

Empower Academia for Knowledge Transfer for Value Creation in the Atlantic Area

WP7 – Academia Innovation Enhancer – EST best route to commercialization to generate socio-economic value

Activity 1 – WP7 – State of the art of existing technology transfer tools and methodologies and knowledge transfer pack

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1. Action description

WP 7 Action 1: State of the art of existing technology tools and methodologies.

This action aims at capitalising the tools and methodologies already existing in each country, that support transfer from research to economy and compare the successful ones to mutualise at AA level. The state of the art will be performed in order to avoid mistakes and take advantage of successes. Also, it will be adapted to the specificities of Blue economy's industries and markets. Also, a knowledge transfer agreements pack will be developed to support researchers in their future KT activities.

Deliverable: This action's objective is to provide a compilation of existing knowledge transfer tools in order to construct the Academia Technologic Enhancer avoiding mistakes and taking advantages of successes.

2. Summary report

Introduction:

It has been asked to partners to identify the tools or methodologies that exists in their countries to promote knowledge transfer. A total of 68 tools have been identified, they are presented in the part 4 of this report. The following part presents a summary report of the tools and methodologies identified by partners across Europe to promote knowledge transfer. It also presents the good and bad practices of these tools to take advantages of successes and avoid mistakes for the Emporia4kt's Academia Innovation Enhancer. A specific focus has been made on good and bad practices identified in knowledge transfer training programmes as the Academia Innovation Enhancer is a training programme.

Organisations that provide knowledge transfer tools:

The organisations that deliver knowledge transfer activities can be divided in different groups:

- **Universities, research or technological centres** through their **technology transfer offices (TTO)** that are aimed at strengthening the links between universities and businesses by promoting cooperation project of research, raising awareness to entrepreneurship to researchers, training to business creation, networking events that bring together, investors, entrepreneurs, researchers... This services also support researchers to patent their research results, promote spin-off creation, disseminate and communicate research results to potential partners (investors, businesses...).

Examples: The knowledge and technology transfer offices of the Spanish Universities of Huelva, Grenada, Las Palmas, Cadiz, Malaga, Vigo, the service of the CSIC (Spain)

dedicated to knowledge transfer, the mixed unit of research development and innovation of the Spanish Institute of Oceanography, CIEMAT (Spain), the Polytechnic Maritime Fishing Institute of the Atlantic of Vigo (IMPMP), technology transfer Offices of Irish universities Agrocampus (France) or the universities of NOVA, Lisbon, Porto, Aveiro, Minho or Coimbra with their programme dedicated to promote entrepreneurship to researchers, the services dedicated to knowledge transfer at Agrocampus University (France), organisation such as la SATT Ouest Valorisation that are aimed at accelerating the technology transfer from French public universities.

- **Incubators or Acceleration start-up organisations:** That provide workspaces to entrepreneurs with several activities to support start-up to grow and promote knowledge transfer such as training programmes to entrepreneurs/researchers with mentoring sessions and businesses representatives interventions or seed capital investments.
Examples: Telefoncia S.A or Vodafone S.A and the Andalusian government through the Programme Andalusia Open future and the programme Minerva, the Entrepreneurship in Science and technology parks of the Association of science and technology park of Spain, the European Centre for Enterprises and Innovations (CEEI) the Building Global investor Accelerator (Portugal), the Idea Lab UM of the University of Minho, the Inov C programme of the University of Coimbra, the INEO Start programme of the Institute Pedro Nunes.
- **“Cluster” organisation** that bring together organisations of the innovation sector to mobilise different resources to promote innovation such as the “Pays de Morlaix” with the “Blue Valley” that rally universities, researchers centres, businesses and institutions around a common biotechnology cluster project. *The Campus Mondial de la Mer*, that bring together local institution, businesses and researchers around the blue economy development, the *United Kingdom Research and Innovation* that works in partnership with universities, research organisation, businesses, charities and government to flourish research and innovation, *MarRI-UK* that is a collaborative innovation vehicle for UK Industry and academia aimed at tackling innovation and technology challenges, *RedOTRI* in Spain that is a network of Universities, the *European Centre for Enterprises and Innovation (CEEI)* that is aimed at creating synergies between people from the innovation, public and private sector, the Granada Confederation of businessmen, the Andalusian Knowledge Agency...
- **Independent associations** such as *Praxis Auril* that provide a network of technology the *C.U.R.I.E Network (France)* that is aimed at providing training programmes and events to promote knowledge transfer. *HiSeedtech* in Portugal that is a non-for-profit organisation funded by private companies that is aimed to promote knowledge transfer. *NESTA (UK)* that use innovation methods against innovation spiral.

Actions undertaken to promote knowledge transfer:

Actions undertaken by partners to promote knowledge transfer can be group in several different group:

- **Training programmes to entrepreneurship** provided to researchers to **raise awareness** of entrepreneurship amongst researchers, to reduce the “culture gap” between the research world and the business world, to give to researchers a first overview of the job of entrepreneur. These training programmes are also a good opportunity to meet businesses as they contain mentoring sessions with businesses representants. These kinds of programmes are carried out by several organisation dedicated to knowledge transfer such as the programme *I-team of MIT Portugal* of he university of Lisbon, *HiTechOne of HitechSeed* (Portugal), *UTEN Portugal*, *Building Global Investor Accelerator (BGI)*, university of Porto and Aveiro, the *Andalucia Open Campus* or the acceleration Stat-up programme such *Programa Minerva in Spain*, *The SATT* (French independant technology transfer offices) or the *C.U.R.I.E network (France)*...
- Support to start- up creation and start-up development with an **administrative, juridical and financial support**, to evaluate market and licence technologies, promote partnership with investors or other businesses... This kind of activities are provided by organisations such as the *Technology Transfer Offices* of the Universities of Huelva, Las Palmas, Cadiz, Malaga, Grenada, Vigo, *Energy Environment and Technology Research Centre in Spain (CIEMAT)*, the University of Aveiro with the *UATEC* or the *SATT* that are aimed to evaluate market and license technologies from French universities and public research organisation...
- **Networking activities** that enable researchers, businesses and institutions to meet. This could be made through networking event that bring together the whole environment of innovation in a local area or a common technology such as the *Ocean Hackhathon* that bring together businesses, institutions, researchers and students during an 48 hours event during which small teams of participants works solely from a range of marine digital data to develop a prototype of new products or the *DeepTechTour* in France in which series of events are provided to raise awareness about entrepreneurship to researchers. There is also *BGI Portugal* that provide international bootcamps between Portugal and the US that bring together stakeholders of innovation at international level. *INEO Start* of Lisbon University that provide meeting between entrepreneurs and investors. Activities carried out by businesses accelerators in Spain that provide connections with businesses investors such as the *Programme Minerva* or the science technologic parks of the *Association of Science and technology parks of Spain*, the *Andalusia Knowledge*

Transfer Conference of the Andalusia Knowledge Agency, the UTEN in Portugal that provide series of networking activities at national and international scale...

- **Communication** about research results to other stakeholders of innovation (other researchers, businesses, investors that could make the most of these research results). This could be made through the creation of web platform where all the patented researches results are gathered such as the *Market of ideas and Technology of the Andalusian Knowledge Agency* that is open space for suppliers and demanders of innovation or *La SATT (France)* that provide database of patented projects.
- **Provide services that identify needs of innovations** for business or public administration and link these actions with researchers to meet this need. Such as *Granada Confederation of businessmen*, the *knowledge transfer network of Innovative UK* that is aimed at helping businesses to improve their competitiveness and productivity through the better use of knowledge technology and skills.
- **Promote cooperation research between research centres and businesses** to enable research centres and universities to meet the needs of businesses in research and development. Research centres and Universities provide training to professionals or businesses staff to improve the way they work. This kind of activities are carried out by several Technology Transfer Offices of universities or research centres such as *Agrocampus (France)* or the *Institute for Research and training in Agriculture, Fisheries, Food and ecological production (IFAPA, Spain)* or the *Polytechnic Maritime Fishing Institute of the Atlantic of Vigo (IPMP Vigo)*, the *Canary Island Institute of technology, Spanish Institute of Oceanography...*

What does improve knowledge transfer tools?

From the different feedbacks received from partners a list of actions that have been identified as improving knowledge transfer tools.

- **Enable stakeholders involved in the same R&D topic to meet** through networking events such as exhibits, conferences, seminars... this has been organised by different organisations (Technology Transfer Offices of universities, Acceleration start-up...). *The Ocean hackathon* organised by the *Campus Mondial de la Mer* is a good example as a large community of stakeholders from the blue economy (researchers, institutions, banks, businesses, universities...) are brought together during a 48 hours event this enable to create community of actors around a common topic.
- **Focus** knowledge transfer activities on a **specific area of technology** rather than too general topic for turning commercial idea into reality. The aim is to rally researchers, businesses, investors... during an event or an activity that is focused on one specific area of technology to enable better exchanges between attendees. Organisations such as the *Catapult network (UK)* provide specific area of technology and expertise for turning commercial ideas into reality (Satellites, energy systems, Offshore renewable

energies...). *RedOTRI* (Spain) is aimed at identifying the most appropriate researchers to meet the needs of businesses. The “*Blue Valley*” rally stakeholders around the development of the biotechnology and rally researchers, institutions, investors and businesses.

- Provide **sustained sources of funding** and resources to support projects in **long term** to tackle difficult and novel challenges especially for the Early Stage Technologies that can have long development process and could struggle to find private investors. **Finding a financial support from public organisations** can also be fundamental to mitigate risks and enable other private financing sources to join the project (UKRI and Innovate UK).
- Contracts and other forms of **collaboration between the universities or research centres and the businesses** enabled to businesses and researchers to work together and share research results with businesses... (*RedOTRI, Technology transfer offices of Universities*).

What does limit knowledge transfer tools?

- **Academia and businesses are not aligned in market timing** to deliver grants. For example, when there's an imminent market opportunity, business need to wait for the opening calls for certain thematic to get a grant. Moreover, funds given by academic actors to support early stage technologies can be too short (2 or 3 years) compared to the time needed for some early stage technologies to reach the market (10 years). (*UK RI, Agrocampus...*).
- **Difficult to manage an efficient business-university collaboration**, it requires business-driven collaboration to make the most of it (*National Centre for University and Business UK*). Moreover, there can be a treatment of administrative procedures with universities that can prevent businesses to collaborate them. (*Technological Corporation of Andalusia*).
- Some knowledge transfer grants can be **highly demanding in terms of bureaucracy** and paperwork (especially grants funding for cooperation projects of research). This could prevent some organisations to take part in knowledge transfer activities (*UK RI, Integrate UK*).
- **Researchers system of evaluation** does not promote knowledge transfer as researchers are mostly evaluated on their scientific publications and not about the knowledge transfer activities they could have undertaken (participation in cooperation project of research, spin-off creation, support to businesses to improve their productions methods...).
- Investors usually want a rapid investment return 3-5 years and the early stage technology development process necessitate a 10-15 years before being able to be commercialised (*Blue Valley Roscoff*).

What does improve knowledge transfer training programs?

As the Academia Innovation Enhancer of the project EMPORIA4KT is a training programme aimed at promoting knowledge transfer, a focus has been made on the good and bad practices identified by partners in knowledge transfer training programmes. This would be used to take advantages of success and avoid mistakes of previous training programmes implemented in Europe.

What does improve knowledge transfer training programme?

- **Immersive and interactive courses:** Several organisations highlighted the fact that providing immersive and interactive courses are more efficient (*such as C.U.R.I.E training*), this require to let the researchers learn by themselves through a learn by doing approach (*I team of MIT Portugal*).
- **Team work and mixed team of participants:** The organisations that provided training to entrepreneurship highlighted the fact that creating teams composed of 3 to 5 researchers from different disciplinary (scientific and business background) is more efficient (*I team, MIT Portugal*). This enable to cross the knowledge between the different participants. A good team is essential to create a successful start-up as one of the key issues for a new business is to adapt the products created and the business model to the consumers' demand. A team that have a large scope of skills enable more opportunities.
- **Mentorship:** Provide mentors that have experience and skills in entrepreneurship has been highlighted in several training programmes such as *I team of MIT Portugal, Andalusia Open Future, Lab2market, BGI Accelerator or BIP Porto, HitechSeed, Starters Academy Portugal, Aveiro University UATECH programme, the SATT Ouest valorisation training, Disrupt campus...*
- Training programmes designed with **checkpoints** and **follow-up homework assignments** to attendees has been highlighted in several programmes such as *I Team of MIT Portugal, HiSeedTech*.
- It has also been highlighted the importance of **invited speakers** that provide **testimonials from researchers/entrepreneurs** to the attendees (*C.U.R.I.E training programme, I-teams MIT Portugal*).
- Add **networking moments** to the training where attendees, mentors, invited speakers could meet has been quoted in different programmes such as the *Reseau C.U.R.I.E training programme or BGI Portugal*.
- Create **hypotheses of commercialisation** of the product, test them, then go back and revise them based on customer input or validation (*I Team, MIT Portugal*).

