1.1 e-infrastructure

European University infrastructure includes not only physical infrastructure, but critically e-infrastructures for administrative activities e.g., such as research and knowledge and technology transfer offices. This shared digital infrastructure will be the critical element of successful European University alliances involving storage and exchange of data in accordance with European data regulation requirements. Within RUN-EU PLUS we have designed and are currently implementing

a digital cloud of knowledge portal. The development of a unified 'Cloud of Knowledge Portal' will facilitate international collaboration through common approaches to research skills, intellectual property, ethics, research integrity and impact assessment. The portal is a shared platform which is designed to facilitate the creation of 'ecosystems of learning' including students, researchers, public and private sector, regional and social partners where multidisciplinary teams will address societal challenges.

2.1.2 Physical infrastructure

The RUN Discovery Programme is WP5 of the RUN-EU Erasmus+ project and this work package, using a challenge-based approach, has built European future looking RDI teams of researchers, research students, academic staff, businesses, regional and social partners to address societal challenges in a multi-disciplinary approach thus delivering innovative solutions adaptable to different regions in Europe. This WP focuses on the operationalisation of the RUN research, development, and innovation (RDI) activities, through strong collaboration among alliance partners, Regional Innovation Clusters and European Innovation Hubs creating future-looking joint RDI teams and procedures, to increase and embed sustainable Inter-regional research and innovation projects across the RUN-EU alliance during the three years of the project.

D5.1 gathered information related to technological systems and research infrastructures, both people and equipment, and facilities infrastructures that are available across the RUN-EU alliance, good practice approaches to our activities with a view to developing and identifying complementary collective expertise and knowledge and existing Intellectual Property/Knowledge know-how and tools. RUN-EU **D5.1 Audit and Characterization of RUN-EU Alliance RDI units** presents the research infrastructure and expertise available across the alliance and from this audit. This characterisation activity identified eight research areas of complimentary research expertise and WP5 **D5.2 Creation of Future-looking joint RDI Teams** presents eight indicative future looking research cluster areas of expertise across the consortium. The areas include Research Area 1: Creative Art, Design and Materials Thinking; Research Area 2: Food & Biotechnology; Research Area 3: Tourism; Research Area 4: IOT & Cybersecurity; Research Area 5: Advanced Manufacturing; Research Area 6: Climate Change – Circular Economy & Decarbonisation; Research Area 7: Education & Social Sciences and Research Area 8: Health & Wellbeing.

The Cloud of Knowledge Portal described in **Section 2.1.1** will detail the research facilities, expertise and researcher profiles of each alliance partner which will aid the sharing of research

infrastructures by providing a centralised platform for all stakeholders to communicate, access and share resources and infrastructures.

2.2 Technology Offerings

An Innovation Detection Scheme has been created by the RUN-EU PLUS project which, when deployed across the alliance, will provide regional partners with access to new or existing innovations thereby strengthening academia-business collaborations. This detection scheme is presented in RUN-EU PLUS **D6.2 Innovation Capacity Report** and is supported by the RUN-EU PLUS Research & Innovation Committee comprised of key actors of the RUN-EU Innovation Ecosystem including European Innovation Hub directors, Research Cluster Area leads, Technology Transfer Case Managers, R&I Ambassadors, and industry representatives.

2.3 Strategic Partnerships

The master's and Doctoral programmes developed by the RUN-EU PLUS project are practice-based research programmes and the research undertaken by these programmes will be focused on the development or improvement of a product or process of relevance to the industry partner. Researchers will be based either in the collaborating organisation itself and/or carried out in RUN-EU research institutes. Strong relationships both across the RUN-EU alliance and with strategic partners in our regions is key to the long-term sustainability of these master's and Doctoral programmes and the RUN-EU PLUS project plans to support them during the timeframe of the RUN-EU PLUS project and into the future. Through Senior Research Managers and Senior Researchers, each RUN-EU partner institution has existing strong strategic partnerships with organisations within its region, and the future sustainability of the RUN-EU PLUS programmes depends on upscaling and broadening these types of relationships (**D7.5 Sustainability Strategy – 1st version**).

Table 1 provides examples of RUN-EU Associated Regional & National Networks with whom RUN-EU partners engage on different levels. The RUN-EU PLUS project seeks to engage with these organisations in the development of R&I collaborative projects in addition to the design and delivery of professional practice-based research master's and doctoral programmes. **Appendix 2** provides a comprehensive list of regional bodies who RUN-EU partners consider to be key in the delivery of regional strategy and therefore key to their regional development (RUN-EU PLUS **D3.1 Strategic Research Priorities Report**).

Table 1 - RUN-EU PLUS Stakeholder initiatives and engagements.

Name/type of Industry associate parent/stakeholder initiative	Brief description + Linkage with the project
Limerick for Engineering (LfE)	TUS is a founding member of this industry-led initiative which has the support of the education and training providers in the region. The primary goal of LfE is to increase the quality and quantity of engineering talent (apprentice, technicians, and engineers) available in the region and support the other regional areas within RUN-EU PLUS. Besides, LfE will be a forum for discussion of RUN-EU PLUS activities regarding Academia-Business collaboration in research and education.
National Research Degree Programme for Digitalisation of Manufacturing	Developed by TUS in collaboration with an industry association, this programme is currently engaged in 20 research projects based in industry. Its outcomes will be a source of good practices and lessons learned for the European Professional Practice-based Research Degrees and other R&I activities of RUN-EU PLUS.
Clusters	IPL belongs to several clusters composed by companies and HEI in specific fields: InovCluster (Agro industries), Knowledge and Sea Economy, Engineering & Tooling, TICE.PT (ICT cluster). These clusters and their members are natural partners for the development of joint R&D projects, as well as hosting research work and internships in the frame of RUN-EU PLUS.
Business Associations, Technological and Innovation Centres & Business Incubators	IPL is a partner of several business incubators (IDD, OPEN, OBITEC), as well as business associations (NERLEI) and other technology centres where RUN-EU PLUS will look for partners to host Professional research trainees.
TUS Learning Enhancement Initiatives	TUS has ongoing engagement in the Irish National Forum on Teaching and Learning. Through this fund AIT is driving the recognition of professional practice and work placements as an integral part of the learner experience. Outcomes of this process will be a source of good practices and lessons learned for the European Collaborative Professional Practice-based Research Degrees and other RDI activities of RUN-EU PLUS.
Midlands Manufacturing Cluster	TUS provides training and upskilling to this cluster. RUN-EU PLUS will be able to use a range of partners from the cluster to give input into programme design and to provide training opportunities for international students.
CONFIRM	Ireland's Smart Manufacturing Research Centre – As a member, TUS can provide access to much research-active companies in a range of advanced disciplines.
WORKPEDA - Work-integrated Pedagogy in Higher Education	This project developed by HAMK creates operational models for the development of students' working-life skills, for curricular reforms, for work-integrated pedagogy and guidance as well as for the linkage between RD&I activities and education. Its results will feed RUN-EU PLUS activities.

IBC- Industrial Biotechnology Cluster	HAMK belongs to this cluster where Industries could be forerunners in the 'Industrial PhD' programme developing under RUN-EU PLUS and evaluation of the overall process.
PPIN - Portugal Polytechnics International Network	IPCA is member of this project for the internationalisation of the PT Polytechnic HE Institutions and the business/industry sectors, strengthening their collaboration and competitiveness. The mechanisms and frameworks of collaboration devised in PPIN will serve as inspiration for RUN-EU PLUS activities.
National pilot for Professional Doctorates	Through its Department of Education, Research & Internationalisation, NHL Stenden is involved in the national pilot for Professional Doctorates at Universities of Applied Sciences for disciplines for which there is no academic peer. The experience of this pilot will feed the activities of RUN-EU PLUS.
Területi Innovációs Platform (Territorial Innovation Platform)	SZE belongs to this Territorial Innovation Platform aimed at strengthening links between actors at local level: HE and research institutions, businesses, professional organizations, policymakers. The initiative is highly relevant for the implementation of WP5, being a platform at the interface of academia-business connections.
Photonics Explorer and Photonics Austria	FHV was a pioneer in Europe bringing European Key Enabling Technologies (KETs) into the schools with a special focus on enhancing the interest of female students in technology and thereby improving the gender balance in technical areas. FHV is also represented in the board of directors of the Austrian photonics platform which aims to improve the collaboration between academic research and industry, guaranteeing a good alignment between industrial roadmaps and academic R&I. Both experiences are of added value for RUN-EU PLUS ambitions and activities.

2.3.3 RUN-EU Innovation Ecosystem Experts

2.3.3.a RUN-EU PLUS R&I Ambassadors

The role of the RUN-EU R&I Ambassadors is to support innovation development by consolidating the connection of the RUN European University with other actors of the R&I ecosystem including the wider business community, agencies, and investors. Within the RUN-EU Innovation Ecosystem, these ambassadors play a key role in innovation detection in their organisations in addition to facilitation of protection of this new knowledge, as well as its transfer to society. The R&I Ambassador Network is presented in detail in RUN-EU PLUS **D6.4 Strategy for Innovation Report**.

2.3.3.b Innovation Managers & Support Staff

Innovation Support Managers (in the form of Technology Transfer Officers, Business Incubation Officers etc) are present in some alliance partners who are further down the innovation development road than others. Expertise which exists within the alliance will be shared in the form of experiences and best practices through the Research & Innovation Committee described in **D6.1 Innovation Ecosystem**.

A small number of RUN-EU partner institutions have Enterprise or Business Incubation Centres but those that do have a very important resource in their managers who liaise with business leaders every day and who are in a key position to identify best practice in developing and managing business-academic relationships, identify commercial opportunities for RUN-EU research, develop commercialisation/valorisation strategies for new RUN-EU innovations and advise and mentor other RUN-EU partners in these activities.

2.3.3.c European Innovation Hub Directors

Directors of the RUN-EU European Innovation Hubs are charged with enhancing the link between teaching, research, and innovation within RUN-EU and hence are an important vehicle in supporting industry-academic collaboration. It is through the functioning of the hubs that these directors act as a bridge between the RUN-EU Research Clusters and the regional stakeholders. Hub directors collaborate with associated partners in business, society organisations, government and uniquely with the OECD Secretariat of Higher Education and outcomes of these collaborations feed back into education, research, and innovation development opportunities within the regions. RUN-EU has created innovation hubs in the areas of the Bioeconomy, Social Innovation and Future Sustainable Industries.

2.3.3.d Research Cluster Research Managers

A lead institution has been identified for each Research Cluster Area (**Table 2**). These leads are supported by a principal researchers within each institution. A list of the principal researchers involved in each Research Cluster Area along with partner leads and a short descriptor of cluster activities is provided in **Appendix 3**. Cluster leads and principal researchers are key players in implementation of the RUN-EU R&I strategy.