What does limit knowledge transfer training programme?

Actions that were seen as a weakness for knowledge transfer training programmes are the following:

- In training programmes where teams of researchers have to try to commercialise EST (Early Stage Technologies) with the support of mentors, it has been identified that a too large **diversity of technologies and a too large diversity of technology readiness level** generated difficulties in the mentoring process as mentors may had to work on EST project that they did not know well (*I Teams MIT Portugal*). The fact that the training programme was **non-specific to any particular R&D area** could have generated some difficulties as stakeholders that took part in the training programme (mentors, invited speakers, researchers, students...) did not know enough the technologies (*HiSeedTech, TechMinho, Inov C, INEAO Start, Science in Business...*).
- Some training programme in knowledge transfer **are only focused on business creation** (Spin off, Start-ups creation) and not on the other possibilities available to transfer research results (patent, cooperation with businesses, joint project). This may induce to the participants that the only outcome for KT is to create a new business while it does exist other possibilities (*Business Ignition Programme, Portugal*).
- The **distance between team members** despite videoconferences in international training programmes generated more difficulties for the team to work together (*I-team, MIT Portugal*).
- No motivation from researchers if they **don't choose to participate** in KT training programmes (*Nova Doctoral School*).
- **No follow-up** of the technologies after the project (*I-team MIT Portugal*).
- **Social behaviour dimensions of consumers** not approached in the training (*Empreendedorismo*).
- The possibility of submitting to a competition at the end of the course might focus the participants the project to much on this aspect against the learning outcomes (*Starter Academy*).
- Some programmes were seen **as not interactive enough** and based on low-active learning methods. This prevented the participants to be really involved in the training programme (*LABE and CEBT of University of Aveiro, from geek to speak*).
- Some trainings do **not focus on providing a mindset change** in the academia environment about entrepreneurship (*UTEN Portugal*). It has been identified that one of the key aspects that prevent knowledge is the “culture gap” between researchers and businesses.
- Entrepreneurship training where the **technology development phase is not approached** (only the commercial or communication aspects) such as *TechMinho, Empreendedorismo, FromGeek to speak, UTEN Portugal...*

3. Compilation of knowledge transfer tools identified (table)

KT tool's number	Organisation that carry the approach	Tools/methodology	Actions undertaken	Target
Portugal				
Tool 1	HiSeedTech	HiTechOne	- Training programme to researchers in entrepreneurship.	Researchers
Tool 2	University of Nova, Lisbon, Porto, Coimbra, Minho, Porto, MIT Portugal Programme	I-Teams in MIT-Portugal Programme	- Training programme for PHD Students on how commercialise new technology products.	Researchers
Tool 3	Portuguese Science Fundation, National Intellectual Property Office, Council of Portuguese Universities, and University of Texas.	UTEN Portugal	- Provide hands on training in technology transfer and commercialisation - Facilitate Networking among researchers, technology transfer managers, Business angels, technologies... - Offer market soft landing opportunities in the US.	Researchers
Tool 4	BGI (Building Global Investor Accelerator)	BGI	- Provide training in Entrepreneurship to Start-up creators.	Researchers

			- Provide bootcamps in Portugal and US where entrepreneurs can meet Investors and industrials.	
Tool 5	NOVA University of Lisbon	NOVA Doctoral School	- Offer transversal and complementary training between the different doctoral training of NOVA university. - Training provided in Entrepreneurship for researchers, Management, design thinking...	Researchers
Tool 6	NOVA University of Lisbon, University of Cantabria, University of Perugia, University of Ljubljana, Lappeenranta University of Technology.	Blue Programme – the Road to Entrepreneurship	- Provide a pioneer model of international blended-learning entrepreneurship education methodology. - Mix of face to face and digital educational program (MOOC).	Researchers
Tool 7	FCT NOVA (NOVA Science & Technology School)	Empreendedorismo FCT	- Training programme in entrepreneurship and business creation available for Master's degree students and PHD.	Researchers
Tool 8	NOVA University of Lisbon	Starters Academy	- Training programme in entrepreneurship and start-up creation for the best students of NOVA. - Multidisciplinary class, Students come from all over the university.	Researchers
Tool 9	ITQB and NOVA SBE	Start-up Research	- International and interdisciplinary Post-Graduation course that brings together	Researchers

			scientists and entrepreneurs from recognised scientific research institutions. - Training programme in start-up creation, pitch sessions, business concepts.	
Tool 10	University of Porto	Business Ignition Programme	- Training programme for entrepreneurship and business creation specialised for technologies developed in academia.	Researchers
Tool 11	University of Aveiro	Aveiro UATEC Initiative Technology Transfer Unit LABE and CEBT	- Protection and management of intellectual property rights - Promotion and enhancement of its technologies in the market - Fostering the university/businesses connection - Promote entrepreneurship in the academic community and supporting business creation through training program in Entrepreneurship.	Researchers, entrepreneurs
Tool 12	Tech Minho at University of Minho	From Geek to speak UM	- Technology communication Workshop for UMinho researchers to teach how to communicate more efficiently (Personal branding, public communication, Communicating sciences...).	Researchers, entrepreneurs

Tool 13	University of Minho	Idea Lab UM	- Provide support in the pre-start and start-up phase through training programme that consist in a set of workshops in entrepreneurship and business creation.	Entrepreneurs
Tool 14	University of Coimbra	Inov C 2020	- Ignition grants to promote commercial enhancement of research results. - Training programme in entrepreneurship - Networking events - Technology scouting - Innovation diagnostic in businesses - Protection of intellectual assets. - Business Intelligence: database to collect market studies, financial analysis, mergers and acquisition report.	Businesses, researchers, entrepreneurs
Tool 15	IST: Technical Institute of the University of Lisbon	Lab2market@ Técnico	- Provide training programme to students and researchers to find the best to take technologies they created to the market.	Researchers
Tool 16	Techlab and Lisbon university school of science	ScienceIN2business	- Training programme for the best projects with market potential across the university of Lisbon (topic entrepreneurship, and innovation).	Entrepreneurs, researchers

			- Provide access to the incubator ecosystem (annual acceleration programme). - Networking activities (meeting with investors).	
Tool 17	IPN (Institute Pedro Nunes) and University of Coimbra	INEO Start	- 5 weeks training business acceleration programme for start-up.	Entrepreneurs
Spain				
Tool 18	CRUE: Spanish Universities rector's conference.	OTRI University Network National Entity (Knowledge and technology transfer national office).	- Support to spin-off creation - Support to RDI contracts - Support to patents - Training programmes	Researchers, Businesses
Tool 19	University of Cadiz	R+D+I impact. Scientific and Technology Vice-rectorate (Knowledge and technology transfer offices)	- Facilitating the collaboration between companies and the University - Providing advice and technical support to researchers and companies that wish to collaborate - Provide competitive financing programs, project development, processing and management support.	Businesses, researchers
Tool 20	University of Huelva	Transfer and result office	- To strengthen the relations between the agents of science-technology-enterprise system;	Researchers, Businesses

			- Help to identify the technology needs of socio-economic sectors - Communicate on both scientific and technological capabilities and results generated by the university's researches.	
Tool 21	University of Grenada	The Web portal of knowledge transfer	- Disseminate, advise, and manage research projects within the European Union Framework Programme - Advise on and conclude research contracts - Assist in patent licensing and research results - Help spread and disseminate UMA's technological and scientific culture - Hold various events: conferences, exhibits, courses and seminars - Enable lab services	Researchers, Businesses
Tool 22	University of Malaga	The web portal and knowledge transfer	- Disseminate, advise, and manage research projects within the European Union Framework Programme - Advise on and conclude research contracts - Assist in patent licensing and research results	Research, Businesses

			- Help spread and disseminate UMA's technological and scientific culture - Hold various events: conferences, exhibits, courses and seminars - Enable lab services	
Tool 23	University of Almeria	The Office of Research and Transfer	- Meeting point between the scientific knowledge of the research groups and the technological needs of the productive sectors.	Researchers, Businesses
Tool 24	University of Vigo	The web portal of knowledge transfer	- Promote and update the offer of R + D + i capabilities and results - Promote cooperation project between university and businesses - Licenses and knowledge-based companies (Spinoff)	Researchers, Businesses
Tool 25	University of Las Palmas	The knowledge transfer Area of the University	- Promote and manage collaboration agreements between companies and researchers that seek R&D funding - Communicate about research results - Exploitation and transfer of research results - Protection of research results and their capitalization.	Researchers, Businesses

Tool 26	CSIC, Spanish national research council	CSIC: Spanish National Research council service dedicated to knowledge transfer	- Promote cooperation projects of research between businesses and the research centre. - Protect the research outcomes - Support spin-off creation	Researchers, Businesses
Tool 27	Spanish Institute of Oceanography	Mixed unit of R&D&I between the institute and universities	- Dissemination of research results. - Development of joint project between public and private entities.	Researchers
Tool 28	CIEMAT (Energy, environment and technology research centre...).	CIEMAT Technology transfer programme.	- Promote public/private collaboration in technological projects - Administrative and legal support to researchers and protection of technology.	Researchers
Tool 29	Telefoncia S.A and Andalusian government	Andalucia Open Future	- Offer workspace personalised acceleration methodology - Offer a team of mentors to entrepreneurs. - Networking activities - Offer seed capital investments.	Entrepreneurs
Tool 30	Vodafone S.A and Andalusian government	Programme Minerva.	- Complete Entrepreneurship programme offered to Businesses. - Offer seed capital investment - Offer mentoring	Entrepreneurs

			- Offer connections with potential investors	
Tool 31	Technological Corporation of Andalusia (CTA)	Call for R&D&I incentives	- Grants given to businesses that work with research group on a common R&D&I project.	Businesses
Tool 32	Andalusian Government	Andalusian Strategy of Innovation Public Procurement for public administration of	- Diagnosis of the needs and innovative demands in the Andalusian public sector for the improvement of public services. - 50 million € allocated to business and researchers' proposal that meet the needs of public administration.	Businesses, Researchers
Tool 33	Association of science and technology parks of Spain (APTE)	Entrepreneurship in Science and technology park	- Support entrepreneurs through incubators, and pre-incubators programmes or co-working spaces...	Entrepreneurs
Tool 34	Association of Science and Technology Parks of Spain (APTE)	Offers and demands for scientific-technological collaboration	- Offer a free service of a collaborative platform of technological offers and demands, both for companies and for research groups.	Entrepreneurs
Tool 35	Spanish Federation of Technology Centre	Collaboration in the transfer of research results between public research centres and businesses	- Technological centres are non-profit research bodies that support businesses in innovations processes.	Businesses
Tool 36	European Centre for Enterprises and Innovation (CEEI).	Incubator for technology-based businesses	- Mobilise public and private resources in the environment to support technology-based businesses	Entrepreneurs, Businesses

			- Create synergies between people from the innovation sector, public and private sector, between new and existing businesses. - To identify, within the capacities of scientific production and service provision of the University and Research Centres, lines of work that can be exploited from a business perspective.	
Tool 37	Granada Confederation of Businessmen (CGE)	On Granada TechCity: Business organisation in the digital economy and biotechnology.	- Coordinate and develop projects linked to R&D&I, leading consortiums and working groups together with the businesses and knowledge centres associated with the cluster. - Attract talents - Identify training needs in businesses - Manage the necessary financial instruments for the promotion of entrepreneurship and technology-based businesses.	Researchers, Businesses
Tool 38	Andalusian Knowledge Agency	Market of ideas and technologies	- Open space for suppliers and demanders of innovative technologies. - Researchers groups and businesses promote and transfer their innovative technologies.	Businesses, researchers, entrepreneurs.

Tool 39	Andalusian Knowledge Agency	Andalusian Knowledge Transfer Conference	- Series of meeting of technological nature where researchers and businessmen meet with potential end users of their technologies.	Entrepreneurs
Tool 40	RedTransfer (Association)	RedTransfer	- Organizing and promoting learning activities and professional development events - Networking and exchange for professionals - Encouraging mobility - Drafting and dissemination of reports and newsletters - Developing projects aimed at knowledge transfer, innovation and research management - Partnering with similar entities in other countries and territories	Researchers, Businesses
Tool 41	Andalusian Government	Institute for research and training in Agriculture, Fisheries, Food and ecological Production. (IFAPA)	- Design and carry out sector research plans. - Training programmes for fishermen and technicians through technology transfer - Promote relationship and research coordination and transfer programmes. - Promote research, innovation, development and application of fisheries productions.	Businesses, Professionals, researchers.