Table 2 – RUN Discovery Programme Research Cluster Areas & Lead Partner

Cluster No.	Research Cluster Area	Lead Partner
1	Creative Art, Design and Materials Thinking	IPCA
2	Food and Biotechnology	HAMK
3	Tourism	TUS
4	IoT and Cybersecurity	NHL Stenden
5	Smart, Sustainable and Advanced Manufacturing	TUS
6	Climate Change – Circular Economy & Decarbonisation	SZE & IPL
7	Education and Social Sciences	NHL Stenden
8	Health & Wellbeing	IPCA

2.4 Research Supervision

In its **D3.2 Degree Development Roadmap**, the RUN-EU PLUS project has set minimum guidelines for the supervision teams for its practice-based master’s and Doctoral programmes. Supervisors must hold a qualification at the award level which they are supervising. RUN-EU PLUS research programmes involve joint supervision between alliance partners with a principal supervisor from the home Institution being supported by a co-supervisor from a RUN-EU alliance partner institution. An advisor from the collaborating external partner may also be included in the supervision team as appropriate.

Building and strengthening supervision capacity is a key focus of RUN-EU PLUS WP6. A Research Supervision Training Programme is already being implemented by the project. It covers best supervision practices as well as research skills and is available for all supervisors, mentors and advisors. A supervision capacity report will be produced by the RUN-EU PLUS project by M36 (**D6.3 Research Supervision Capacity Report**) which will describe the professional development programmes for supervisors and provide feedback in its implementation.

Adequate supervision capacity is essential for the sustainability of these research programmes and therefore supervision time and supervisor training must be factored into the delivery costs of the programmes.

Master’s and Doctoral programme supervision teams have already been established across the RUN-EU alliance and are currently supervising master’s and PhD programmes within the thematic areas of Sustainability, Digitalisation and Social Innovation. **Table 3** lists these research programmes and the RUN-EU partners involved.

Table 3 - Collaborative RUN-EU PhD programmes jointly supervised by RUN-EU partners

PhD Programme	Partner 1	Partner 2	Sustainability theme	Digitalisation theme	Social Innovation theme
Artificial Intelligence Based Approach to Live Speech Mapping	IPCA	TUS		✓	✓
Hybrid behaviour-based network intrusion detection system	IPL	TUS		✓	✓
From sea to pharmacy: an integrated and sustainable valorisation of the red weed Gelidium corneum for cosmeceutical applications	IPL	TUS	✓		✓
OncoNavigator: Development of a Novel Breast Cancer Navigation Framework involving collaboration between a Medical Robot and Medical Imaging and Magnetic Breast Lesion	IPCA	TUS		✓	
HydruFlow: Application of Wireless Smart Sensing to the Accurate Measurement of Urinary Flow and Colour	IPCA	TUS		✓	
Development of a Smart Framework to Improve Standard Urological Procedures	IPCA	TUS		✓	
Smart Health Assistant for Monitoring Children: Development of a Framework based on Computer Vision, AI and Smart Assistants to Monitor Common Illnesses	IPCA	TUS		✓	
Development of real-time condition monitoring for predictive failure in Biotech Manufacturing	SZE	TUS		✓	
The Development of a Rehabilitation Framework using Intelligent and Autonomous Processes to Support the Self-monitoring of Recovery Procedures	IPCA	TUS		✓	
Smart Breast Screening: Development of a Deep Learning Framework for Multimodal Breast	IPCA	TUS		✓	
MLOps practices to help accelerate the development of machine learning software	TUS	HAMK		✓	

products by reducing related risks for small and medium sized businesses					
A pedagogical framework for skills-based training using XR technologies in an applied learning context	TUS	HAMK		✓	
Where have all the chefs gone? Labour shortages in culinary industry (working title)	TUS	IPL			✓
Film Induced Tourism in Europe: Impacts & Marketing Strategies	TUS	IPL			✓
Analysis of the factors that influence the choice of tourist destination purchase	IPL	TUS			✓
Hospitality Management Accounting - key performance indicators for the financial sustainability of hotels	IPL	TUS	✓		
Sustainability of 3D printing for building construction using innovative and ecological materials	IPL	TUS	✓		
An examination of sustainable and green practices and the adoption of indicator systems in the hospitality industry in Portugal	TUS	IPL	✓		
Framework for the Development of Integrated Sports Tourism Strategies	TUS	IPL			✓
An examination of the sustainable management of tourism in Portugal	TUS	IPL	✓		
Developing a model to understand the Impacts of Tourism on Poverty Alleviation in Central Asia	TUS	IPL	✓		✓

2.5 Research Programme Funding

Accurate costings and allocation of necessary resources are fundamental for the sustainability of these RUN-EU PLUS research degree programmes. Supervision and training costs have previously been referred to in **Section 2.4** of this document. Partners have provided a list of costs associated with the delivery of research programmes at their institution, these are listed in **Appendix 4**. It is evident from the information provided that programme costs vary across the partner institutions of the RUN-EU alliance. A budget framework which can be used to calculate the cost per student for delivery of the RUN-EU PLUS research degree programmes is presented in **Section 2.6**.

2.6 Economic Resource Model for RUN-EU PLUS Research Degree Programmes

This costs presented in **Appendix 4** have been applied to the development of a budget framework which will be used to calculate the cost per student for delivery of the RUN-EU PLUS research degree programmes. This framework will ensure that all programme delivery costs are budgeted for and the programme will be run on a cost-neutral basis. . The budget and its allocation between partners will be agreed in the Consortium Agreement and the Memorandum of Agreement of each programme.

Appendix 5 presents a budget framework which can be used by programme teams in the development of rUN-EU PLUS master’s and doctoral research degree programmes. The budget calculations are on a ‘per annum’ basis and therefore can be applied to both master’s and doctoral programmes.

Part A of the budget calculates the overall cost of organising the programme per annum and includes the annual salary of a dedicated Programme Co-ordinator, programme board meetings, student induction and administration costs.

*Programme Costs (per annum):		Total:	Programme Cost per student (A):
Co-ordinator salary	€		
Programme Board meeting	€		
Student Induction	€		
Communication	€		
Programme Co-ordination	€		
Website	€		
		€Total Programme Cost	*€Total Programme Cost /number of students (A)

**Indicative Programme Costs*

Part B of the budget calculates the cost associated with each research student on the programme and includes the cost of participating in a Research Challenge Short Advanced Programme (SAP), taught modules, research supervision costs, consumables and overheads.

*Individual Student Costs (per annum):			Individual Student Cost Total (B):
	1 SAP	€	
Participation cost:	Taught modules	€	
	Supervision costs	€	
	Thesis enrolment & insurance	€	
	Annual symposium	€	
	Programme Administration	€	
	Computer	€	
	Consumables	€	
	Overhead costs	€	
			€ (B)

**Indicative Programme Costs*

The cost of each student per annum on a RUN-EU PLUS Research Degree Programme are calculated as follows:

Programme cost per student (A) + Individual Student cost (B) = total (C)

The tuition fee is listed in the Programme Consortium Agreement (signed by collaborating institutions).

2.7 Funding programmes to support RUN-EU PLUS Research Degree Programmes

The following tables list regional, national or international funding programmes from which RUN-EU alliance members have previously secured master's/PhD programme funding and which therefore are potential funding sources for the RUN-EU PLUS practice-based research programmes.

2.7.1 Regional & National Funding Programmes

- **TUS**

Agency:	Irish Research Council
Regional/ national/international:	National
Programme link:	Government of Ireland Postgraduate Scholarship Programme Funding Irish Research Council
Summary of funding:	80,000 Stipend and fees

- IPL

Agency:	FCT
Regional/ national/international:	National
Programme link:	Studentships - FCT
Summary of funding:	PhD scholarships in all scientific domains

Agency:	FCT
Regional/ national/international:	National
Programme link:	Studentships Doctoral Program in a non-academic environment - FCT
Summary of funding:	PhD scholarships in non-academic environment

Agency:	FCT
Regional/ national/international:	National
Programme link:	Studentships in the scope of protocols and partnerships - FCT
Summary of funding:	PhD scholarships specifically awarded to european universities (in the scope of protocols and partnerships)

- HAMK

Agency:	Academy of Finland
Regional/ national/international:	National
Programme link:	Research Council of Finla - Research Council of Finland (aka.fi)
Summary of funding:	Reserach funding which requires PhD-students involved

Agency:	The Finnish Research Impact Foundation
Regional/ national/international:	National
Programme link:	Front page - Vaikuttavuussaatio
Summary of funding:	promotes industry-academia cooperation from the vantage-point of academic research interests and considerations.

- IPCA

Agency:	Fundação para a Ciência e a Tecnologia (FCT)
Regional/national/international:	National
Programme link:	https://former.fct.pt/apoios/programasdoutoramento/avaliacao and Bolsas de Doutoramento no âmbito de protocolos e parcerias - FCT
Summary of funding:	Individual PhD Scholarship or direct funding of a PhD program through a set of Scholarships.

- NHL Stenden

Agency:	Education Executive Agency - Ministry of Education, Culture and Sciences
Regional/national/international:	National
Programme link:	Lerarenbeurs - DUO
Summary of funding:	Teacher grant (<i>lerarenbeurs</i>); can be applied for by individual teachers on all educational levels once to fund a bachelor, (pre) master or post-initiative master. Amount of funding depends on the amount of ECTS.

Agency:	Dutch Research Council (<i>Nederlandse Organisatie voor Wetenschappelijk Onderzoek</i>)
Regional/national/international:	National
Programme link:	Doctoral Grant for Teachers NWO
Summary of funding:	The Doctoral Grant for Teachers (<i>promotiebeurs</i>) programme is aimed at allowing teachers to gain research experience in order to improve the quality of education and to strengthen the ties between universities and schools. The grant can be applied for by individual teachers on all educational levels once to fund their PhD research; there are no limits to the type of PhD research. The promotor needs to be appointed to one of the selected Dutch Universities.

Agency:	Education Executive Agency - Ministry of Education, Culture and Sciences
Regional/national/international:	National
Programme link:	Studiefinanciering - DUO
Summary of funding:	Fulltime (master)students can apply for a student grant. The level of funding depends on, e.g., age. Max. 7 years and can be used for foreign education under certain conditions.

Agency:	Education Executive Agency - Ministry of Education, Culture and Sciences
Regional/	National

national/international:	
Programme link:	Levenlanglerenkrediet: Voorwaarden - DUO
Summary of funding:	(Master) students that can't apply for a student grant as described above, as long as they meet all requirements stated on the website (e.g., age, only for registered Dutch education).

2.7.2 European Funding Programmes

Agency:	International Funding Programme:	Link:	Summary of funding:
Digital Europe Programme	International Specialised education programmes	The Digital Europe Programme Shaping Europe's digital future (europa.eu)	€900m available
Marie Skłodowska-Curie Actions	International MSCA Doctoral Networks 2023	MSCA Doctoral Networks 2023 Marie Skłodowska-Curie Actions (europa.eu)	€400m available
Erasmus Mundus	Joint master's programme	Erasmus Mundus Catalogue (europa.eu)	
Erasmus+ Programme	Student mobility	Erasmus+ funding programme (europa.eu)	€26.2b available

2.8 Direct Sponsorship by Industry Partners

This section provides a list of funding previously secured from a company or another organisation which has financially supported a master's or PhD programme. These organisations have been identified as potential funding streams for the RUN-EU PLUS master's and Doctoral programmes.

2.8.1 Current Sponsorship

- **TUS**

Organisation:	Irish Medtech Skillsnet
Regional/national/international:	National Masters in Engineering (Research) in Digitalisation of Manufacturing

Website:	https://irishmedtechskillnet.ie/
Summary of funding:	Skillnet funding of €1,750 per annum, balance of funding (€250,000) provided directly by industry

*Industry based professional practice Research Degree. Salary/Stipend and facilities provided by industry.

- IPL

Organisation:	ANI
Regional/national/international:	National
Website:	EN ANI
Summary of funding:	MSc and PhD scholarships funded through research projects

Organisation:	COMPETE
Regional/national/international:	National
Website:	Compete 2030
Summary of funding:	R&DI programmes for funding companies, some of them involving RDI and HEI institutions.

Organisation:	Fundacao La Caixa
Regional/national/international:	International
Website:	doctoral-inphinit-incoming-2023.pdf (lacaixafoundation.org)
Summary of funding:	PhD scholarhips for Spain and Portugal

Organisation:	Programe beyond celiac
Regional/national/international:	International
Website:	About Beyond Celiac BeyondCeliac.org
Summary of funding:	Research grants and other research supporting funding.

- IPCA

Organisation:	
Regional/national/international:	National
Website:	Mestrado em Inteligência Artificial Aplicada powered by Deloitte
Summary of funding:	A part of the students could be contracted by the company, with a specific salary and supporting their fees.

- **NHL Stenden**

Organisation:	VSBfonds
Regional/national/international:	National
Website:	VSBfonds Beurs voor mbo, hbo & wo studenten VSBfonds
Summary of funding:	Students (all educational levels) who are committed to the Netherlands can apply for the VSBfonds Scholarship to study or otherwise gain experience abroad. For all VSBfonds Scholarships, the student wants to go abroad for their own personal development. The study abroad plan may never be part of a Dutch study. This scholarship is for all fields of study and applies to all countries in the world. Duration of the grant is a minimum of 3 months and a maximum of 24 months.

- **FHV**

Organisation:	illwerke vkw
Regional/national/international:	Regional company
Website:	illwerke vkw
Summary of funding:	illwerke vkw supports research programmes in the area of energy via an endowed professorship for energy efficiency since 2012.

Organisation:	Blum
Regional/national/international:	Regional Company
Website:	Fittings solutions by Blum Blum
Summary of funding:	Blum supports research and also study courses in the area of digital business transformation via an endowed professorship for digital business transformation since 2023.

2.8.2 Potential Sponsorship

The following tables list potential funding opportunities from a company or another organisation with whom a RUN-EU partner is currently in discussions regarding support of the RUN-EU PLUS master's and Doctoral programmes:

- **TUS**

Organisation:	Regional/national/international:	Website:	Summary of funding:
National consortium of companies in electrical, mechanical and renewable energy engineering	National Masters in Electrical Engineering		National Apprenticeship Model
Regional network of Systems Integration Companies	National Masters in Applied Machine Computer Vision		Direct Industry Funding

- **HAMK**

Organisation:	Regional/national/international:	Website:	Summary of funding:
Kiertokapula	Regional	Kiertokapula in English - Kiertokapula	in discussion – no approval yet

- **NHL Stenden**

Companies or other organisations might support master's, PhD or Professional doctorate programmes (PD; Dutch UAS pilot programmes on ELQF 8) financially on an **individual** level: students or candidates might make financial arrangements themselves but these financial arrangements are never made between NHL Stenden and companies and organisations. The majority of the master's students and PD candidates at NHL Stenden are conducting demand-driven research in their own work-environment or as part of an internship. As such, companies and other organisations invest in time and/or supervision. A research project might be taken up by several cohorts of students in a row.

2.8.3 Challenges associated with Direct Sponsorship

Foreseeable challenges when approaching external parties to engage in the RUN-EU PLUS practice-based research programmes have been identified and will be addressed by the RUN-EU PLUS project. These include:

1. The long lead-time for development and validation of new programmes in addition to the lack of resources for development and promotional activities for recruitment.

This challenge will be addressed by the allocation of resources for the development, validation, and promotion of new practice-based postgraduate degrees to ensure quick and effective launch.

2. The academic requirements of a master's or PhD programme are not always aligned with the needs of the external partners, particularly in the case of PhD programmes. Potential external partners may be of the belief that the PhD results may not be immediately applicable or have a relevant industrial application. The Technology Readiness Level (TRL) of PhD results may not match the expectations of external partners and to align the two sides might be a challenge.

RUN-EU PLUS members believe that matching academic objectives with those of external parties must be subject to agreement and part of the engagement process. Co-design of master's and Doctoral programmes helps to find and integrate benefits for external partners into the research programme. This is essential in order to justify their provision of financial support for both students and the programme (equipment, travel, etc). Specific mechanisms must be defined by the RUN-EU Innovation Ecosystem and be implemented in order to achieve the required level of engagement of the RUN-EU academic community in projects with external partners.

3. Funding the tuition fees for 4 years is also a challenge, specially for PhD students whose tuition fees are not funded by their employers.

The RUN-EU PLUS project believes that the key to securing external party engagement with the research programmes where the collaborator is not in a position to fund the programme is through national or EU funding programmes where both the HEI and external partners are co-funded to develop R&D projects. A number of such programmes have previously been listed in **Section 2.5.2**.

4. All study courses are free for students registered with the Universities of Applied Sciences, so no student fees occur. Hence, it would be a huge challenge to implement RUN-EU PLUS practice-based research programmes with student fees as the companies would not see any added value compared to the already existing and successful extra-occupational study course. In this instance a joint proposal will be prepared between the academic supervision team and the company partner which will be submitted to national or EU funding programmes.

5. To encourage and convince SMEs of the potential impact of these practice-based research programmes. Big companies have their own research facilities and expertise, and they have long experience in cooperation with universities and research institutes. SMEs may not have the

research facilities or the financial resources to fund the RUN-EU PLUS research programme. In this instance a joint proposal will be prepared between the academic supervision team and the company partner which will be submitted to national or EU funding programmes. The research facilities of the RUN-EU partners will be accessible to the research candidate.

6. Disputes over ownership of possible innovations arising from the research programme. RUN-EU has developed template research agreements which support the agreement of IP ownership and licensing terms before the research begins. RUN-EU partners understand the nature of each company and will be flexible and adjust the IP model with advantages to both academic and industry partners.

7. To recruit suitably qualified research candidates to register on the RUN-EU PLUS master's and Doctoral Programmes. Clear pathways to PhD have been developed by the RUN-EU PLUS project and clear project objectives and timelines will be agreed which reduces risk and should attract strong candidates to the programmes.

In summary, the RUN-EU PLUS project members recognise that challenges exist in engaging with external partners on the delivery of practice-based master's and Doctoral programmes. To address these real and perceived challenges, the RUN-EU PLUS project aims to nurture strong, strategic and long-term relationships with external partners, thereby reducing the potential or perceived risk by implementing strong formal agreements. Pilot programmes will be implemented and successful case studies promoted. The master's and PhD programmes developed by the RUN-EU PLUS project will compliment the existing portfolios of the different institutions to avoid possible competition with existing portfolios.

Training programmes will be provided for both supervisors and industry advisors. The 'added value' afforded by the RUN-EU PLUS research degree programmes will be explained to all parties (**Section 4**). Access to the state-of-the-art research facilities and expertise of the RUN-EU alliance will be supported.

3. Measuring success

3.1 Research Assessment

The RUN-EU PLUS project is currently placing much focus on identifying Key Performance Indicators (KPIs) which best reflect the diversity and collaborative nature of its R&I activities while maintaining right research quality standards. The project refers to EU publication “Towards a Reform of the Research Assessment System” (2021)¹, the work undertaken by CoARA (Coalition for Advancing Research Assessment)² and the San Francisco Declaration of Research Assessment (DORA)³ in its undertaking to develop an appropriate research assessment framework which can be adopted across the RUN-EU alliance.

3.2 Key Performance Indicators

While traditional research indicators of peer-reviewed publications, international conferences and research income from funding agencies will remain part of the quantitative and qualitative metrics to measure our performance, RUN-EU project members recognise that a broader scope and more relevant indicators of regional business and societal impact of the RUN-EU PLUS Practice-based master’s and doctoral programmes exist. The R&I Ambassadors each prepared a list of KPIs currently monitored by their institution as an indicator of research success and impact. Ambassadors also compiled a list of additional KPIs they believe accurately reflect the impact of professional practice-based master’s by research and PhD programmes.

The KPIs assigned to measure the research performance of RUN-EU PLUS master’s and doctoral programmes are aligned with the key objectives of the RUN-EU PLUS project. They have been consolidated into an ‘Impact Assessment Framework for RUN-EU PLUS Research Degree Programmes’ for RUN-EU PLUS Research Degree Programme co-ordinators to complete which for the efficient maintenance of up-to-date RUN-EU PLUS KPIs. This framework is presented in **Appendix 6**.

RUN-EU PLUS Objective 1: Implementation of a common R&I agenda and associated collaborative action plan focussed on the strengthening of academic-business partnerships in R&I.

¹ [Towards a reform of the research assessment system - Publications Office of the EU \(europa.eu\)](https://publications.europa.eu/en/doi/10.1017/9781108838888)

² <https://coara.eu/>

³ [Home | DORA \(sfdora.org\)](https://www.sfdora.org/)

Research Activity		
KPI	Metric (annual)	Target (annual)
Research projects	Number	
Research Funding contribution by industry, government or other funds.	€	
External collaborations	Number	

Technology Transfer & Entrepreneurship		
KPI	Metric (annual)	Target (annual)
Patents transferred to industry	Number	
Service contracts	Number	
Technical reports made available to external organisations	Number	
Licensing agreements	Number	
Spin-out and start-up companies	Number created	
Invention Disclosure Forms reviewed by R&I committee	Number	
Patent applications	Number submitted	
Technology offerings on Cloud of Knowledge Portal	Number	
Prototypes developed within MSc and PhD research work.	Number	

Outreach Activities		
KPI	Metric (annual)	Target (annual)
Artistic and Creative productions	Number	
Research & Innovation Roadshows	Number	
ICARUS conference registrations	Number	
Dissemination events	Number	
Social Media posts	Number	

RUN-EU PLUS Objective 2: Deliver, joint and collaborative accredited professional practice-based research degree programmes at both master's and PhD level in association with the industry, business and societal stakeholders.