Tool 42	Canary Island Government	Canary Island Technological Institute	- BIOASIS platform: Blue technology and Aquaculture Platform that brings together scientific knowledge and experimental research organisation. - Offer support for innovation and internationalisation to businesses - Support for entrepreneurship.	Businesses, Researchers.
Tool 43	Galicia Government	Polytechnic Maritime Fishing Institute of the Atlantic of Vigo (IPMP Vigo).	- Training and Professional courses related to the nautical and maritime fishing industry - Vocational training	Professionals, Businesses
Tool 44	Ministry of Science innovation and universities	Centre for industrial technological development E.P.E.	- Support businesses in R&D&I projects - Improve technological level of Spanish businesses - Technical and economical evaluation of public grants for innovation - Promotion and management of Spanish participation in international technological cooperation programs.	Businesses, researchers
France				
Tool 45	SATT Ouest Valorisation	SATT Ouest Valorisation	- Evaluate, market and license technology from French universities and public research organisation.	Researchers, Entrepreneurs

			- Provide entrepreneurship support programme on Business creation.	
Tool 46	Agrocampus Beg-meil	“Cellule Transfer”	- Strengthen the links between research centre and aquaculture businesses. - Offer research support to businesses. - Offer training to aquaculture businesses about research results in Aquaculture.	Businesses, researchers, professionals.
Tool 47	Agrocampus Rennes	Service valorisation et innovation », Agrocampus Rennes	- Promote cooperation projects of research between the university and businesses - Offer training of professionals	Researchers, businesses, Professionals
Tool 48	Campus Mondial de la Mer	Ocean Hackathon	- Bring together businesses, institutions, researchers and students during a 48 hours event during which small teams of participants works solely from a range of marine digital data to develop a prototype of new products.	Researchers, Businesses, Investors
Tool 49	Ministry of Economy/University of Brest (UBO)	Disrupt Campus UBO	- Provide training courses in entrepreneurship and innovation.	Researchers, entrepreneurs
Tool 50	C.U.R.I.E Network	MOOC Innovate with public research	- Online training to raise awareness and help researchers to get involved more easily in collaborative projects and business creation.	Researchers

Tool 51	C.U.R.I.E Network	“My Research and After”?	- Training sessions aimed at promoting entrepreneurship to researchers.	Researchers
Tool 52	BPI France	DeepTech Tour	- Series of events aimed at raising awareness of about entrepreneurship to researchers.	Researchers
Tool 53	C.U.R.I.E Network, Retis, AP-HP, Connectus Alsace, Eurasanté	“Les innopreneurs”	- Provides different training sessions and workshop to sensibilise students, PHD and researchers to entrepreneurs and innovation.	Researchers
Tool 54	Pays de Morlaix, Station Biologique de Roscoff, Université de Bretagne Occidentale.	« Blue Valley »	- Cluster dedicated to the development of biotechnologies. - Provide networking events to promote links between researchers and businesses.	Researchers, Businesses
Tool 55	French tech Brest + (Brest, Morlaix, Lannion, Quimper)	Ouest Start-up	- Pre-acceleration training program deployed in the French Tech Brest + territory (Brest, Lannion, Quimper, Morlaix) for future entrepreneurs wishing to challenge their idea or project.	Entrepreneurs
Tool 56	Cluster Algae	Campus Mondial de la Mer, Pays de Brest	- Cluster dedicated to the development of the Algae Sector.	Researchers, Businesses
Tool 57	Aix-Marseille University	Prostisvalor	- Provide to AMU’s laboratories and researchers with the support they need to make the most of their skills and the results of their research.	Entrepreneurs, researchers.

			- Advise, guide and supporting researchers throughout the entire life cycle of their research projects.	
Tool 58	Université Paris Saclay	Master 2 Innovation and Valorisation of Research	- Training programme in valorisation of research and technology transfer.	Researchers (students).
Tool 59	Sorbonne University	Directorate of Research and Development	- Coordinate and supervises the operation of research support. - Implements the university's research and innovation policy.	Researchers, Businesses
Ireland				
Tool 60	Environmental Protection Agency (EPA)	EPA Resource Kit: BRIDGING THE GAP BETWEEN SCIENCE AND POLICY	- A Step-by-Step Guide for Researchers to Develop and Carry out a Knowledge Transfer Strategy including templates as to carry out Knowledge Transfer actions and to measure success.	Researchers
Tool 61	Irish universities and technological institutes	Technology Transfer Offices	- Access new knowledge and expertise to drive innovation through research collaboration, contracted services and consultancy. - Identify and license new technologies and intellectual property (IP) relevant to their business. - Make use of state-of-the-art facilities and equipment.	Researchers, Businesses

United-Kingdom				
Tool 62	United Kingdom Research and Innovation	UKRI	- Funds research and innovation in the UK, being critical on knowledge transfer and value creation	Researchers, businesses
Tool 63	Innovate UK	Knowledge Transfer Partnerships/ Knowledge Transfer Network	- Help businesses to improve their competitiveness and productivity through the better use of knowledge, technology and skills	Businesses
Tool 64	Innovate UK	Catapult Network	- Promote research and development through business-led collaboration between scientists and engineers to exploit market opportunities	Businesses
Tool 65	PraxisAuril	Alliance of Technology Transfer Professionals	- Promote and maintain global standards in knowledge and technology transfer	Businesses
Tool 66	National Centre for Universities and Business	National Centre for Universities and Business	- Develops, promotes and supports collaboration between universities and business across the UK	Businesses
Tool 67	Maritime UK	UK centre for maritime innovation and technology (“MarRI-UK”)	- Collaborative innovation vehicle for UK industry and academia to jointly tackle innovation and technology challenges	Businesses, researchers
Tool 68	NESTA (National Endowment for Science, Technology and the Arts)	NESTA Innovation Spiral	- Use different innovation methods against an innovation spiral (networking events, generating ideas events crowdfunding, experimentation, prototyping, grants).	Researchers, businesses

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Knowledge transfer tools in Portugal.

Tool 1: HiSeedTech (previously CoHiTec)

Name of the tool/methodology/training programme:

- HiTech One (previously called CoHiTec until 2017)

Organisation in charge of the tool/methodology/training programme:

- HiSeedTech (until 2017 it was COTEC Portugal)

Starting date: 2004

Description of the tool/methodology/training programme:

This program aims to promote the valorisation of the knowledge generated in Portuguese R&D institutions by providing training to researchers from Portuguese academia on how to evaluate the commercial viability of the innovative technologies, on the acquisition of communication skills to convey research to non-science audiences and to gain technology commercialization and entrepreneurial skills. It works as a eight-week training program in technology commercialization based on a Methodology developed by North Carolina State University, destined to researchers from Portuguese R&D Institutions. The training is based on R & D teams project-based learning(3-5 members for each team), classroom sessions and seminars (6 sessions with follow-up homework assignments(deliverables) covering topics such as team management, product and service idea generation, intellectual property, finance and business plan development delivered by specialists/teachers from those fields. The teaching delivery is complemented as well by management students and mentors, who contribute with their management skills, knowledge and networking to the development of the project. At certain stages of the training program, meetings with professors from the North Carolina State University, who developed this technology commercialization methodology are fundamental to assess the project development/implementation and whose feedback allows the researchers to do readjustments/reorientation during the program. The main program outcome is a value proposition for a product/service concept derived from the science & technology proposed by the R&D teams

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Significant number of past editions has allow for continuous improvement of the training program -Methodology previously tested in NC state has facilitated the transposition of these tools to Portugal's case -Inclusion of member(s) with a business background in each of the R & D teams/projects -Previous success cases (Unicorns) has given the program visibility and potentially has motivated researchers to apply	-High attrition rate for the technologies who weren't mature/ready enough and the training doesn't do a previous dedicated approach/pre-training -Small capacity for the number of teams/projects in each edition turns into a previous selection of those based essentially on future commercial potential -The training itself (not the R & D areas from where the teams may come) is non-specific to any

-Funding structure has secured the program's future editions	particular R &D area (essentially one-size-fits-all) -Management structure (private companies in the non-profit association) could eventually promote KT guidance on the companies' own strategic interests
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Tool 2: I-Teams MIT Portugal

Name of the tool/methodology/training programme:

- I-Teams in MIT-Portugal Program

Organisation in charge of the tool/methodology/training programme:

- MIT-Portugal Program

Starting date: 2007 (for the Bioengineering Systems Focus Area, expanded to Engineering Design and Advanced Manufacturing Systems in 2010 and to other areas from 2014 onwards). It had its last edition in 2018

Description of the tool/methodology/training programme:

This is an educational course unit within the Doctoral Programs under the framework of MIT-Portugal Program (Bioengineering, Engineering Design and Advanced Manufacturing, Sustainable Energy and Transportation Systems). The Program is a joint initiative between MIT and 5 Portuguese Universities (Nova, University of Lisbon, University of Porto, University of Minho and University of Coimbra) in developing Educational Doctoral Programs and Interdisciplinary Research with a strong emphasis in overlapping academic research, industry and the government. This educational course was based on the I-Teams course provided by MIT to MSc. and PhD students but adapted almost from scratch to the Portuguese academic environment and doctoral education guidelines. The objective is to provide doctoral students in their first year of the PhD, a course that provides skills acquisition and development in market research and technology development while promoting market-oriented projects from technologies developed in several R & D academic laboratories. At the same time that it is an educational training program it has also a goal of fostering the conversion of technologies developed in Portugal into economic value. Since this is a one semester course that is part of the curricular structure of the Doctoral Programs within MIT Portugal Program, it has direct connection with the researchers in Portugal on those areas. The students are organized in teams, whose members come from different scientific/engineering backgrounds and are most of time distant between each other (working on their PhD in different labs) and spend a semester collaborating with researchers from the most important Portuguese research labs. Each team works with a selected technology, and focus on building a go-to-market strategy for breakthroughs emerging from those preeminent labs. The teams are guided by the labs' Principal Investigators and by tutors/catalysts (individually assigned to each team for guidance) with Management background (MBA student, PhD student or Professor).

The course's main goal is to explore, identify and analyse the path "from idea to impact" for a lab's emerging technology with a strong hands-on approach. It is organized in identifying the best path for commercializing a breakthrough technology as an iterative process, so the class is designed with checkpoints. Thus, it promotes a "learning by doing" approach as an educational method under an active-learning environment since the students involve themselves in a non-trivial project, based on never-before commercialized innovations. It is expected that the students put forth hypotheses, test them, then go back and revise them based on customer inputs or other validations. At several points, the teams present snapshots of the progress, receive feedback, and refine their assumptions and plans. The final outputs consist on a written report summarizing the main results and conclusions and a presentation to be made in the presence of invited personalities. The final report also provides an evaluation of the technology's status, an exploration of the intellectual property landscape, an overview of an appropriate business model, a consideration of the competition, and recommendations for next steps. These could serve as the starting point for the present or future teams connected with the Principal Investigators to develop a business plan or licensing program.

The semester also consist on formal classes each week (2 hour sessions), some of them with invited speakers, or as visits to selected companies or institutions and on team meetings to be devoted to the development of the project assigned to each team or even in specialized workshops by experts in Technology Transfer, Intellectual Property, Venture Capital and Financing al.. The remainder of the time is set aside for group meetings, customer visits, or another project work ("team time").

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Educational course that was adapted from a previous course at MIT and whose syllabus and plan were both adapted to Portugal's context from a "new" perspective instead of simple transposition - Several editions have allowed for continuous improvements and adjustments -Assessment surveys to the students as a educational quality strategy for both the course's plan and methodologies as well as for the teachers/catalysts involved -Teachers were trained at MIT specifically for this purpose -Development of skills and competences of PhD students as future researchers or as future professionals in innovation environments or companies	-Educational exercise whose output might not overlap with the purpose of effective value creation and knowledge transfer -Follow-up on the technologies wasn't made (subsequent technology transfer/development stages) -Distance between team members, in spite of videoconferencing, made the project development more difficult. -Technology readiness and diversity created some difficulties in the mentoring process

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Website: <https://archive.mitportugal.org/education/bioengineering-systems/doctoral-program/structure#m7> and

<https://archive.mitportugal.org/about/documents/program-core-documents/1056-af-brochura-digital-emendada/file>

Tool 3: UTEN Portugal

Name of the tool/methodology/training programme:

- UTEN Portugal

Organisation in charge of the tool/methodology/training programme:

- Portuguese Science Foundation FC&T with the cooperation of INPI(National Intellectual Property Office), CRUP(Council of the Portuguese Universities) and University of Texas at Austin

Starting date: 2007

Description of the tool/methodology/training programme:

This initiative involves strategic partnerships with leading institutions worldwide and has been promoted and supported by the FCT, in close collaboration with the Council of Rectors of Portuguese Universities (CRUP) and in coordination with the Portuguese Industrial Property Institute (INPI). UTEN's mission comprises the development of scientific and academic institutions in Portugal oriented to emphasize technology transfer and commercialization at an international scale and has been gradually evolving to build a professional, globally competitive and sustainable technology transfer and commercialization network in Portugal oriented toward international markets. The specific objectives include:

1. Developing a globally competitive and sustainable commercialization infrastructure in Portugal by delivery technology transfer and commercialization training for international markets using Portuguese S&T;
2. Facilitating networking among researchers, technology transfer managers, entrepreneurs, commercialization experts, business angels, venture capitalists, and academic leaders;
3. Providing hands-on training through real-life commercialization experiences and to impart knowledge to Portuguese TTO and other professionals in a manner that maximizes their future ability to adapt and apply that knowledge in real world situations;
4. Offering U.S. market soft-landing opportunities and promoting business development activities for Portuguese university-based startups

Participating in internship-based technology assessments helps place learning in context, while it results in work that contributes directly to productivity. This use of "living cases" implies implementing training processes at a grass roots level while simultaneously building positive relationships and trust with TTOs. It also promotes UTEN's interest beyond generic training, toward the larger goal of making an overall impact on Portuguese technology transfer and commercialization activities. UT Austin's UTEN staff members now hold intimate knowledge of the Portuguese technology transfer and commercialization ecosystem, including deep networks and personal relationships with senior administrators, key front line staff, and thought leaders throughout the country.

So far, more than 150 technologies from Portuguese institutions and companies have been entered into a UTEN database that is available in a national portfolio. Ninety-two technologies have been assessed, primarily from Portuguese public universities, with many recent assessments performed independently by Portuguese TTOs. Infrastructure is in place that would automatically grow the national portfolio based on local assessment efforts in TTOs. Twelve Portuguese institutions have received S&T assessment training for their technology transfer staffs. In some cases, university researchers were also trained to help them better understand commercialization issues. Broad outreach was performed at Days of Innovation 2009, where training sessions drew a combined audience of over 100 technology transfer officers and researchers all interested in TT and commercialization issues. Overall, UTEN has promoted a series of specialized training activities that have accelerated the development of a professional network of technology transfer professionals in Portugal and has organized more than 50 specialized training sessions and networking events both in Portugal and in the United States, with the involvement of more than 1500 participants. Furthermore, more than 30 TTO staff members had the opportunity to spend time in Texas under the umbrella of the international internships program, and more than 100 technology-based startups have been screened towards business development and landing pad possibilities in the U.S. market.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Network establishment and development between TTO and TT managers with communication channels and exchange of experiences and practices. - Contact with experienced professionals - Specific training for technology transfer and commercialization - Rise in invention disclosures and licensing agreements in Portugal - Some start-ups who participated in the Program have endured and with sustained growth have transitioned to international markets.	- Workshops intensively delivered in just one period of the Program and not regularly provided to other new professionals or from other areas. - Focused in obtaining internationalization successes as outcomes and not on the process of fostering a sustained mindset change within the academia environment - Technology development is not approached in this initiative (ex-ante start-up creation) - The program has entered a phase-out stage and no initiative is in place to replace it.

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Tool 4: BGI Building Global Innovators Accelerator

Name of the tool/methodology/training programme:

- BGI Accelerator

Organisation in charge of the tool/methodology/training programme:

- BGI (before 2014 MIT Portugal Innovation and Entrepreneurship Initiative)

Starting date: 2010

Description of the tool/methodology/training programme:

BGI is an American style, world-class, deep innovation accelerator born from the MIT Portugal Innovation and Entrepreneurship Initiative (IEI). The initiative was a collaboration between the University Institute of Lisbon (ISCTE-IUL), MIT Deshpande Center for Technological Innovation, MIT Entrepreneurship Center, and MIT's School of Engineering.

BGI accelerator program provides 3 bootcamps (2 in Lisbon and 1 in Boston) and an intensive 12 weekly mentoring program with industry experts, so the start-ups can develop and validate their business model with industry experts. Once they are ready we present them to investors in Boston, in the program called Boston Global Immersion. This program provides as well opportunities to scale up via venture financing as well as an access to a global network of investors, corporate, potential partners through invitation only events

Taking in consideration the most suitable sources of "dilutive and non-dilutive financing" for each of our startups. These acquired valuable partnerships with credible organisations globally, develop acceleration and non-acceleration projects in a more sustainable, innovative, disruptive path and have the potential to address the challenges of this current century. This accelerator works in 4 major topics and/or verticals: Medical Devices & Health Care, Smart Cities & Industry 4.0, Blockchain Applications & AI and Water Economy.

The three phase of the accelerator program are mentioned below:

Phase I: 1st Bootcamp in Lisbon (e-Teams) , Weekly Meetings with Mentors and Demo Day (Pitch for Investment). Each bootcamp typically runs for 1 week and involves experts in the 4 market-application verticals.

Demo Day in Lisbon (webcasted worldwide). All teams publicly present their value propositions to a selected group of entrepreneurs, industry leaders, investors, and community members. One-to-one weekly expert mentoring meetings, online. During 8 weeks each team works with the assigned mentor on the Go-to-Market strategy (one hour meeting per week).

Phase II: E-teams II + VIP dinner

Second bootcamp of the program, where startups will focus on developing and improving their marketing strategies and will have opportunities to pitch and contact with investors in our VIP dinner where we gather our international network.

Phase III: The Boston Global Immersion Program (e-Teams III)

Last bootcamp of the program, where startups pitch for potential investors, clients or partners in Boston, Massachusetts.

Eventually, the best place start-ups with pursue in a Venture Phase: Investment Sessions (Up to 5 Years Duration) while providing equity to the organization BGI

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
--Significant number of past editions has allowed for continuous improvement of the training program	-The training itself (not the R & D areas from where the teams may come) is non-specific to any particular R &D area (essentially one-size-fits-all)
-The network of mentors and investors provides valuable experience to the learning process of the team members	-The start-up teams and projects are already considered mature so a KT capacitation stage is

-Bootcamps provide teaching as team-based learning as well as more traditional lectures	not considered (pre start-up technology development) -Small capacity for the number of teams/projects in each edition turns into a previous selection of those based essentially on future commercial potential
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Tool 5: NOVA Doctoral School

Name of the tool/methodology/training programme:

- NOVA Doctoral School

Organisation in charge of the tool/methodology/training programme:

- NOVA University of Lisbon (UNL)

Starting date: 2013

Description of the tool/methodology/training programme:

The NOVA Doctoral School is an initiative from the NOVA University of Lisbon that promotes courses and workshops for the whole group of PhDs. Students and their supervisors in order to contribute to a better doctoral training, that came from previous needs and suggestions from the NOVA community. It was created to offer transversal and complementary training, to promote interdisciplinarity and transdisciplinary, to foster the sharing of the best practices between doctoral programs offered in the University, to increase the internal/external cooperation nationally and internationally and to collaborate in the creation of research networks and enhance the collaboration between students and other researchers.

Its curriculum offer comprehends:

Sciencepreneur (entrepreneurship skills development for researchers)

Research ethics course (critical thinking and analysis of ethics in academia and research)

Project Management course (knowledge appropriation of project management and other management tools and behavioural methods)

Social media for Scientists (use of social media and online environments for better research and its outreach)

Scientific text processing with Latex (scientific document preparation knowledge appropriation)

Research data management course (data management with the purpose of complying with funding agencies or to foster data management tools)

Science communication course (communication skills acquisition for outreach purposes)

Research skills development course (research skills for first year Doctoral students)

Developing supervising skills course (mentoring and tutoring for supervisors)

Finishing my PhD: the next 90 days (career development strategy course)

Information Literacy Course (information and data retrieval methodologies and the use of those in the researcher everyday life)

Design Thinking Course (introduction to Design Thinking under a human-based approach related with the scientific research)

Data processing automation (acquisition of elementary Python programming tools and file management techniques)

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Courses diversity and extensive broad cover of relevant transversal skills for researchers -Specific learning design in some of the courses	-There's no course specific for KT or Technology Transfer whether theoretical and/or in practice -Centralized courses in the Rectory facilities and their schedules creates a lack of motivation for

-Strong commitment of the University to fulfil the needs to better and more effective interdisciplinarity	the participation of researchers who might motivated to do some of the courses under those constraints -Most courses have not been re-designed and/or readjusted since the beginning of the school itself, keeping the same syllabus and delivery plan
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Tool 6: Blues Program

Name of the tool/methodology/training programme:

- BLUES PROGRAM - THE ROAD TO ENTREPRENEURSHIP

Organisation in charge of the tool/methodology/training programme:

- NOVA University of Lisbon in collaboration with University of Cantabria , University of Perugia, University of Ljubljana, Lappeenranta University of Technology

Starting date: 2017

Description of the tool/methodology/training programme:

NOVA University in collaboration with 4 other European Universities brings to the public the opportunity to develop their business idea or join a multidisciplinary team and create an innovative solution to everyday problems, supported by a panel of recognized experts and teachers in the field.

The BLUES project seeks to contribute to higher effectiveness, relevance and quality of students skills and HEI education through the study and analysis of international good practices regarding entrepreneurship education and their common key success factors; through the conception, design, validation and dissemination of a pioneer model of a international blended-learning entrepreneurship education methodology that takes advantage of the benefits of face-to-face and digital education to increase the effectiveness and quality of learning outcomes; and through the conception, design, production and dissemination of high-quality digital and face-to-face educational resources and tools.

Using Blended Learning methodology, the project has two components: digital - MOOC and live classes - FACE to FACE with a total of 100 hours between classes, individual work and team work. All classes are taught in English

The active engagement of both high education and entrepreneurship institutions together with business representatives in BLUES project has ensured that the methodology and results respond to employers and entrepreneurs needs with regards to the skills that they expect from their future employees or peers.

The face-to-face sessions cover Team Building Formation, Contact with Entrepreneurs-success stories, Design thinking & Business idea Selection, Value proposition & Market analysis, Business Plan, Financial Analysis, How to finance your business, Legal Aspects of Entrepreneurship, Business Plan (discussion of ongoing projects), Contact with Entrepreneurs – the bumpy road of entrepreneurship, How to present an idea successfully, Visit to incubators, Pitch trial, Final pitch & end of program

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
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-Blended learning permits to a better efficient use of the partnerships and their know-how in the programme -The framework of Entrepreneurship Education allows to focus on the teaching and learning of this topic with an extensive cover of the all the features to better achieve its goals -International program could allow for good-practices exchange from different HE schools cultures and environments -	-Team formation is restricted to certain parameters -Blended learning has to be continuously assessed in its effectiveness and it is not clear if the Program does that with periodic assessments and follow-up actions -No focus on pre-Entrepreneurship KT processes and methods
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Tool 7: Empreendedorismo FCT

Name of the tool/methodology/training programme:

- Empreendedorismo FCT

Organisation in charge of the tool/methodology/training programme:

- FCT NOVA (NOVA Science & Technology School)

Starting date: 2013

Description of the tool/methodology/training programme:

The Entrepreneurship FCT Nova is a course mandatory to all MSc. Students in this school as a part of their curriculum plan . It is offered to all students in their Master degrees(1st year for Bologna 2nd Cycle and 4th year for the ones in Integrated Masters) and whose main objectives are :

- to change the mindset of the students and create and/or promote students' motivation for value creation of a business idea;
- to promote acquisition of skills and competences related with the development of new business and entrepreneurship abilities;
- to create the ability of the students to develop technological projects with a business and technological entrepreneurship focus in companies or new start-up ventures

This course is also open to external people who might be interested to acquire entrepreneurship skills and also to PhD students from a few doctoral programs as well. It is a 5-week course which has a traditional teaching delivery with lectures from more than 20 teachers, inspirational talks from external experts/former entrepreneurs/business professionals but it also has practical classes (3 hours per week) where the students develop their project to be presented at the end of the course.