Collaborative Research Programmes		
KPI	Metric (annual)	Target (annual)
Postgraduate students registered total – master's /PhD	Number	
Industry-based researchers registered – master's /PhD	Number	
Industry-based researchers registered in SME – master's /PhD		

Postgraduate student mobility	Number	
Supervisors	Number	
External sponsorship of Research Degree Programmes	Number	
MSc dissertations and PhD thesis fully driven by external partners	Number	

RUN-EU PLUS Objective 3: Develop and implement strategies which strengthen the capacity of the human capital through the development of a collective and collaborative cloud of knowledge portal. Equip researchers with a combination of pedagogical and research skills and a research career evaluation system to reward researchers and research excellence at all career development stages.

Strengthening Human Capital		
KPI	Metric (annual)	Target (annual)
Contract researchers	Number	
Full-time staff (or equivalent) dedicated to research	Number	
Research staff integrated in research units	Number	
Certified supervisors	Number	
Researcher training workshops	Number	
Workshop registrations - total	Number	
External party registrations - total	Number	
Graduate career progression/promotion (upon graduation)	Number	
Employment rate (upon graduation)	%	
Graduates employed in region (upon graduation)	Number	
Percentage Salary increase (upon graduation) - average	%	

Gender & Diversity in Research		
KPI	Metric (annual)	Target (annual)
Contract researcher gender balance	ratio	
Research Degree Programme gender balance	ratio	
Supervisor/Trainer gender balance	ratio	

RUN-EU PLUS Objective 4: Mainstream Open Science practices and skills within the RUN-EU R&I platforms, through the delivery and adoption of new and innovative programmes and initiatives across the alliance aimed at further strengthening our commitment to open science principles.

Mainstreaming Open Science Practices		
KPI	Metric (annual)	Target (annual)
Open-access papers published in a public repository	Number	
Open Science training workshops	Number	
Open Science workshop registrations	Number	

RUN-EU PLUS Objective 5: Reinforce cooperation in R&I activities across and between alliance members and their associated industry, business and societal stakeholders and partners.

&

RUN-EU PLUS Objective 6: Contribute to the development of the ERA Hubs by fostering joint R&I activities across the RUN-EU alliance.

External Collaboration in R&I		
KPI	Metric (annual)	Target (annual)
Collaborative research projects – RUN-EU partners	Number	
Collaborative research projects - International	Number	

4. Analysis of Added Value

Members of the RUN-EU PLUS project have considered the value of the developed practice-based master's and doctoral programmes to the research student themselves, to the collaborating organisation and to the RUN-EU partner institution. The conclusions are listed in the sections below.

4.1 Added value for the research student

- Personal development in communications, presentation skills and knowledge transfer
- Recognition in their company of their interest in leadership and progression
- Internationally recognised higher qualification
- Personal development through research investigation and collaboration across teams and divisions
- Access to new skills, knowledge, and tools to improve their effectiveness in the workplace.
- European level supervision, ready network, research visit possibilities, broad expertise, and infrastructure in use
- Practical, business-oriented research questions which are linked to real life challenges. Challenges which need applied solutions and are based on questions raised by the external partners (companies etc.)
- Immediate contact with companies/external partners and to be able to be of added value, reasoning from practice as opposed to (mainly) theory (for NHL Stenden students this is already the case within most master's programmes). Study abroad and learn from other cultures, developing inter-cultural skills.
- State of the art course content including state of the art research knowledge; early contact with companies; early insight into research and development; competence-orientated learning instead of just learning by heart.

4.2 Added value for the Collaborating Organisation

- New / updated knowledge and skills to address innovation and business needs.
- Access to research knowledge and expertise in the University.
- Access to cutting-edge physical, virtual, and semantic resources within the RUN-EU alliance.

- Possibility to participate in long-term research based on partners needs and research questions.
- Possibility to increase partners own research know-how and supervision capability by joining RUN-EU practice-based research programmes.
- Possibility to find new innovations and business opportunities which are proved by high-level scientific approach.
- European level network (innovation hubs).
- Solutions researched and implemented for practical problems they face for less costs (for NHL Stenden this is already the case within most master's programmes).
- For our already existing extra-occupational study courses: employer branding in terms of existing staff (you can work for us but study as well; helps to keep staff instead of losing them for study purposes); employer branding in terms of innovation (we have students in research-orientated study courses).

4.3 Added value for the Institution

- Detailed engagement with industry case studies to inform research directions and training programmes.
- Establish strong relationships with industry leading to further collaborations, research projects and educational and learning opportunities.
- Support regional enterprises to strengthen the industrial eco-system, grow competitiveness and resilience.
- To prove scientific capability for the Finnish academic society.
- To increase the number of publications.
- To increase cooperation with companies.
- to increase innovative ways of working and innovations in the institute and in the region.
- To increase external funding.
- Possibilities for staff development, additional chances to connect research (outcomes) and teaching. Broadening the research themes and quantity of students and candidates. For NHL Stenden the additional added value seems relatively small, as master's programmes are in essence practice based, as are the pilot PD programmes.
- Another way to find interested people for study at your own institution; alumni will talk about their time at the institution (marketing); alumni of research-orientated programs will end up

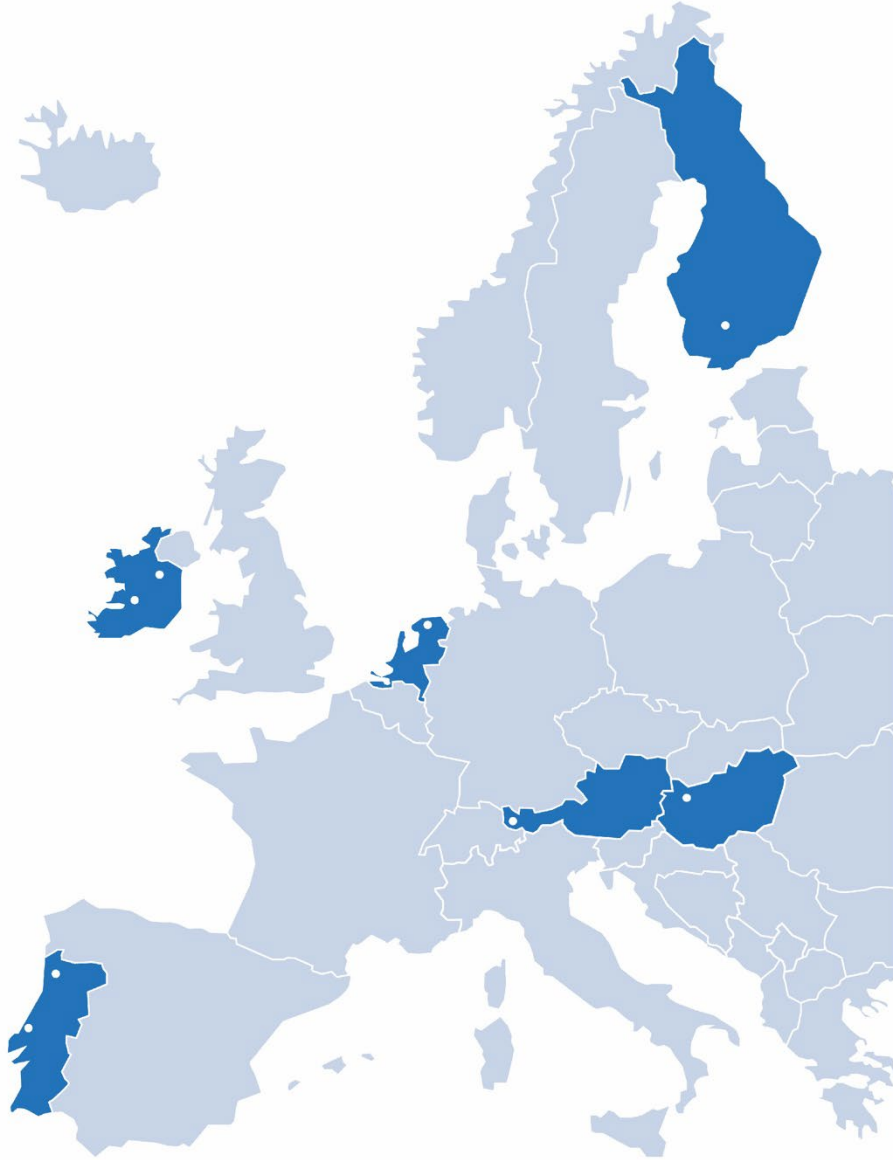
in R&D departments of companies and might collaborate with the institution in research projects afterwards.

5. Conclusion

Research infrastructure and expertise, stakeholder partnerships and financial resources are all key elements of the RUN-EU R&I strategy and are considered in this document. A budget framework has been developed for use by Programme Co-ordinators to assist in the financial planning of new master's and doctoral research programmes developed by the RUN-EU PLUS project. This will support effective financial planning and thereby support the long-term sustainability of the programmes. External funding support by regional organisations and national or international funding programmes will also be availed of.

Measuring impact will keep the research undertaken by RUN-EU PLUS Practice-based Research Degree Programmes relevant to the RUN-EU regions and to this effect, an Impact Assessment Framework for RUN-EU PLUS Research Degree Programmes has been developed by the RUN-EU PLUS project for use as a tool by Programme Co-ordinators to assess impact of their programmes and research outcomes.

Appendix 1



D3.4 ECONOMIC RESOURCE/IMPACT ASSESSMENT MODEL

PARTNER SURVEY: PARTNER NAME

September 2023

*Polytechnic of Leiria (IPL), Portugal and
Technological University of the Shannon: Midlands Midwest (TUS), Ireland*

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EXECUTIVE SUMMARY

This report addresses the identification of appropriate models of resources, infrastructures and/or partners to implement the strategic research and innovation agenda. This will include a detailed analysis of relevant EU funding mechanisms for professional practice-based research degrees (eg Marie Curie, EIT) and regional supports for collaborative research with industry and business. This task will set out an extensive range of research performance indicators (beyond publications) that define the measures of success and a broad range of impacts arising from successful professional practice-based research degrees including a cost-benefit analysis.

This report will analyse the added-value, resource model and cost-benefit model for the proposed professional practice-based research degrees and will identify an Economic Resource/Assessment Model to ensure scalability and long-term sustainability.

NOTES:

- Infrastructure (D5.1/D5.2 RUN-EU)
 - Partnerships
 - Supervision
 - Funding:
 - List of EU funding programmes for professional practice-based programmes
 - Regional supports for collaborative research with industry/business (D6.1)
1. Measuring success:
 - KPIs
 - CoARA
 - Declaration of Research Assessment (DORA)
 - EU report – Towards a reform of the Research Assessment (2021)
 2. Analysis:
 - added-value
 - resource model - if company is paying fees and wages then no fees or stipend must be paid by the college and fees are collected. College still gets a capitation fee from the government. If student based in company then no overheads on electricity, heat etc. Also no equipment to be bought. Supervision fees however.
 - cost-benefit model
 - Financial benefit to the college – (industry based fees + capitation fee) x 4 years.

1.0 Resources necessary for implementation of RUN-EU PLUS master's by Research & PhD Programmes

1.1 *Financing of research programmes*

Please identify for your institution:

1.1.1. Financing Programme delivery

- Programme income:

	Master's Programme	PhD Programme
Student Fees	€	€
National Capitation fee	€	€
Additional income sources (please specify)		

- Programme costs (please insert √ if identified as a cost but no figure available):

	Master's Programme	PhD Programme
Stipend/scholarship	€	€
Consumables		
Travel		
Equipment use		
Publication		
Overheads		
Supervision hours		
Taught modules/courses		
Additional costs (please specify)		

1.1.2. Funding Programmes

- Have you previously secured funding for master's/PhD scholarships from regional, national or international funding programmes? If so please list them here:

Agency:	Regional/national/international:	Programme link:	Summary of funding:

- Are you aware of master's/PhD funding programmes from regional, national or international sources which you deem appropriate for the financing of RUN-EU PLUS master's/PhD programmes? If so please list them here:

Agency:	Regional/national/international:	Programme link:	Summary of funding:

1.1.3. External Partner Funding Opportunities

- Have you previously secured funding from a company/other organisation to support a master's/PhD programme? If so please list them here (if this is not appropriate please list as 'Company 1' etc):

Organisation:	Regional/national/international:	Website:	Summary of funding:

- Are you currently in discussions with, or plan on approaching, a company/other organisation to support a master's/PhD programme? If so please list them here (if this is not appropriate please list as 'Company 1' etc):

Organisation:	Regional/national/international:	Website:	Summary of funding:

- Please identify any foreseeable challenges when approaching external parties to engage in the RUN-EU PLUS practice-based research programmes.

- Please suggest ways that the RUN-EU PLUS can address these challenges when approaching external parties to engage in the RUN-EU PLUS practice-based research programmes.

1.2 Additional Information

Please provide any additional information, thoughts, or ideas you have relevant to this section.

2.0 Measuring Impact of RUN-EU PLUS master’s by Research & PhD Programmes

2.1 Key Performance Indicators

- Please list the research KPIs monitored by your institution:

- Which KPI framework do these KPIs follow (e.g. national, EU).
- How is this information used? (reports to government bodies, funding programmes, dissemination/promotional purposes etc).
- Please list additional KPIs you believe accurately reflect the impact of professional practice-based master’s by research and PhD programmes.

2.2 Additional Information

Please provide any additional information, thoughts, or ideas you have relevant to this section.

3.0 Added value

Please provide your opinion of the RUN-EU PLUS practice-based master's by research and PhD programmes in terms of the following:

3.1 Added value to research candidate (student)

3.2 Added value to the company/external partner

3.3 Added value to the institution

3.4 Additional Information

Please provide any additional information, thoughts, or ideas you have relevant to this section.

Appendix 2

Key Development Players of RUN-EU Regions

- **Midlands-Midwest Ireland (TUS)**

Irish Development Agency Ireland	Semi-State Body	Ireland	Ireland's inward investment promotion agency is a non-commercial, semi-state body promoting Foreign Direct Investment into Ireland through a wide range of services. They partner with potential and existing foreign investors to help them establish or expand their operations in Ireland. The purpose of which is direct regional employment sustainability and socio-economic growth.
Irish Bioeconomy Foundation	National Government Organisation	Ireland	The Irish Bioeconomy Foundation is Ireland's national bioeconomy association and innovation cluster. IBF mission is to promote the conversion of Ireland's natural land and sea resources to high-value products for the development

			of a sustainable bioeconomy that is globally competitive and creates local development.
Fáilte Ireland	National Government Organisation	Ireland	Fáilte Ireland is the Irish National Tourism Development Authority. Their role is to support the tourism industry and work to sustain Ireland as a high-quality and competitive tourism destination. They provide a range of practical business supports to help tourism businesses better manage and market their products and services.
County Councils: Limerick City and County Clare Tipperary Westmeath	Public Body	Ireland	County Councils play a key role in the ongoing economic evolution and success of the regions which they serve and for community development.
Chambers of Commerce: Limerick Thurles Tipperary (Clonmel) Shannon Ennis Athlone/Westmeath	Public Body	Ireland	Chambers of Commerce provide progressive business representation for the SME, Retail and Hospitality and Corporate sectors in Ireland.
Explore Engineering (formerly Limerick for Engineering)	National Government Organisation	Ireland	Explore Engineering aims to develop engineering talent in the mid-west region. The Limerick for Engineering group is an industry-led

			initiative which has the support of the education and training providers in the region.
Midlands Regional Skills Forum	Enterprise – Upskilling Training	Ireland	The Midlands Regional Skills Forum is a Department of Education and Skills initiative to focus on fostering stronger links between enterprise and education and training providers.
AIT-Enterprise Forum	Enterprise-Higher Education	Ireland	Direct continuous consultation between AIT and Regional Industry and Employment for the purpose of programme portfolio review and identification of Continuous Professional Development training opportunities. Identification of opportunities for joint application to National Development funds such as the Human Capital Initiative programme to leverage funding for Regional Upskilling and Socio-Economic Enhancement through higher-level employment.
Enterprise Ireland (EI)	National Government Organisation	Ireland	Enterprise Ireland is the government organisation responsible for the development and growth of Irish

			enterprises in world markets. EI works in partnership with Irish enterprises to help them start, grow, innovate and win export sales in global markets. In this way, sustainable economic growth, regional development is supported and employment is secured.
Limerick City Build	Social Enterprise/Social Innovation	Ireland	Limerick City Build (LCB) Training Academy was established to create employment pathways for economically marginalised and socially excluded people in Limerick City. The epidemic of unemployment in Limerick, is well documented and is now in its third generation, marking it as having some of the highest unemployment black-spots in Europe.
Irish Precision Turned Parts Manufacturers Association of Ireland (PTMA)	Trade Organisation	Ireland	The P.T.M.A's mission is to further the growth and development of the Precision Turned & Machined Parts industry in Ireland. It is an active association which runs quarterly meetings addressing various aspects of the members

			business such as – Quality Standards, Safety, Marketing, Technical R & D and Training & Development of staff and it provides a vital networking opportunity for its membership.
Limerick for IT	National Government Organisation	Ireland	Formed in 2014, Limerick for IT is a unique skills partnership between major industry, including General Motors, Johnson & Johnson and Kerry Group, Dell and Limerick Chamber; together with education providers at UL and LIT; Limerick City & County Council and IDA Ireland
LINC Engineering Network	National Government Organisation	Ireland	LINC Network is a member-led Engineering cluster of over 50 SMEs located in North Cork and East West Limerick. The LINC cluster acts as an exchange forum where members can build links, share experiences and undertake joint commercial activity. The mission of the LINC Engineering Network is to bring companies together to increase the competitiveness of the region.

Atlantic Economic Corridor (AEC)	National Government Initiative	Ireland	The AEC is the term applied to a non-administrative or “linear” region along Ireland’s Western seaboard, stretching from Kerry to Donegal. The aim is to build and increase collaboration within the AEC that maximises its assets, attracts investment and creates jobs and prosperity in the region. The Department of Rural and Community Development is the department that is helping to progress the project and develop a clearly articulated road-map for delivery of the AEC objectives.
Limerick Civic Trust		Ireland	Limerick Civic Trust is a self-funding charity, which initiates and undertakes a programme of projects for the general improvements of Limerick’s environment in conjunction with local authorities, state agencies and all the sectors of Limerick’s commercial, professional, industrial and community life, all of whom share a common vision of

			the betterment of Limerick.
Industry Research and Development Group (IRDG)	National Government Organisation	Ireland	Ireland's Business-led Innovation Network dedicated to promoting excellence in research, development & innovation in member companies
IBEC	National Government Organisation	Ireland	IBEC is Ireland's largest lobby and business representative group whose purpose is to help build a better, sustainable future by influencing, supporting and delivering for business success. IBEC provides a wide range of professional services and management training to members on all aspects of human resource management, occupational health and safety, employee relations and employment law.

- **Região Centro, Portugal (IP Leiria)**

A list is provided below, organized according to the link of each entity with RUN-EU European Innovation Hubs.

EIH in Future Industries and Sustainable Development

IAPMEI (<https://www.iapmei.pt/>)

National governmental institute with the following mission: Promote competitiveness and business growth, ensure support for the design, execution and evaluation of policies aimed at industrial activity, with a view to strengthening innovation, entrepreneurship and business investment in companies that operate in the areas under the responsibility of the Ministry of Economy.

CCDRC (<https://www.ccdrc.pt/>)

Regional Coordination and Development Commission - Região Centro

NERLEI (<https://www.nerlei.pt/en/nerlei>)

NERLEI - Business Association of the Leiria Region was founded on 25 June 1985 and in 1992 acquired the status of Public Utility Institution.

NERLEI's main MISSION is to provide useful services that positively affect the results achieved by its members and, at the same time, is firmly committed to help strengthening their business performance and to promote the economic growth and the social development of Leiria region. NERLEI is a cross-sectorial association, that is, it brings together companies from all sectors of activity in this region of Portugal, and represents the business sector of the Leiria Region, located in the centre of Portugal.

Currently, NERLEI has approximately 1200 members, 38 percent of which in the industrial sector, 32 percent in the services sector, 23 percent in the trade sector and the remaining members are distributed between construction and tourism sectors.

Additionally, among our members, several secondary and higher education institutions stand out, as well as several cluster associations, linked to the moulding making industry, plastics industry, construction industry, and local business associations.

CENTIMFE – Centro Tecnológico da Indústria de Moldes, Ferramentas Especiais e Plásticos (<https://www.centimfe.com/about-us.html>)

It is a portuguese non-profit Public Utility institution, created in 1991, with over 230 Associates, integrating Companies, the sector associations CEFAMOL (Portuguese Association of the Moulds Industry) and APIP (Portuguese Association of the Plastics Industry), the public partners, IAPMEI and IPQ and, the Municipalities of Marinha Grande, Leiria, Batalha, and Oliveira de Azeméis. By promoting and developing activities like technical assistance, R&D, Technological transfer and Specialized training, CENTIMFE reinforces Industrial competitiveness.