The course contents are presented below: Introdução ao Empreendedorismo Tecnológico

- Introduction to Technological Entrepreneurship(Problem and/or Opportunity, Emerging Technologies,Ideation and Selection, Prototyping)
- Value Proposition/Client definition/Competition and Competitors
- Business Model Concepts(Business Model Canvas)
- Marketing:Segmentation,Targets,Market evaluation and potential.Strategy positioning)
- Digital Marketing and Digital Engagement
- Intellectual Property Fundamentals and IP Use and Valorisation
- Leadership and Motivation
- Introductory concepts of Finances : Cost Analysis, Payback Time, Cash-Flow, NPV, Funding Sources
- Elevator-Pitch Concepts and Practice; Business Plan Introductory Concepts

The course promotes active learning of the students under a project-based learning methodology with some emphasis in using Design Thinking methods and tools as well as more common teaching methods for creating the environment for the students to create, defined and present their entrepreneurship project at the end of the course

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Strong emphasis in putting a course to all students -Learning outcomes are well defined to what the course wants to achieve as a pedagogical exercise/curricular unit -Teaching delivery is consistent to the course's goals	-Technology development is absent as well as a more dedicated approach to KT -Follow-up of the projects is not done in a consistent manner and process -Social and behaviour dimension of customers is not approached

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Tool 8 : Starters Academy

Name of the tool/methodology/training programme:

- Starters Academy

Organisation in charge of the tool/methodology/training programme:

- NOVA University of Lisbon

Starting date: 2018

Description of the tool/methodology/training programme:

Starters Academy was created to give NOVA students the tools to create a start-up. It has the main purpose related to the fact that a student who is an entrepreneur already or just aiming to be one, it will have the chance to learn the right steps.

This course is designed to stimulate the entrepreneurial spirit of the best students of NOVA. Its aim is to provide participants with the tools so they can devise a business initiative and turn it into reality. Therefore, it covers the basics of entrepreneurship and business management within an applied perspective. It's a multidisciplinary class since students come from all over the University with the objective to create mixed teams and contact/connect with new ways of thinking, working and living. Students will be selected from the all NOVA schools, both Portuguese and foreigner, with the requirement that the composition of working teams comprises students with the greatest possible diversity of backgrounds. The starters academy is an optional discipline with 6 ECTS that must be validated with the Academic services for each Master curriculum plan. All students will receive a diploma of participation in this course.

Below are mentioned the learning objectives of the course:

- Entrepreneurship opportunities analysis;
- The Social Entrepreneurship Perspective;
- Market and company analysis / competitive products;
- Marketing Strategy: Targeting, Positioning, and Audience;
- Technology innovation process management;
- Intellectual Property Protection and Monetization;
- Preparation of a business plan;
- Financing of new initiatives;
- Organization and management of entrepreneurial teams.

In terms of teaching delivery and learning environment, students are organized into teams groups with at least two people from different NOVA schools. The groups will work together on both the future decision making of the company created under a simulation game(EntrepSim) and must also develop a business plan that will be submitted to the NOVA Idea Competition at the end of the program. The best ideas win exclusive prizes. EntrepSim entrepreneurship simulation is an advanced business simulation of fast-growing innovative ventures developed by academics and venture capitalists as a pedagogical tool to be used as a complement to entrepreneurship teaching and training.

Classes are delivered on 3-hour sessions weekly and the concepts/topics to be delivered include Entrepreneurial Teams, Design Thinking, Marketing, Financing and Funding, Product Design, Basics in Intellectual Property, Pitch Communication.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
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-Team-based learning under a project-based teaching approach -Good focus on Entrepreneurship education and learning -Curricular unit that is offered to a wide range of students (from different schools)	-Simulation programme could narrow too much the broad number of different projects and their alignments with real cases -Centrality at Rectory could prevent some students to apply and miss the targeted population -The possibility of submitting to a competition at the end of the course might focus the projects too much on the aspects that may induce that successful achievement -No focus on KT and technology development
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Tool 9: StartUp Research

Name of the tool/methodology/training programme:

- StartUp Research NOVA

Organisation in charge of the tool/methodology/training programme:

- ITQB and Nova SBE

Starting date: 2019

Description of the tool/methodology/training programme:

The StartUp Research Program is an international and interdisciplinary Post-Graduation course brought together by scientists and entrepreneurs from a recognized scientific research institution, ITQB NOVA, and one of the most modern and best-performing European business schools - NOVA SBE.

The aim of the Program is to help closing the communication gap between scientists and business stakeholders by providing researchers with the social awareness and business skills, required to actively promote the translation of their technologies into innovative amenities. The Program was also developed especially for young researchers enthusiastic about science, new ideas, and discoveries, who would like to bridge their knowledge towards products and services that could benefit us all. It is also focused essentially in Life Sciences Innovation as the process of generating value by satisfying an unmet need, by a process that employs problem definition, knowledge, and creativity and to improve people' lives and societal development. In the case of Life Sciences, this may take the form of new or improved medicines, more efficient and sustainable energy resources, or new technological solutions to protect our environment and safeguard our citizens. An interdisciplinary approach to innovation has long been recognized as an essential factor in translation of knowledge into effective products or services. However, there are still critical communication gaps between the scientific community and commercial actors and this Program wants to help on this crucial matter.

The main objectives of this Program are:

- To endow Life Science researchers with an Innovation mindset, tailoring their profile to become effectual actors in intertwined relationships between academia and industry;
- To build upon the translational value of the research performed in R&D clusters to promote their social impact and sustainability.

The curricular plan and syllabus are described below:

1. Opening Bootcamp with the objective of welcoming students, introducing the course, and forming working teams. Each team will develop one project.

2. Three Complementary Modules

Module 1: Innovation in Biotech

This module will be coordinated by ITQB NOVA and its contents will cover models of value creation across the different Colours of Biotech. The concept of Open Innovation shall be presented and soft and hard skills, e.g., Creativity, Body Language, Career Self-Awareness, Idea Communication to General Audience, and Project Management will also be developed.

Module 2: Business Concepts

This module will be coordinated by NOVA SBE and will be intertwined with Module 3. Its contents will cover all basic Business Aspects from the idea to implementation. Soft skills such as Leadership and Emotional Intelligence will be developed.

Module 3: StartUp Project Development

This module will be coordinated by NOVA SBE and ITQB NOVA. Within Module 3, working groups will have the opportunity to closely interact with Mentors from different backgrounds to generate a business case. Soft skills such as Pitching will be developed.

3. Final Pitch Session

In the Final Pitch Session, groups will pitch their projects to an open audience consisting of Academics, Industry Players, Accelerating Program representatives, and Investment representatives.

At the end, Graduation certificates will be awarded to students

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Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Course well designed for Life Sciences areas with strong internal/external expertise -Possibility of mixing teams with the introduction of members with business background -Focus on a specific area(Life Sciences) optimizes the process to achieve its main goals -Use of R & D technologies in the project-based learning	-Recent programme without any periodic assessment to promote adjustments and more effective teaching/learning -Expensive tuition prevents a larger number of researchers to apply -No KT and/or Technology development specific focus ex ante

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Tool 10: Business Ignition Programme

Name of the tool/methodology/training programme:

- BIP – Business Ignition Programme U Porto Innovation

Organisation in charge of the tool/methodology/training programme:

- University of Porto

Starting date: 2008

Description of the tool/methodology/training programme:

Using the Lean Start-Up approach, BIP – Business Ignition Programme – aims to build and test alternative business models for technologies developed in academia. Business models will be presented and validated on the market, promoting technology transfer and the creation of new businesses.

The programme has the following objectives:

- 1-Identify market opportunities for potential products / services resulting from research;
- 2-Address challenges/needs/problems presented by companies;
- 3-Provide the participants with the necessary skills for the creation of value and marketability of technologies;
- 4-Create new technology-based business opportunities.

Teams, made up by scientific and business elements, have access to:

- Immersive sessions with intensive teamwork within and between teams
- Support and follow-up by one (1) element, with business skills, who will apply their skills, experience and networking to the development of the project, as a member of the team.
- Lectures and seminars where experienced tutors will share their experiences and strategies for the definition and validation of the business models, according to the methodologies of Business Model Canvas (developed by Alexander Osterwalder) and Customer Development (by Steve Blank).
- Meetings with selected mentors, who will follow the evolution of teams and facilitate the validation of business models
- Resources toolbox and funding to address their needs to develop the ideas
- 24h/7 workspace available
- Fast track to BIP proof funds to reach minimum viable product

The program provides lectures and seminars where experienced tutors will share their experiences and strategies for the definition and validation of the business models. It also organizes meetings with selected mentors, who will follow the evolution of teams and facilitate the validation of business models.

The program is open to researchers from the research centres at University of Porto, especially the ones who consider themselves who have an idea or project with commercialization potential and wants to develop that in a team, the ones who consider themselves researchers as potential entrepreneurs or that believe to have business skills and would like to be part of a BIP team. It is also open to companies who have a challenge/need/problem that wants to address within the programme. The duration of this Program is 12 weeks with 12 hours of lectures and sessions per week. The contents of the Program run from Business Model Development through Problem-Solution Market, Value Proposition, Customer Segment, Channels and Customer Relations, Resources and Partners, Revenues and Cost Structure, Business Plan and Demo Day (project presentation)

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Strong entrepreneurship focus aligned with the course goals and objectives	-No KT and/or Technology development specific focus ex ante

-External mentors provide guidance and bring their own personal experience to the course -Several numbers of editions have allowed for readjustments and improvement of the course itself -Fast track to additional funds	-Non-specific to any research area in particular -Use of Lean Start-Up may induce on the teams' projects a specific outcome which is to create a new company instead of other possibilities
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Tool 11: Aveiro UATEC Initiative

Name of the tool/methodology/training programme:

- LABE and CEBT

Organisation in charge of the tool/methodology/training programme:

- University of Aveiro

Starting date: 2006

Description of the tool/methodology/training programme:

The Technology Transfer Unit of the University of Aveiro (UATEC) was created in 2006 and its mission is to support the AU in its objective of being a center of national excellence in the creation, dissemination and transfer of knowledge, through:

- a) protection and management of intellectual property rights;
- b) promotion and enhancement of its technologies in the market;
- c) fostering the university / company connection;
- d) Promoting entrepreneurship in the academic community and supporting business creation.

It has two training courses for action d) : the LABE(Entrepreneurship Lab) and CEBT(Technology-Based Entrepreneurship Course). These are specifically dedicated to the research community in R & D centres in the University and it is also open to all students and alumni from University of Aveiro.

LABE training program has the main objective to incentivate the development and implementation of business ideas and has working methodologies for that purpose related with workshops sessions in the areas of Business Ideation, Business Plan, Financial Analysis, Marketing and Strategy/Communication. Each workshop, after the lecture delivery is complemented with practical sessions lead by a mentor and additional teaching support to elaborate business plans and models. The projects which are developed are then presented to a public audience. This training program last for 7 weeks total(each session has a 4h duration).

The aim of CEBT - Technological Entrepreneurial Skills is to enhance intellectual property assets from university knowledge centers. Within the scope of this program, multidisciplinary teams are formed, which will deepen entrepreneurial skills, working on ideas and technologies from the laboratories and research units of the Universities involved. CEBT aims to study the feasibility of converting technologies into products, through the establishment of technology-based companies. In this course, multidisciplinary teams will define the business model strategy, determine its commercial potential, as well as study the economic viability of future companies.

Since 2006, this course has been organized by the University of Aveiro, in partnership with the Universities of Beira Interior and Coimbra and with the Business Council of the Center / Chamber of Commerce and Industry of the Center (CEC / CCIC), and in 2011 the CEBT was extended to four Spanish universities, having been renamed CEBT Ibérico.

Taking into account the entrepreneurship policy of the University of Aveiro, which materializes in a continuous availability of activities that allow the enrichment of entrepreneurs, UATEC promotes CEBT annually,

The course contents are described below:

-Market Study and Evaluation;

-Business Model;

-Strategy and Marketing;

-Communication and Negotiation

The projects at the end of the course, are presented to a community of business people and academics in a public session.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Long experience on delivery these courses has allow for effective readjustments and improvements -Courses open to all students and/or researchers -Well designed course for Entrepreneurship training	-No KT and/or Technology development specific focus ex ante -Non-specific to any research area in particular -Focus of CEBT on creating new companies might not help an effective KT processes -Low active-based learning in a traditional workshop teaching delivery mode

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Tool 12 : From Geek To Speak UM

Name of the tool/methodology/training programme:

- From Geek To Speak

Organisation in charge of the tool/methodology/training programme:

- TecMinho at University of Minho

Starting date: 2016

Description of the tool/methodology/training programme:

From Geek to Easy Speak! ' - Communication Workshop for UMinho researchers

TecMinho organizes annually the Science and Technology Communication Workshop 'From Geek to Easy Speak!'. The initiative takes place usually AvePark and is aimed at researchers and entrepreneurs linked to the University of Minho.

The aim of the Workshop is to enable participants to communicate their research results and business ideas more effectively and attractively, disseminating to the general public what is most innovative in Science and Technology and optimizing the establishment of partnerships with companies, investors and other universities. In an informal environment, it is intended, in this way, to provide researchers and entrepreneurs with communicative tools, in order to develop their abilities to disseminate their work, their research results and their business ideas.