OBITEC – Parque Tecnológico de Óbidos (<https://obidosparque.com/>)

It was created in 2008 as part of a local strategy for development of a creative economy. With a total construction area of over 4,000 square meters and 29 plots with an already established infrastructure (first stage), Óbidos Parque has all the necessary conditions for companies to establish and operate. From dedicated fiber optic network to proximity to an exceptional road network that allows direct access not only to Lisbon and Oporto, but also to the countryside and Spain, technological and market connectivity is guaranteed. The park is not a traditional business location area. It is a space that privileges architecture and green spaces. Óbidos Parque is looking for projects that may change the territory and help create an innovative hub for companies.

StartUpLeiria (<https://startupleiria.com/en/home-en/>)

It is a non-profit association established in July 2004 at the initiative of the Polytechnic of Leiria, the Business Association of the Leiria Region (NERLEI) and the City Council of Leiria. Today it has 34 members, mostly companies. Its mission is to promote and support companies and entrepreneurs in creating value and growth, in an agile and sustainable way.

OPEN – Oportunidades Específicas de Negócio (<http://www.open.pt/open/en/>)

It is a non-profit private institution, created in November 2002 for the promotion of innovation and employment through several different actions:

- Flourishing entrepreneurship in the Region, supporting the start-up of innovative enterprises
- Create the suitable conditions to attract new enterprises, services and industrial processes
- Stimulate business cooperation

- Support the development of professional skills
- Stimulate partnerships between the industry and the institutions in possession of funds for business modernization.

BUILT COLAB – Laboratório Colaborativo para o Ambiente Construído do Futuro

(<https://builtcolab.pt/en/>)

The Collaborative Laboratory for the Built Environment of the Future.

It promotes the digital and environmental transition of buildings and infrastructures, making them adaptable, intelligent, resilient and sustainable.

SmartFarm - Laboratório Colaborativo para a Inovação Digital na Agricultura

(<https://www.sfcolab.org/>)

It creates solutions to the challenges of climate change, digitisation of the agriculture and the development of circular economy adapted to medium-and small-scale farms.

EIH in Bioeconomy

SMART OCEAN – Parque de Ciência e Tecnologia do Mar (<https://smartoceanpeniche.com/en/>)

Smart Ocean is a Marine Science and Technology Park. It emerges to fulfil the need to work collaboratively towards a future where we can benefit from the ocean at the same time we contribute to its sustainability.

Fórum Oceano - Associação da Economia do Mar (<https://forumoceano.pt/>)

It is the entity that manages the Portuguese Sea Cluster.

Its Mission is to mobilize companies, start-ups, research centres, universities, public administration and finance to generate new business models towards an economy of the sea ESG: achieving financial profitability generating environmental and social impact positive, through technological and business innovation based on decarbonization, digitalization, and the circularity of processes

InovCluster – Associação do Cluster Agroindustrial do Centro (<https://www.inovcluster.pt/>)

It is the Agroindustrial Cluster of the Centre, and it aims to contribute to increasing the competitiveness of local and regional production systems and to the affirmation of the Central Region of Portugal at national and international level.

BlueBioAlliance (<https://www.bluebioalliance.pt/about-us/>)

The **BLUEBIO ALLIANCE (BBA)** is a national network that includes all subsectors of the marine bioresources value chain in Portugal. It ranges from raw material producers, R&D units, to biotech SMEs, transforming centres and manufacturers, public sector entities and support companies, up to the final consumer product developers. BBA aims at collectively organizing this value chain, to foster its relations and dynamics, leveraging its SMEs growth and accelerating their internationalization by increasing their outreach and exportations, leading to more jobs and value creation for Portugal.

Colab +Atlantic (<https://colabatlantic.com/>)

+ATLANTIC aims at advancing knowledge on the interactions between the Ocean, Atmosphere, Climate and Energy in the Atlantic, through an integrated and holistic approach from deep sea to space. By developing a better understanding of the Atlantic system, we prepare for the

sustainable use of its resources and create a framework to unleash its potential for Society, promoting blue growth and highly qualified employment.

S2 AQUA - LABORATÓRIO COLABORATIVO, ASSOCIAÇÃO PARA UMA AQUACULTURA SUSTENTÁVEL E INTELIGENTE

Association for a sustainable and intelligent aquaculture.

Centro Ciência Viva do Alviela – Carsoscópio (<https://alviela.cienciaviva.pt/>)

The Alviela Ciência Viva Center is a space for scientific and technological education, part of the National Network of Ciência Viva Centres.

The Alviela Ciência Viva Center has the goal to value the immense natural heritage of the Alviela River spring and its surrounding area, working simultaneously as a strategic resource for scientific dissemination and environmental education. In 2011, The Alviela Ciência Viva Center was established as a non-profit scientific and technical association, with the following founding members: Ciência Viva - National Agency for Scientific and Technological Culture, Alcanena Municipality, Polytechnic of Leiria and the Institute for Nature Conservation and Forests. Bats, water and karst are the themes explored in this Ciência Viva Centre through interactive exhibitions and various activities for different audiences, including the Bat Night, the Science Cafés, the occupation programmes during school holidays and the scientific outings.

EIH in Social Innovation

Leiria Social Innovation Hub (<https://startupleiria.com/en/home-en/>)

Leiria Social Innovation Hub is an initiative of Start-up Leiria, together with Polytechnic of Leiria, funded by Portugal Social Innovation (a government initiative aimed at promoting social innovation and stimulating the social investment market in Portugal). It intends to develop conditions for access to knowledge, partnership networks and social investors, to enhance the creation and replication of new solutions to the social and environmental challenges that the country faces. The objective will be to make the Leiria region a reference geography, in national terms, for the creation of new innovation and social entrepreneurship initiatives.

SPEAK (<https://www.speak.social/en/>)

SPEAK promotes the integration of migrant and refugee people in their new cities through a language / cultural exchange program and social events.

SPEAK provides an exchange of languages and cultures in language groups and events, with the aim of facilitating the integration of migrants in their new communities. The program generates social impact by breaking the language barrier, bringing people of different backgrounds together and promoting the appreciation of difference and cultural diversity.

- **Kanta-Häme, Finland (HAMK)**

Steel Construction Excellence Centre - SCEC			https://www.hamk.fi/scec-in-english/?lang=en
RiiCycle - Recycle Cluster in Riihimäki Area			RiiCycle supports local companies in Riihimäki Area to enhance recycling. RiiCycle cluster consists of different companies

Industrial Biotechnology Cluster, IBC,			Cluster of companies, universities and research centers. Companies (St1 Biofuels, Kemira, Roal, Kiilto, Orion), Universities (AaltoUni, UEF ÅboAcademy) and Research Centers (VTT, Luke)
Häme Regional Federation of Finnish Enterprises Association			Union represents entrepreneurs in Häme region. They influence and interact with Finnish decision-makers at all levels: locally, nationally and in the European
ICP Materials			. http://www.corr-institute.se/icp-materials/web/page.aspx?sid=3293
ProAgria			Rural Information Center (Häme Region)
MTK			The Central Union of Agricultural producers, Forest Owners and Rural Entrepreneurs in Finland (Häme region)
Biogas companies in Finland			
Food companies in the area			Ecosystem to be built

- **Ave and Cávado, Portugal (IPCA)**

ATTRACT Digital Innovation Hub	Public	Portugal	The ATTRACT consortium intends to establish itself as a collaborative network, benefiting from the strong skills, complementary infrastructures and capabilities and experience of developing innovative solutions of its members, in the digital area, namely in cooperation with companies and sectors. 2Ai/IPCA is a member since 2021.
Associated Laboratory of Intelligent Systems	Public	Portugal	This Associate Laboratory will strongly endeavour to promote scientific advances in the areas of Health and Society 5.0, Industry 5.0, Smart Cities, Infrastructures and Highly Connected Societies, Public Administration.
CIM Cavado	Public	Portugal	CIM do Cávado aims to combine, promote and articulate common interests to the associated

			municipalities, around collective proximity services, and municipal investments
Knowledge Circle	Public	Portugal	Aims to transfer results stemming from scientific and technological research to organizations and the wider society, along with associated skills and procedures to create utility for the ones who benefit from the use of the project outcomes
AEMinho	Public	Portugal	AEMinho arises, on the one hand, from the need to represent the business fabric of Minho before decision-makers, and on the other hand, from the need for an entity that acts as an agent of regional development, capable of promoting, in a sustainable way, a favorable environment competitiveness and the economic, social and cultural development of the region.
InvestBraga	Public	Portugal	Economic Stimulation and Attraction of National and International Investment to the region, through the Agency for Economic Stimulation of Braga.
MadeInFamalicao	Public	Portugal	Valuing and promoting entrepreneurial genetics, attracting new investments and helping entrepreneurs and entrepreneurs in the development of business projects.
AvePark	Public	Portugal	As a central object of AVEPARK, the development and promotion of a science and technology park is identified, which includes the educational, scientific, technological and business aspects, promoting a favorable climate for technology-based innovation, taking advantage of the synergies and complementarities between the scientific-technological and business communities.
CEVAL	Public	Portugal	CEVAL – Alto Minho Business Confederation is a Private Non-Profit Association, founded on June 5, 1998. CEVAL has established itself as a

			facilitating and participatory agent in the region's sustainable development process, incorporating objectives, innovative interventions and a vocation of proximity to the Business and Institutional Fabric.
CCDRN	Public	Portugal	The Commission for Coordination and Regional Development of the North (CCDR-N) is a service of the direct administration of the State, endowed with administrative and financial autonomy, whose direction is exercised by the Minister of Territorial Cohesion, in coordination with the Minister of Modernization of the State and Public Administration, in matters relating to local authorities, and with the Minister of the Environment and Climate Action, in matters of the environment and territorial planning. This public institution aims at the integrated and sustainable development of the North of Portugal, contributing to the competitiveness and cohesion of the national territory.
Barbosa De Oliveira Industrial Park	Private	Portugal	A new generation industrial park, built in a structured, facilitating, integrative logic, which encourages flows of knowledge and public-private synergies, and which contributes to economic growth and development in the municipality of Barcelos.

- **Northern Netherlands (NHL Stenden)**

In the Northern Netherlands there is a number of strong, thematic clusters such as in the fields of smart manufacturing ([Innovation Cluster Drachten](#), [Dutch Tech Zone](#)), water technology ([Water Campus Leeuwarden](#)), bioeconomy ([ChemPort](#)) and health technology ([Health Hub Roden](#)).

For the regional SMEs there are three organisations that offer direct innovation assistance ([YnBusiness](#) in Fryslân, [GroBusiness](#) in Groningen and [IBDO](#) in Drenthe). Their consultants offer advice on a wide number of themes such as financing and connecting companies where relevant.