The program thus includes a diversity of contents, which will be presented and worked on in both theoretical and practical sessions. In this way, it will be possible to acquire knowledge, to reflect on it and to put it into practice in the two days of the workshop. Below are presented the contents:

- Public communication: non-verbal language, posture, diction, voice projection.
- Personal branding - building trust. Persuasion and negotiation techniques. Storytelling From researcher to entrepreneur - Testimonial
- Communicating science: the challenge Communicating with the press: disseminating research results | Press Release Writing
- Conflict management
- The role of social networks
- One-sentence elevator pitch. Public communication: message, content, form and conciseness.

The final presentation of the participants - 1 minute pitch is then evaluated by a panel of both internal and external member.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Long experience on delivery these courses has allow for effective readjustments and improvements -Broad outreach to the academia community	-Non-specific to any R & D area -Single workshop without any follow-up actions -Traditional teaching delivery mode and focused on communication processes and not much emphasis in KT and technology development

-Good focus and delivery plan that overlaps well with its specific goals	
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Tool 13: Idea Lab UM

Name of the tool/methodology/training programme:

- Ideal Lab at University of Minho

Organisation in charge of the tool/methodology/training programme:

- TecMinho and University of Minho

Starting date: 2009

Description of the tool/methodology/training programme:

The Business Laboratory aims to provide support in the pre-start and start-up phase of the company. It welcomes promoters (individually or in groups of up to 5 elements) responsible for innovative business projects to be determined after a selection process. The recipients of the Business Laboratory are entrepreneurs with innovative business projects that are potentially interesting to give rise to the elaboration of a business plan and its preparation for market entry in a “quasi-company” logic. This acceleration program for business ideas that supports their development and their market potential, it is aimed at all students, graduates, teachers and researchers in higher education.

Over the course of four months, entrepreneurs are accompanied by a team of tutors and mentors, who provide a set of workshops related to the study and validation of business ideas and carry out tutoring, networking and coaching activities.

The objectives of this training programme are:

- Support participants in preparing the start-up of the company;
- Guide the entrepreneur in the conduct of his enterprise, in terms of: risk analysis (internal and external environment, threats and opportunities), analysis of financial, market, operational, strategic, structural and legal aspects in order to integrate the necessary elements knowledge of your business;
- Support the development and improvement of the business plan, which guides and evaluates the development of the enterprise in the medium and long term, with the objective of better evaluating investment alternatives, minimizing risks and uncertainties, to achieve the expected results of the description of the business objectives and strategies.

The Business Laboratory establishes its performance on a logic of personalized support for entrepreneurs, given by specialized consultants and will be based on the diagnosis and evaluation of operational and management processes, providing support in the identification of critical points and indicating actions capable of assist in the process of continuous improvement of an innovative business.

The activities comprise four main phases:

Opening session (Ideation): The Business Laboratory starts in a session in which the various activities of the Laboratory, the selected business projects, the technicians and consultants involved and the Laboratory facilities are presented. In this session, promoters, consultants and organizing entities must sign a confidentiality agreement that protects the ideas of the selected business projects. Individual contracts are also be signed with the promoters establishing their rights and obligations as participants in the Companies Laboratory.

Mentoring session: In the next phase, an individual meeting with the "Business Coach" is scheduled in order to develop an action plan to be implemented in the Companies Laboratory, where the 10

hours of individual consultancy available by the team are to be distributed. This individualized mentoring and guidance is relevant for the definition and implementation of the business model.

Workshops: These are intended to the development of skills related to business creation and business development. Group sessions take place weekly for the following topics:

- Formalize and Incorporate Companies (3h);
- Voice of the Customer and understanding the customer (4h)
- Economic and Financial Analysis (4h);
- Marketing, Image and Communication (4h);
- Digital Marketing (4h);
- Sales and Commercial Negotiation Techniques (4h).

Final session : public presentation of the projects and the business models and plans to an invited guests panel

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Long experience on delivery these courses have allowed for effective readjustments and improvements -Well designed course and alignment with its goals and outcomes -External mentoring by business expertize	- Small capacity for the number of teams/projects in each edition turns into a previous selection of those based essentially on future commercial potential -The training itself (not the R & D areas from where the teams may come) is non-specific to any particular R &D area (essentially one-size-fits-all) -Almost no focus on KT and technology development before the training course

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Tool 14: Inov C 2020

Name of the tool/methodology/training programme:

- Inov C 2020

Organisation in charge of the tool/methodology/training programme:

- University of Coimbra

Starting date: 2019

Description of the tool/methodology/training programme:

INOVC, led by University of Coimbra unites higher education institutions, interface entities, business incubators and science and technology parks in the Centro Region of Portugal, around a vision that consists of projecting the region as a national reference in the creation of new products and services resulting from activities of R&D, through the consolidation of an Innovation Ecosystem, that is open and inclusive, incorporating a complete offer of resources, infrastructures and Dynamics and with transversal and sectoral means oriented to the specific needs of each innovative and entrepreneurial project.

The main strategic objectives are:

- Accelerate the change in more entrepreneurial and open attitudes, values and behaviors, in collaborating on innovation projects, using new ideas and technologies, taking risks and combating the stigma of failure;
- Empower academic communities to create innovative projects in which the transfer of knowledge to the business community is expected;
- Support the creation of technology-based companies based on R&D results;
- Promote an increase in the technological intensity of the region's business fabric, strengthening its connection to the SCTN;

There are also additional operational Objectives

Operational Objective # 1: Awareness and Networking

1.1 - Sensitizing the academic community of higher education (students, teachers and researchers) to entrepreneurship and innovation, including the themes of creativity, intellectual property, business models, economic and financial viability, marketing, financing and science communication.

1.2 - Raising the awareness of the business community (entrepreneurs and employees) about entrepreneurship and innovation, including the themes of creativity, intellectual property, R&D, co-creation, open innovation

1.3 - Promotion of meetings between students, teachers, researchers, entrepreneurs, entrepreneurs, mentors, technicians for valuing knowledge

Operational Objective # 2: Identification of technologies and technological needs

2.1 - Identification of R&D results with commercial potential

2.2 - Identification of technological needs in companies in the region that can be supplied by the research centers of the partners

2.3 - Creation of new collaborative projects between research centers and companies resulting from 2.1 and 2.2.

Operational Objective # 3: Valorisation and commercialization

3.1 Commercial valorisation of innovative ideas through the awarding of prizes in business ideas contests.

3.2 Commercial enhancement of R&D results through the financing of grants for the development of pilot or experimental installations, demonstration and construction of prototypes.

3.3 Support for the protection of intellectual assets resulting from R&D activities

3.4 Commercial enhancement of R&D results through the support of mentors.

3.5 Providing access to business intelligence databases to promoters of technology transfer projects, to obtain critical information for their development.

3.6 Commercial promotion of technologies through their dissemination in national and international missions.

Main actions provided to achieve those objectives :

-Ignition Grants: to motivate and stimulate the research community, grants are given (under a selection process) to promote the commercial enhancement of research results and preparation of tests or prototyping of products or services resulting from scientific research.

-Proof of Concept and Arrisca C : to stimulate and encourage the valorisation of R&D results that may be subject to licensing or the constitution of a technology-based spin-off within 1 to 2 years(a special competition is made to implement and develop the business models and plans for this purpose);

-Awareness, Training and Networking : organization of actions that can take various forms such as workshops, conferences, demonstration sessions, acceleration programs, strategic meetings, with the objective of raising the community's awareness of entrepreneurship issues, assessing the commercial potential of research results, protecting property intellectual property, technological surveillance, commercial valorization of R&D, knowledge transfer, business models, financing of innovative projects, design thinking, lean start-up, scale-up, and guidance for the global technology market, as well as the development of prototypes or pilot demonstrator units. Present and past workshops have been predominantly in Intellectual Property fundamentals, Licensing Methods and Strategy, Business Models and Finances but all areas mentioned above will be covered.

-Technology Scouting: early identification of research results with commercial potential in the knowledge centers of the nuclear partners. Collection of information necessary for the protection of

intellectual assets derived from R&D projects. Technological surveillance, pre-diagnoses of technological mapping, intermediation, commercial recovery plans.

-Innovation Diagnostics : conducting innovation diagnostics in companies to identify technological needs that could potentially be met by the nuclear partners' R&D centers, aiming at increasing the technological intensity of the region's business fabric, strengthening its connection to the SCTN and supporting the introduction of new processes, products or services on the market.

-Protection of intellectual assets : protection of intellectual assets resulting from R&D projects including technological surveillance services, pre-diagnostics of technological mapping, intermediation, development of commercial valuation plans, registration of patents, utility models, design, among others.

-Business Intelligence : providing access to a business intelligence database to collect information such as market studies, financial analysis or mergers and acquisitions reports, to support the development of projects monitored by the INOV C consortium

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Extensive outreach to overlap academia, industry and regional authorities -Cover all stages of KT and the usual hurdles in that process -Large number of members from broad backgrounds bring experience and expertise	-Too many objectives and goals could prevent effective way to achieve the programme's goals(governance) -Training limited to workshops or to specific training by request from companies or as an office -based support to provide consultancy and guidance -No specific of any R & D area

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Tool 15: Lab2Market

Name of the tool/methodology/training programme:

- Lab2Market @ Tecnico

Organisation in charge of the tool/methodology/training programme:

- IST – Technical Institute of the University of Lisbon

Starting date:

Description of the tool/methodology/training programme:

Lab2Market@Tecnico is an innovation acceleration program organized by IST in collaboration with Everis and I-Deals. It was created to help researchers and/or students to find the best way to take the science or technology that they have created/invented/developed to the market. It provides 250 hours of specialized business mentoring to the selected projects in the areas of Technology Assessment, Market Assessment, Revenue & Costs, Investors, Feedback.

The main objectives of this program are:

- Foster the creation of technology-based start-ups;
- To promote the ability to better structure and guide the R & D focus of the researchers;
- To be better prepared to apply and compete for investment funds such as Horizon Europe

Each edition of the program will include 4 to 6 teams of up to 5 members including faculty, researchers, PhD and Master students.

Each team, in order to be selected, must have mastered an innovative technology in the any área and have a clear market orientation and willingness to innovate.

The program is structured in this manner for a full 4 month period :

- 1) A launching session (teams and projects first presentation)
- 2) Workshop in several topics related with Entrepreneurship and Business Development
- 3)One on One Meeting (first moment of specialized business mentoring for each team), in a specific full day.
- 4)First 4 week working period where teams work in their projects
- 5)Follow-Up Meeting (second moment where adjustments, reorientations and guidance are provided to the teams as a midterm assessment step)
- 6)Second 4 week working period
- 7)Final Pitch Presentation

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Well designed with the focus of high-tech based Entrepreneurship education and focus - Open to researchers and students	- Small number of projects in each edition might not make it extensively open -No KT or technology development approach and focus during the course

- Organization members have a lot of experience in being trained or teaching in other initiatives (CoHitec, MIT Portugal, etc.) - Project-based learning within the teamwork hours	- No clear if the mentoring is consistent or only in the mentoring sessions defined in the syllabus
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Tool 16: ScienceIN2Business

Name of the tool/methodology/training programme:

- ScienceIN2Business

Organisation in charge of the tool/methodology/training programme:

- TecLabs and Lisbon University School of Sciences

Starting date: 2015

Description of the tool/methodology/training programme:

ScienceIN2Business® is a methodology to encourage and support the economic valuation of scientific and technological knowledge in higher education institutions and research centers across the University of Lisbon. It is a collaboration initiative between the incubator TecLabs and the University of Lisbon.

The program is delivered on annual editions so that it can be sedimented and disseminated exponentially, covering an increasing number of students, teachers and researchers.

The methodology for each edition is divided into three moments, designed in a sequential, interdependent and replicable logic: Learning, Selection, Evolution

1)The LEARNING phase is divided between Formal Education and Non-Formal Education: the first includes optional Curricular Units in entrepreneurship and innovation aimed at students from all study cycles; Non-formal Education consists of workshops and training on topics in the area of business, design and innovation, open to students and the general public.

2)The SELECTION is the phase of the methodology in which we offer two different programs to work with our two main targets: Researchers (Call for Projects) and Students (Summer School).

The Call For Projects for Researchers has the main objective to discover and enhance the best projects with market potential across the University of Lisbon. The top five projects have access to a training program until the Final Event, in which there is an award (monetary prize) and one year of incubation at Tec Labs. This training is a one week course and it is defined and delivered in order to help them develop and bring their projects closer to the market, as well as to prepare them for the Final Event. Finalists will have access to a capacitation program for 6 months (weekly mentoring sessions) that will help them develop their projects, bring them closer to the market and prepare them for the final event. In the Final Event, the Finalists pitch their projects to a carefully selected jury that will decide the Winning Team to which a monetary prize and one year of incubation at Tec Labs will be awarded. The Final Event will also include networking with investors and partners on the industry side.

The Summer School is designed in a course that, over 5 days, students will have intensive training and will be tested, in teams, through challenges proposed by companies in four key areas. On the last day of the Summer School, a jury will choose four winning teams that will be trained until the Final Event, where they can show their solutions to investors!

Students from the various University of Lisboa schools apply individually and are then integrated into multidisciplinary teams. They also receive training in entrepreneurship, innovation and business topics. Afterwards, they are involved in a Problem solving project as the teams are assigned to problems proposed by the companies. The teams must design their solution during the Summer School. In a demo day open to the public, the teams will pitch their solutions before a carefully selected jury, which will choose four winners, one per area.

3) The EVOLUTION phase is set to be in place after both the Call from Projects and the Summer School training programs and the finalists from both programs enter the this phase, where they have access to the Tec Labs ecosystem and support in order to grow their projects to the next level which is an annual acceleration program with mentors selected according to the needs of each of the projects. Each project is expected to culminate in the market, either via licensing or through the creation of a spin-off.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
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-Extensive outreach and open to researchers and students -Well designed initiative from the educational perspective in training on fundamentals to all stages until a company is in place -Strong commitment from the institutions -Good internal/external expertise	-Non specific to any R & D area -It is not clear why the winning projects from two different tracks are placed at the end of Evolution phase -Focus on KT and technology development is not clear
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Tool 17: INEO Start

Name of the tool/methodology/training programme:

- INEO Start

Organisation in charge of the tool/methodology/training programme:

- IPN (Instituto Pedro Nunes) and University of Coimbra

Starting date: 2009

Description of the tool/methodology/training programme:

INEO Start is a 5-week business and technology acceleration program that brings together teams with great potential with trainers, entrepreneurs and investors. This arises from a joint initiative between the Pedro Nunes Institute, the University of Coimbra and jeKnowledge - junior company of the Faculty of Science and Technology of the University of Coimbra. The program's schedule and plan, which is delivered in a 80 hour is divided into

- (1) workshops, conducted by experienced trainers, in the areas of innovation, entrepreneurship, business model creation, marketing, communication, finance;
- (2) mentoring sessions, led by entrepreneurs / investors who are willing to share their knowledge and experience with program participants;
- (3) office-hours mentoring, as each team has a dedicated professional who has the mission of helping promoters throughout the program (helping participants throughout the course of the program).

From the idea to the launch of a business, there is a long way to go: developing a sustainable business model, finding the right team, developing a product, defining a go-to-market-strategy. This programme wants to help on that process with a training program designed to make more successful the path of an entrepreneur. The participating projects have the opportunity to contact mentors, entrepreneurs and investors willing to share their experience and knowledge. The programme is always looking for scalable, product-oriented businesses, with an international vision and easily prototyped.

Ineo Start is structured in 6 sessions in the following areas:

- Business Model Canvas and How to Pitch: Strategic management tool, developed by Alexander Osterwalder, which allows entrepreneurs to test all the assumptions of their business model on one page. Training techniques for presenting the project / business in a short time (1/3 minutes), in a creative and captivating way.
- Customer Development and Lean Prototyping: Customer Development is based on a new methodology by Alexander Osterwalder that allows testing hypotheses about the product / service with potential customers (Test card, test A / B, etc.). Lean Prototyping is inspired by the methodology developed by Eric Ries allowing entrepreneurs to optimize and validate their ideas, with less investment and greater speed.
- Marketing for startups: Exploration of tools for the dissemination of products and services, as well as the generation of metrics to gauge the interest of the target market.
- Startups and investment: Preparation of the financial component of the project, i.e., accurately assess the amount of investment really needed, what it will be used for and which milestones it is associated with.

-Final Pitch: Final training session for entrepreneurs' presentations for "Demo day".

-“Demo day”: Presentation of the participating startups and projects to an audience of guests, including investors.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Long experience on delivery these courses has allow for effective readjustments and improvements -Well designed course and alignment with its goals and outcomes -External mentoring by business expertise	- Small capacity for the number of teams/projects in each edition turns into a previous selection of those based essentially on future commercial potential -The training itself (not the R & D areas from where the teams may come) is non-specific to any particular R &D area (essentially one-size-fits-all) -Almost no focus on KT and technology development before the training course

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Knowledge transfer tools in Spain

Tool 18: OTRI Universities Network National Entity (knowledge and Technology Transfer National Office)

Name of the tool/methodology/training programme:

- OTRI universities Network. National entity (knowledge and Technology Transfer National Office)

Organisation in charge of the tool/methodology/training programme:

- CRUE. Spanish universities rector's conference.

Starting date: 1997

Description of the tool/methodology/training programme:

RedOTRI is the network of Research Results Transfer Offices (OTRI) of Spanish universities whose mission, as established in its regulations, is "to promote and disseminate the role of universities as essential elements within the national innovation system".

Currently RedOTRI is made up of transfer units from Spanish universities, as well as public research organizations and other entities that wish to associate with the network as associated members.

Red OTRI is constituted by the following working groups :

- WG of indicators of knowledge transfer
- WG of Spin-off
- WG of R+D+i contracts
- WG of patents
- WG of training programmes
- WG of knowledge transfer on Social Sciences and Humanities.

OTRIs are the very consolidated interlocutor with companies and other socio-economic agents.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Facilitate the collaboration between researchers and companies, identifying the most appropriate experts to meet their needs. - Promote the catalogue of available research results to be transferred to society. - Support the establishment of contracts and other forms of collaboration between the university and the company. - Help find sources of public funding for collaborative activities between groups from the university and other entities.	- Not only should be structure of knowledge they should have instruments that stimulate and facilitate this transfer.

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| <ul style="list-style-type: none">- Manage patents and other forms of R&D protection.- Assist in activities aimed at the creation of companies based on the exploitation of knowledge generated at the university or OPI. | |
|--|--|

Contact: Oberta de Catalunya university. mrirad@uoc.edu

Website: <http://www.redotriuniversidades.net/index.php>

Tool 19: R+D+I impact Scientific and Technology Vice-rectorate

Name of the tool/methodology/training programme:

- R+D+I impact. Scientific and Technology Vice-rectorate

Organisation in charge of the tool/methodology/training programme:

- University of Cadiz (UCA). Andalusia Region

Starting date: 1997

Description of the tool/methodology/training programme:

The Vice-Rector's Office for Scientific and Technology Policy are in charge of facilitating the collaboration between companies and the UCA in matters of business innovation and, providing advice and technical support to researchers and companies that wish to collaborate with the university in innovation, competitive financing programs, project development, processing and management thereof.

The university of Cadiz has a large programme on innovation and transfer by means of external contracts, joint innovation units with relevant companies, industrial doctoral thesis programmes and the Centre of business transfer.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Support and advice service for business innovation and territorial development. - Transfer and innovation service for companies - Entrepreneur support service.	- Lack of mechanisms of knowledge transfer generated from academia.

Contact: otri@uca.es

Website: <https://politicacientifica.uca.es/impacto-idi/transferencia-e-innovacion/>

Tool 20: Transfer and result office of the University of Huelva

Name of the tool/methodology/training programme:

- Transfer of research results Office

Organisation in charge of the tool/methodology/training programme:

- University of Huelva. Andalusia region

Starting date: 1994

Description of the tool/methodology/training programme:

Its mission to ensure that companies and institutions in Huelva are scientifically advanced entities, by promoting close collaboration in research, development and innovation (R & D + i) activities between university research groups and companies and institutions, transferring to them both the technology and the knowledge and research results generated by the university's research groups.

The University of Huelva, through its Technology Transfer Office (TTO), offers all its scientific, technological and humanistic capacity in order to contribute to the growth and competitiveness of our production system. There fore it has developed the [Technology transfer portal](#).

With this Technology Transfer Portal, TTO wants to strengthen the relations between the agents of science-technology-enterprise system; helping to identify the technology needs of socio-economic sectors and show both scientific and technological capabilities and the results generated by our researches. This TTO wants to promote the knowledge transfer between the public and private sectors and contribute to the implementation and commercialization of results of R&D generated in the University.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- A fluid contact between university and companies. - The use of information and communication technologies. - The protection of research results and their exploitation - The negotiation, processing, and formalization of different types of transfer contracts.	

Contact: otri@uhu.es

Website: <https://politicacientifica.uca.es/impacto-idi/transerencia-e-innovacion/>

Tool 21: The Web portal of knowledge transfer of the University of Granada

Name of the tool/methodology/training programme:

- The web portal of knowledge transfer

Organisation in charge of the tool/methodology/training programme:

- University of Granada (UGR). Andalusia region

Starting date:

Description of the tool/methodology/training programme:

The OTRI is integrated into the Vice-Rector's Office for Research and Technology Transfer of the UGR, which activities are aimed at:

UGR researchers for the valorization of their knowledge in the socio-economic environment;
Companies, by building strategic bonds with the university to improve their competitiveness;
Entrepreneurs of the academic community for the setting up of spin-off companies.

The OTRI of the University of Granada is focused on knowledge transfer in the areas of Information and Communications Technology (ICT), Biotechnology, Health Sciences and Technology, Agri-food, Production Technologies, Natural Resources and Environment, Physics, Chemistry and Mathematics, Humanities and Social, Economic and Legal Sciences.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Business opportunities based on R&D outputs - Technology Transfer Center (TTC). - Spin off site, This site is aimed at being a meeting point for UGR spin-off companies, as well as a support for university entrepreneurs and a communication channel between the University and its spin-off companies. - A wide range of services addressed to researchers, companies and entrepreneurs.	

Contact: otri@ugr.es

Website: <https://otri.ugr.es/>

Tool 22: The web portal and knowledge transfer of the University of Málaga

Name of the tool/methodology/training programme:

- The web portal of knowledge transfer

Organisation in charge of the tool/methodology/training programme:

- University of Málaga. Andalusia region

Starting date: 1987

Description of the tool/methodology/training programme:

So as to meet their goals the Office of Research and Transfer provides a set of services for both internal (teachers and researchers) and external customers (companies, other organizations, and society in general).

Among these services are:

- Disseminate, advise, and manage research projects within the European Union Framework Programme
- Advise on and conclude research contracts, provide technical support and counsel on the best use of researchers' scientific capabilities
- Assist in patent licensing and research results
- Disseminate and process R&D&I national and regional projects
- Help spread and disseminate UMA's technological and scientific culture
- Hold various events: conferences, exhibits, courses and seminars
- Enable lab services

The OTRI has developed among its services, a [Knowledge transfer map](#) which reflects the collaborations in R + D + i that the UMA currently maintains with different entities, both nationally and internationally.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Suggestion box. - Promotional video. - Catalogue of services. - The first Spanish university that has installed the OTRI in the Technology Park.	

Contact: otri@uma.es

Website: <https://www.uma.es/otri/info/914/servicios-prestados/>

Tool 23: The Office of Research and Transfer of the University of Almeria

Name of the tool/methodology/training programme:

- The Office of Research and Transfer

Organisation in charge of the tool/methodology/training programme:

- University of Almería (UAL). Andalusia region

Starting date: 1994

Description of the tool/methodology/training programme:

Meeting point between the scientific knowledge of the research groups and the technological needs of the productive sectors.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Research Contracts and Service Provision. - Protection of Research Results. - Spin-Off of the University of Almería. - Collaborative Projects UAL – Company. - Scientific Outreach. - European and International R&D Projects Office.	

Contact: otri@ual.es

Website: <https://www2.ual.es/otri/otri/>

Tool 24: The web portal of knowledge transfer of the University of Vigo

Name of the tool/methodology/training programme:

- The web portal of knowledge transfer

Organisation in charge of the tool/methodology/training programme:

- University of Vigo. Galicia region

Starting date:

Description of the tool/methodology/training programme:

The R&D Office's mission is to carry out tasks of transferring R&D capabilities and results to the socioeconomic environment. Its services are aimed at teaching and research staff (PDI), companies and other external entities.

The main services provided are :

- Promote and update the offer of R + D + i capabilities and results.
- R + D + i dissemination and promotion activities.
- R+ D + i and results Guiding research staff in contracts and collaborative R&D projects Advising and supporting the PDI in the protection and valorisation of R&D results.
- Licenses and knowledge-based companies (SpinOff)

They distinguish two ways of carrying out R & D & i activities:

- On demand R&D: a company or organization entrusts the university with carrying out an R&D project, proposes the objectives, assumes the risks and pays its cost, and finally has the results. This activity is formalized through a contract.
- Collaborative R&D: project participants involve their resources, share risks and objectives, and distribute ownership of the results. It is formalized through an agreement or collaboration agreement.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Databases of researchers. - Catalogues and publications on R & D & i activity and results. - Training programmes. - High quality of innovation projects. - Creation of several technology centers as: CACTI: Scientific-technology and research support centre. UVIGO Marine Research Centre (CIM-UVIGO).	