The [Northern Netherlands Alliance](#) fulfils several functions. They are an administrative organisation through which the three provinces and the four large cities in the region coordinate their spatial planning and economic strategy. They are a Management Authority for the European Regional Development Fund (ERDF), a united voice from the Northern Netherlands, representing the region in The Hague and Brussels. On top of this they are a network organisation that enables businesses, knowledge institutes, regional authorities and civil society organisations to meet and combine their strengths to foster innovation – both in the Netherlands as well as in Europe. To boost project development, there are monthly ‘Matrix’-meetings in which a group of experts actively try to further project ideas that are deemed valuable for the region.

4.6.6 Győr-Moson-Sopron County, Hungary (Széchenyi István University)

Széchenyi István University Regional Innovation Platform	HUB	Hungary	The Manangement Campus Competence Centre of SZE supports the international competitiveness and development of the innovation capabilities of local companies, especially small and medium-sized enterprises within the HUB.
Győr-Moson-Sopron-County Chamber of Commerce and Industry ⁴	National Government Organisation	Hungary	Mission is to support regional ad local enterprises with administrative and legal services and education.

- **Vorarlberg, Austria (FHV)**

V-RESEARCH and Digital Factory Vorarlberg

<https://www.v-research.eu/>

V-Research and the newly founded Digital Factory Vorarlberg are two daughter companies of Vorarlberg University of Applied Sciences when it comes to applied research and development mostly with industrial partners.

Austrian Blockchain Centre

<https://www.abc-research.at/>

⁴ [GYMSMKIK](#)

The Centre's mission is to be the one-stop-shop Austrian Research Centre for Blockchain (and related) technologies to be applied in industrial applications like industry 4.0 / IoT as well a financial, energy, logistics, government and administrative applications. Those new applications and business models resulting from collaborations between established players, innovative start-ups and top R&D institutes will be the key for the creation of new jobs and establishing Austria among the top ten innovative countries in Europe. FHV is due to its research centre Business Informatics part of this project.

Digital Innovation Hub West

<https://dih-west.at/>

DIH West is a hub for digital innovation in the western part of Austria (Vorarlberg, Tyrol, Salzburg).

CDP - Austrian Centre for Digital Production

<https://acd.p.at/de/en/>

The Austrian Centre for Digital Production supports companies in the digitalization and automation of discrete manufacturing and production processes. Special focus is on the needs of SMEs and the tasks arising from the production of small batch sizes. The portfolio of expertise ranges from the virtual representation of products and production systems to the automation of design tasks, machine-to-machine communication, including sensor integration, integration with and into IT systems, data science and the consideration of socio-economic aspects. FHV is due to its research centre Business Informatics part of this project.

Start-up Centre 'startupstube'

<http://www.startupstube.at/>

The startupstube brings students from different disciplines together and supports them during the startup process. It offers start-ups and innovators entrepreneurial development space and inspiration, creates proximity to the regional and international innovation ecosystem and promotes exchange with like-minded people.

Plattform-V

<https://www.plattform-v.io/>

Plattform-V is an agile, registered non-profit association. Representatives of the member companies are to motivate them to become active and promote the networking of member companies through digital business models to strengthen Vorarlberg and the region. Members of the association are Vorarlberg companies of all sizes from different sectors, with a current focus on manufacturing companies. The organisational management and strategic orientation of the platform is in the hands of the "Platform V Core Team". This is made up of representatives of several member companies - large and small - and care is taken to ensure that new members are appointed on a regular basis.

Wirtschafts-Standort Vorarlberg GmbH - WISTO

<https://www.wisto.at/en/home/>

WISTO supports local companies in research, development and innovation, assists start-ups and coordinates the digitization agendas in Vorarlberg. As a direct interface to companies and institutions, we implement lead projects. In addition, we are responsible for location marketing and promotion and the development and implementation of the Marke Vorarlberg.

Industriellenvereinigung Vorarlberg

<https://vorarlberg.iv.at/>

As a voluntary, non-partisan interest group representing industry and its closely related sectors, the IV-Vorarlberg works to improve the competitiveness of our location. This is intended to secure necessary growth, necessary jobs and social prosperity in Vorarlberg.

Appendix 3 RUN-EU Research Cluster Group Areas

RUN-EU RESEARCH AREA 1 CLUSTER GROUP

Research Area Cluster Name

Creative Art, Design and Materials Thinking

Research Area Cluster Lead

Paula Tavares, IPCA Polytechnic Institute of Cávado and Ave

Short Description

<p>The design of objects, processes, relations, and situations seeks to open up new ways of thinking and acting sustainably with cognizance to global carbon dioxide mitigation challenges central to the horizon Europe research and innovation program. Sustainable materials design, resource wisdom and sustainability are critical to design and product property. Minimizing the use of fossil raw materials, for instance in optimized additive manufacturing designs and utilization of side stream materials with added value will allow truly ecological design of products. Also, the additional design properties, such as color palette created from bio-based colorants will bring new aesthetics to interior design. Similarly, digital simulations research will focus on the finite element simulations of complex structures under various environmental loads. The durability of the modern (small or large) artwork to resist the environmental loads is essential in art design, and digital simulations can be performed to check the strength of the structures and additive manufactured design works in early phase. These crosscutting environmentally conscious research capabilities and interest areas identified within the audit will also become active research pillars within this research area.</p>

Individual Institute Lead(s)

TUS Midwest (formerly LIT)	Adam deEyto
TUS Midlands (formerly AIT)	Sean Lyons
FHV	Margarita Köhl
HAMK	Satu Jumisko-Pyykkö
HAMK	Päivi laaksonen
IPCA	Paula Tavares
IPCA	Jorge Pereira
SZE	Imre Tolnay
NHL Stenden	Marcel Crul
NHL Stenden	Peter Joore
NHL Stenden	Ivo Wenzler
IPL	Sandra Neves

RUN-EU RESEARCH AREA 2 CLUSTER GROUP

Research Area Cluster Name

Food and Biotechnology

Research Area Cluster Lead

Annukka Pakarinen (HAMK)

Short Description

Food and biotechnology are essential areas of research and education towards sustainable and secure globe. New technologies and innovations are needed to feed the world's growing population and turn industrial production into greener pathway. Working group of Food and Biotechnology enhances the co-operation between RUN expertise's on this specific area. This working group is an important part of established European Innovation Hub in Bioeconomy which is one of the planned Hub's in RUN-EU. In this first phase Food and Biotechnology working group consists of six RUN-EU partners: TUS Midlands, HAMK, IPL, LIT TUS Midwest, NHL Stenden and SZE. Expertise and facilities within this group allow interesting openings, knowledge transfer and innovative co-operation with companies and other stakeholders across Europe.

Individual Institute Lead

IPL	Sara Novais
TUS Midlands (formerly AIT)	Michelle McKeon-Bennett
HAMK	Annukka Pakarinen
NHL STENDEN	Jan Jager/Rudy Folkersma
TUS Midwest (formerly LIT)	Patrick Murray
SZE	Zoltan Molnar

RUN-EU RESEARCH AREA 3 CLUSTER GROUP

Research Area Cluster Name

Tourism

Research Area Cluster Lead

Dr Anthony Johnston, TUS Midlands

Short Description

The Tourism Research Area Cluster brings together RUN-EU members that are involved in this area of research. On June 10, 2021, there was an inaugural exploratory meeting to identify common areas of research and interests between the partners.

Individual Institute Lead

IPL	Francisco Dias
TUS Midlands (formerly AIT)	Dr Anthony Johnston
HAMK	Menna Rantala
NHL STENDEN	Albert Postma
TUS Midwest (formerly LIT)	Liz Kennedy
IPCA	Maria Alexandra Pereira da Silva Mahheiro

RUN-EU RESEARCH AREA 4 CLUSTER GROUP

Research Area Cluster Name:

IoT and Cybersecurity

Research Area Cluster Lead:

NHL Stenden

Short Description:

The Internet of Things (IoT) is very rapidly growing and it is expected to triple from the 8.74 billion devices in 2020 to more than 25.4 billion devices in 2030. The most critical point in IoT is however the security since many IoT devices lack the resources and calculation power to implement proper security protocols. The focus of this research area cluster is therefore the investigation of IoT technologies with a special focus on Cybersecurity on one hand but on the other hand also cybersecurity in a broader range with applications in digital factories, industry 4.0 settings, ICT, and other domains.

Individual Institute Lead:

IPL	Nuno Costa
TUS Midlands (formerly AIT)	Brian Lee
HAMK	Joni Kukkamäki
NHL STENDEN	Jeroen Pijpker Joyce Kerstens Jurjen Jansen (i.V. Wouter Stol)
TUS Midwest (formerly LIT)	Niall Corcoran
IPCA	Nuno Lopes
FHV	Martin Dobler

RUN-EU RESEARCH AREA 5 CLUSTER GROUP

Research Area Cluster Name:

Smart, Sustainable and Advanced Manufacturing

Research Area Cluster Lead:

Dr John Cosgrove, TUS

Short Description:

The Academy for Smart, Sustainable and Advanced Manufacturing incorporates a range of multi-disciplinary research institutes across the RUN-EU European University. The aim is to jointly address the development and application of intelligent systems, new products and innovative and sustainable processes to support regional enterprises, particularly SMEs.

Individual Institute Lead:

IPL	Hugo Costelha
TUS Midlands	Declan Devine
HAMK	Jukka Pulkkinen
NHL STENDEN	Wilbert van den Eijnde
TUS Midwest	John Cosgrove
IPCA	António Moreira
FHV	Robert Merz
SZE	Hargitai Hajnalka

RUN-EU RESEARCH AREA 6 CLUSTER GROUP

Research Area Cluster Name

Climate Change – Circular Economy & Decarbonisation

Research Area Cluster Lead

Petra Szakonyi (SZE) & Teresa Cristina Pereira Eugénio (IPL)

Short Description

Climate Change- Circular Economy & decarbonisation working group mission is to support the priorities of EU green deal. Our aims are:

- to make transport sustainable for all (reduce emission of cars and vans, improve sustainable transport infrastructure and services)
- energy efficient renovation of buildings,
- renovate buildings for greener lifestyles,
- greater use of renewable energy,
- raising awareness for green technology and lifestyles.

New technologies and innovations have to be able to ensure mobility and housing needs of world's growing population in a greener way. Working group of Climate Change- Circular Economy & Decarbonisation enhances the co-operation between RUN expertise's on this specific area. This working group is an important part of established European Innovation Hub in Climate Change- Circular Economy & Decarbonisation which is one of the planned Hub's in RUN-EU.

In this first phase Climate Change- Circular Economy & Decarbonisation working group consists of six RUN-EU partners: TUS Midlands (formerly AIT), HAMK, IPL, TUS Midwest (formerly LIT), NHL Stenden and SZE. Expertise and facilities within this group allow interesting openings, knowledge transfer and innovative co-operation with companies and other stakeholders across Europe.

Individual Institute Lead

IPL	Teresa Eugénio
TUS Midlands (formerly AIT)	Margaret Brennan Fournet
HAMK	Iivari Kunttu; Kaisa Kontu; Päivi Laaksonen
NHL STENDEN	Welmoed van der Velde; Matthias Olthaar; Jan Jager; Rudy Folkersma; Herbert Koelman; Marcel Crul
TUS Midwest (formerly LIT)	Seamus Hoyne
IPCA	Daniel Miranda; Ricardo Simoes
FHV	Jens Schumacher
SZE	Rajmund Kuti, Dávid Bozsaky

RUN-EU RESEARCH AREA 7 CLUSTER GROUP

Research Area Cluster Name

Education and Social Sciences

Research Area Cluster Lead

Dr. J. Metselaar, NHL Stenden

Short Description:

The horizon Europe research program is committed to the implementation of educational and social science research activities that will contribute to a comprehensive European strategy for societal improvements and ensuring inclusiveness and equity across all levels of our citizenship. Specifically, the RUN-EU education and social science research cluster will support these ideals and engage in multidisciplinary research and innovation activities that deliver inclusive growth and reforms in line with the European Pillar of Social Rights and the EU's policies on smart, inclusive and sustainable growth.

Our research activities will assess the role of cultural, legal educational and creative sectors and the social economy in delivering social and economic transformations and increased social inclusion.

Individual Institute Lead

IPL	Isabel Dias
TUS Midlands (formerly AIT)	Jeffrey Buckley
HAMK	Jaana-Maija Koivisto; Liisa Postareff
NHL STENDEN	Joana Duarte; Migchiel van Diggelen; Deike Schulz; Jacqueline Rietveld
TUS Midwest (formerly LIT)	Lisa O'Rourke Scott
IPCA	Sónia Monteiro; Vitor Carvalho
FHV	Fabian Rebitzer
SZE	Melinda Krankovits; Nárcisz Kulcsár

RUN-EU RESEARCH AREA 8 CLUSTER GROUP

Research Area Cluster Name

Health and Wellbeing

Research Area Cluster Lead

IPCA (João Vilaça, Director of 2Ai Laboratory Director of Technology Department, Polytechnic Institute of Cavado and Ave) and NHL Stenden University (Janneke Metselaar, Professor Child and Youth Care).

Short Description

Our mission in research cluster Health & Wellbeing is to contribute to the creation of knowledge and innovative programs promoting the improvement in the quality of life across human beings, including research on motor behaviour, physical activity and healthy lifestyle, education and training and Individual and community health, health promotion and care, biomarkers and clinical engineering, nutrition and food for health innovation.

We will within this research cluster address the identified needs defined with pillar 2 health research cluster of the horizon Europe program. Our aim is to develop interdisciplinary projects and themes which support the wellbeing of our citizens in addition to developing community engagement project ideas which support our local community's and the development of their people and economy. The outcomes will be ideas which can be transformed into projects and programmes delivered by RUN-EU's health research cluster.

Individual Institute Lead

IPL	Maria Guarino and Sónia Pereira
TUS Midlands (formerly AIT)	Don Faller
HAMK	Merja Sareela and Kimmo Vänni
NHL STENDEN	Job van 't Veer, Gea van Dijk, Nynke Boonstra and Jacqueline Rietveld
TUS Midwest (formerly LIT)	Frank Houghton and Jennifer Stritch
IPCA	João Vilaça
FHV	Michael Himmer
SZE	György Wersenyi

Appendix 4

RUN-EU Partner Research Degree Programme Costs

- **TUS**

	Master's Programme	PhD Programme
Stipend/scholarship*	€ 12,000	€ 18,000
Consumables	€ 1500	€ 1500
Travel		
Equipment use	Incl. with consumables	Incl. with consumables
Publication	√	√
Overheads		
Supervision hours		
Taught modules/courses	√	√
Additional costs (please specify)		

*Funded Research Postgraduate Degrees

- **IPL**

	Master's Programme	PhD Programme
Stipend/scholarship		
Consumables	√	√
Travel	√	√
Equipment use	√	√
Publication	√	√
Overheads	√	√
Supervision hours	√	
Taught modules/courses	√	
Additional costs (please specify)		
Short-term Scientific missions (from 1 to 3 months)	√	√
Depreciation (Equipment)	√	√

- **HAMK**

	Master's Programme	PhD Programme

Stipend/scholarship	Scholarship: Basic User of Finnish language (CERF level-A2): €2 500 €	No scholarship yet
Consumables	Specified for the need	Specified for the need
Travel	Specified for the need	Specified for the need
Equipment use	Specified for the need	Specified for the need
Publication	Specified for the need	Specified for the need
Overheads	√	√
Supervision hours	√	√
Taught modules/courses	√	√
Additional costs (please specify)	Specified for the need	Specified for the need

- **IPCA**

	Master's Programme	PhD Programme
Stipend/scholarship	Some students can have a scientific research scholarship if the workplan is related with a funded R&D project – 875.98€	Some students can have a scientific research scholarship if the workplan is related with a funded R&D project – 1144.64€
Consumables	Dependent if the student is a part of a R&D project	Dependent if the student is a part of a R&D project
Travel	Dependent if the student is a part of a R&D project	Dependent if the student is a part of a R&D project
Equipment use	Dependent if the student is a part of a R&D project	Dependent if the student is a part of a R&D project
Publication	Dependent if the student is a part of a R&D project	Dependent if the student is a part of a R&D project
Overheads	25%	25%
Supervision hours	~2hours/week/per student	~2hours/week/per student
Taught modules/courses	~60€/hour	~80€/hour
Additional costs (please specify)		

- **NHL Stenden**

	Master's Programme	PhD Programme
Stipend/scholarship	€ n/a	€ n/a
Consumables	√	
Travel	√	
Equipment use	√	
Publication	n/a	
Overheads	√	

Supervision hours	Average personnel costs estimated € 5.000,00/year/student based on 1 teacher-20 students	
Taught modules/courses		
Additional costs (please specify)		

- **SZE**

	Master's Programme	PhD Programme
Stipend/scholarship	√	√
Consumables	√	√
Travel	√	√
Equipment use	√	√
Publication	√	√
Overheads	√	√
Supervision hours	√	√
Taught modules/courses	√	√
Additional costs (please specify)	√	√

- **FHV**

The overall number for the study courses at FHV in the Master's Programme range between €13,120 per student and year up to €21,248 per student and year (depending on share of technical course content) (Note that the numbers are from 2021, with the high inflation of 2022 and 2023 they might be far higher now). We cannot give a number for PhD Programmes as are not allowed to award a PhD. The costs are "all in" including all aspects below.

	Master's Programme	PhD Programme
Stipend/scholarship	€	€
Consumables		
Travel		
Equipment use		
Publication		
Overheads		
Supervision hours		
Taught modules/courses		
Additional costs (please specify)		

Appendix 5

RUN-EU PLUS Budget Framework for Practice-based Research Programmes

PART A: Programme Cost

*Programme Costs (per annum):		Total:	Programme Cost per student (A):
Co-ordinator salary	€		
Programme Board meeting	€		
Student Induction	€		
Communication	€		
Programme Co-ordination	€		
Website	€		
		€Total Programme Cost	*€Total Programme Cost/number of students (A)

PART B: Individual Student Cost

*Individual Student Costs (per annum):			Individual Student Cost Total (B):
	1 SAP	€	
Participation cost:	Taught modules	€	
	Supervision costs	€	
	Thesis enrolment & insurance	€	
	Annual symposium	€	
	Programme Administration	€	
	Computer (?)	€	
	Consumables	€	
	Overhead costs	€	
	Depreciation (Equipment)	€	
			€ (B)

** Indicative costs – budget to be completed for each research programme*

Total Cost per student (per annum):

Programme cost (A) + Individual Student cost (B) = total (C)

- *RUN-EU PLUS – target is company employees (no stipend) -*

Annual Tuition Fee charged based on C, agreed by collaborating institutions, included in Programme Consortium Agreement (signed by collaborating institutions).

The income generated from the annual tuition fees will be distributed among the partners, taking account of equitable distribution of the overall programme costs among the partners.

Appendix 6

Impact Assessment Framework for RUN-EU PLUS Research Degree Programmes

Research Activity		
KPI	Metric (annual)	Target (annual)
Research projects	Number	
Research Funding contribution by industry, government or other funds.	€	
External collaborations	Number	

Research Quality		
KPI	Metric (annual)	Target (annual)
Number of research postgraduate students graduating – master's/ PhD	Number	
Publications in peer-reviewed journals	Number	
Citations	Number	
Journal rankings	Number	
Completion rate of	Average %	
Completion time of Research Degree Programmes	Average time (years)	
Pass rate Research Degree Programmes	%	
Presentation in international conferences	Number	

Collaborative Research Programmes		
KPI	Metric (annual)	Target (annual)
Postgraduate students registered total – master's /PhD	Number	
Industry-based researchers registered – master's /PhD	Number	
Industry-based researchers registered in SME – master's /PhD	Number	
Postgraduate student mobility	Number	
Supervisors	Number	
External sponsorship of Research Degree Programmes	Number	
MSc dissertations and PhD thesis fully driven by external partners	Number	

Strengthening Human Capital		
KPI	Metric (annual)	Target (annual)
Contract researchers	Number	

Full-time staff (or equivalent) dedicated to research	Number	
Research staff integrated in research units	Number	
Certified supervisors	Number	
Researcher training workshops	Number	
Workshop registrations - total	Number	
External party registrations - total	Number	
Graduate career progression/promotion (upon graduation)	Number	
Employment rate (upon graduation)	%	
Graduates employed in region (upon graduation)	Number	
Percentage Salary increase (upon graduation) - average	%	

Gender & Diversity in Research		
KPI	Metric (annual)	Target (annual)
Contract researcher gender balance	ratio	
Research Degree Programme gender balance	ratio	
Supervisor/Trainer gender balance	ratio	

Mainstreaming Open Science Practices		
KPI	Metric (annual)	Target (annual)
Open-access papers published in a public repository	Number	
Open Science training workshops	Number	
Open Science workshop registrations	Number	

External Collaboration		
KPI	Metric (annual)	Target (annual)
Collaborative research projects - National	Number	
Collaborative research projects - International	Number	

Technology Transfer & Entrepreneurship		
KPI	Metric (annual)	Target (annual)
Patents transferred to industry	Number	
Service contracts	Number	
Technical reports made available to external organisations	Number	
Licensing agreements	Number	
Spin-out and start-up companies	Number created	
Invention Disclosure Forms reviewed by R&I committee	Number	
Patent applications	Number submitted	
Technology offerings on Cloud of Knowledge Portal	Number	
Prototypes developed within MSc and PhD research work.	Number	

Outreach Activities		
KPI	Metric (annual)	Target (annual)
Artistic and Creative productions	Number	
Research & Innovation Roadshows	Number	
ICARUS conference registrations	Number	
Dissemination events	Number	
Social Media posts	Number	



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