Contact: otri@uvigo.es

Website: <https://www.uvigo.gal/es/investigar/transfencia-conocimiento>

Tool 25: The knowledge transfer area of the university of Las Palmas

Name of the tool/methodology/training programme:

- The knowledge transfer area

Organisation in charge of the tool/methodology/training programme:

- University of Las Palmas de Gran Canaria. Las Palmas region

Starting date: 2008

Description of the tool/methodology/training programme:

The knowledge transfer area of University of Las Palmas is integrated by several transfer units support:

- The Business Promotion Unit is in charge of managing the spaces of the Science and Technology Park, being responsible for the business incubator, as well as the management of general infrastructure and facilities.
- The knowledge transfer office is in charge of managing collaboration agreements between companies and researchers, seeking financing for R & D & I, managing services to support scientific and technological research, and the exploitation and transfer of research results. research projects developed.
- The Intellectual and Industrial Property Office is responsible for the protection of research results and their capitalization.
- The Project Office is in charge of managing R + D + i projects, at national and international level, as well.
- The POMAC Projects Office is specially managing projects funding in the frame of the Interreg MAC program, 2014-2020 MAC Program.
- BIOASIS, Platform of Excellence in Blue Biotechnology and Aquaculture, promoting experimental research and the development of companies related to this sector on the island of Gran Canaria.
- The scientific outreach and innovation unit (UCC+I), its main purpose is to make the value of the work of the scientific community understandable to society with the aim of increasing the scientific culture of citizens, and their interest in science, technology and innovation.

This structure is managed by The Canarian Foundation Science and Technology Park of the University of Las Palmas de Gran Canaria which provides a common meeting space between the company, the world of research and development with the local productive sector, and in turn a place of "cultivation" of new companies, promoter of innovation and the formula of "self-employment" for university graduates.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- High number of transfer units support.	- Focused on the local projects.

Contact: direccion@fpct.ulpgc.es

Website: <https://fpct.ulpgc.es/en/>

Tool 26: Innovation and enterprise area of the CSIC

Name of the tool/methodology/training programme:

- Innovation and enterprise area (Public research organisation, research support services)

Organisation in charge of the tool/methodology/training programme:

- National Research Council (CSIC)

Starting date: 1945

Description of the tool/methodology/training programme:

The CSIC manages strategic relations with agents of the productive sector, scientific and technical research contracts subscribed with other entities, and advises on the preparation and management of CSIC-Enterprise projects and on their co-financing with public and private funds. Likewise, the CSIC increases the benefit obtained by society protecting adequately the research outcomes and their later transfer to companies and institutions, promoting the local or regional economic development and supporting the creation of spin-off and technology-based companies facilitating the establishment of research programmes in partnership with companies and institutions.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- RDI results protection. - RDI Contracts. - Marketing of RDI products. - Start-up companies. - Technological offer portfolio.	-

Contact: [Email Contact Form](#)

Website: <https://www.csic.es/en/csic>

Tool 27: Mixed units of R+D+I between the Spanish institute of Oceanography and universities

Name of the tool/methodology/training programme:

- Mixed Units of R+D+I between IEO and Universities

Organisation in charge of the tool/methodology/training programme:

- Spanish Institute of Oceanography (IEO)

Starting date: 2009

Description of the tool/methodology/training programme:

Mixed Unit, called TEM (Technology unit for Marine studies) is integrated by 65 researchers: 27 from the University of Technology of Valencia, The Research Institute for Integrated Coastal Zone Management (IGIC), 23 from the Spanish Institute of Oceanography and 5 from the UPV Institute of Animal Science and Technology.

The main strategic lines are:

- Marine ecosystem dynamics and climate change.
- Marine sensors and sensor networks.
- Underwater acoustics.
- Techniques for control, evaluation and management of sustainability in marine aquaculture.

Since its creation, more than a dozen research projects, actions and contracts have been developed within the UTEM, especially those relating to the application of underwater acoustics, the study of the sea and its resources, which have produced more of about twenty scientific and technical publications in magazines, conferences, symposia, conferences, and Spanish and foreign publications. Likewise, activities have been carried out to disseminate marine research to the fishing sector, highlighting those held in the Port of Gandía in October and November 2013, on "Challenges to Reform the Common Fisheries Policy".

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Scientific outreach on Marine and Maritime Science to the society. - Dissemination of research results. - Development of joint projects among public and private entities.	- Activities focused on the knowledge transfer to enterprises.

Contact: webieo@ieo.es

Website: http://www.ieo.es/en_US/web/ieo/acerca-del-ieo

Tool 28: Technology Transfer Programme of the CIEMAT

Name of the tool/methodology/training programme:

- Technology Transfer programme.

Organisation in charge of the tool/methodology/training programme:

- CIEMAT. Energy, environment and technology research Center.

Starting date: 1996

Description of the tool/methodology/training programme:

Its combined capacities and technologies and long experience in public-private collaboration are of great interest to society and industry, places special emphasis on its Technology Transfer programme.

The many participants in this programme are all necessary to ensure its success: researchers, administrative assistance offices, legal office, and especially, the Technology Transfer Office (TTO). The general purpose of this unit, which has been operating since 1996, is to serve as a link between CIEMAT R&D&I and the outside world, energizing these relations, so that business can make use of its R&D capacities and results.

TTO work now follows a Strategic Plan, the PETRA-CIEMAT, which includes the goals that are to be reached and a specific plan of action for achieving them.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Collaboration in R+D+I projects. - R+D+I funding programmes. - Protection on research results. - Technology offer. - Intelligent and foresight.	-

Contact: otri-utt@ciemat.es

Website: <http://www.ciemat.es/portal.do?IDM=14&NM=1>

Tool 29: Andalusia Open Future

Name of the tool/methodology/training programme:

- Andalucía Open Future

Organisation in charge of the tool/methodology/training programme:

- Telefónica S.A. and Andalusian Government

Starting date: 2014

Description of the tool/methodology/training programme:

This initiative is aimed at entrepreneurs who want to develop innovative technology projects in Andalusia in different areas such as digitalization and Industry 4.0, Smart Cities, energy, etc.

To this end, 'Andalucía Open Future' offers entrepreneurs its own workspace, a personalized acceleration methodology and a team of mentors specializing in various business areas composed of more than 80 active professionals. In addition, it provides various opportunities for 'networking', access to customers through the global network 'Open Future' of Telefonica, as well as public funding instruments of the Andalusian Government.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Highly competitive and open selection. -Seed capital investment in those selected, usually in exchange for startup shares. -Intensive mentoring. - Provide startups with a range of resources and services of which mentoring and connections to potential investors are essential.	-Very small number of start-ups. -Lack of institutional support. -Lack of resources Programs of limited duration.

Contact: andalucia@openfuture.org

Website: <https://andalucia.openfuture.org/que-es-andalucia-open-future/>

Tool 30: Programa Minerva

Name of the tool/methodology/training programme:

- Programa Minerva

Organisation in charge of the tool/methodology/training programme:

- Vodafone, S.A. and Andalusian Government

Starting date: 2014

Description of the tool/methodology/training programme:

Minerva is an entrepreneurship program for the promotion of business projects in the technology sector in the Andalusian region. The main objective of Minerva is to support entrepreneurs and help their business projects grow into stable businesses. With this premise, the Minerva Program strongly supports job creation in Andalusia by promoting entrepreneurship and aims to provide density to the business structure of the region.

Minerva aims to support entrepreneurs in the technology sector by turning their business projects into real businesses. To this end, it opens annual calls for proposals. In each programme, it selects a maximum of 30 projects from all the applications submitted. The participants selected in each call enter a complete entrepreneurship program with the aim of accelerating the development of their business project.

The Minerva Program has been recognized by the FUNCAS ranking as the first accelerator in quality of services at the Andalusian level and one of the first five best in Spain. This program has so far selected more than 120 innovative ideas, 80% of which have managed to become stable businesses, consolidating and generating nearly 400 jobs in Andalusia. The typology of these initiatives is very diverse, focusing on areas of marketing, health and welfare, culture and leisure, agrotech or Smart City.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Highly competitive and open selection. - Seed capital investment in those selected, usually in exchange for startup shares. - Intensive mentoring. - Provide startups with a range of resources and services of which mentoring and connections to potential investors are essential.	-Very small number of start-ups. -Lack of resources Programs of limited duration.

Contact: info@programaminerva.es

Website: <https://www.programaminerva.es/acelera>

Tool 31: Call for R+D+i incentives of the Technological Corporation of Andalusia

Name of the tool/methodology/training programme:

- Private funds for the financing of R&D&i projects in Andalusia, in cooperation between companies and research groups.

Organisation in charge of the tool/methodology/training programme:

- Technological Corporation of Andalusia (CTA)

Starting date: 2005

Description of the tool/methodology/training programme:

CTA grants aid to companies that can finance up to 50% of the incentive budget for R&D&i projects to be carried out in Andalusia and which must have the participation of Andalusian research groups in at least 10-15% of the budget.

The research groups have the opportunity to introduce their scientific and technical knowledge and innovations to the market, as well as to strengthen their infrastructures and human and technical resources. In addition, collaboration with companies provides them with knowledge about the needs and demands of the market and contact with the business world.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Private funds for R&D&I, compatible with public funds. -Mandatory participation of research groups. -Successful Transfer model.	- Little knowledge of the research capacities of universities by companies. -Companies reluctant to collaborate with public research bodies. -Treatment of confidentiality and administrative procedures with universities.

Contact: tecnico@corporaciontecnologica.com

Website: <https://www.corporaciontecnologica.com/es/>

Tool 32: Public Procurement of Innovative solutions (PPI)

Name of the tool/methodology/training programme:

- Strategy for the promotion and consolidation of Public Procurement of Innovation (PPI) in the Public Administration of the Andalusian Government

Organisation in charge of the tool/methodology/training programme:

- Andalusian Government

Starting date: 2018

Description of the tool/methodology/training programme:

The Andalusian strategy of Innovation Public Procurement (PPI) is a public procurement mechanism to encourage the development of innovative solutions in Andalusia, promote the competitiveness of industry and SMEs, the transfer of knowledge from research bodies and improve the provision of public services by incorporating innovative goods and services, based on efficiency and quality and developed by companies or research bodies involved in the PPI process.

Any Andalusian public administration (councils, agencies, public companies, etc.) with competence in the field of the blue economy can tender for innovative solutions through this instrument. At the same time, any research group from universities or other bodies can present, individually or jointly with companies or other entities, their applications and technological proposals to solve the challenge posed by the administration.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Advanced diagnosis of needs and innovative demands in the Andalusian public sector for the improvement of public services. -Innovation capacity in Andalusia: high number of innovative companies and leading research organisations in R&D. - The Andalusian government allocates 50 million euros for this initiative. -Transparency of the process.	-Ignorance of the PPI instrument. - Deadline for the execution of projects: June 2023. - Confidentiality treatment in the process.

Contact: informacion@juntadeandalucia.es

Website: https://www.juntadeandalucia.es/export/drupaljda/planes/18/09/ECPI_vdef.pdf

Tool 33: Entrepreneurship in Science and Technology Parks

Name of the tool/methodology/training programme:

- Entrepreneurship in Science and Technology Parks

Organisation in charge of the tool/methodology/training programme:

- Association of Science and Technology Parks of Spain (APTE)

Starting date: 1989

Description of the tool/methodology/training programme:

The Association of Science and Technology Parks of Spain (APTE) is a non-profit association whose main objective is to collaborate, through empowerment and dissemination of scientific and technological parks, renewal and diversification of productive activity, technological progress and economic development. It currently has 63 members scattered throughout the Spanish geography and 24 of these parks are sponsored by universities and 46 Spanish universities collaborate with them.

In the science and technology parks that are members of APTE there are around 1000 companies that are in their first years of activity. These parks have infrastructures and services specialized in supporting entrepreneurs, such as pre-incubators, incubators and coworking spaces, all of them assisted by professionals specialized in supporting types of business projects. Therefore, these science and technology parks represent a great offer of support structures at the disposal of all those global entrepreneurs with innovative ideas.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Large number of incubated companies.	- Little knowledge transfer from the university and other research bodies. -There are no incentives for the creation and establishment of startups. -Activities, services and structures subject to policies.

Contact: info@apte.org

Website: <https://www.apte.org/es>

Tool 34: Offers and demands for Scientific-technological collaboration

Name of the tool/methodology/training programme:

- Offers and demands for scientific-technological collaboration

Organisation in charge of the tool/methodology/training programme:

- Association of Science and Technology Parks of Spain (APTE)

Starting date: 1989

Description of the tool/methodology/training programme:

A Science and Technology Park stimulates and manages flow of knowledge and technology between universities, research institutions, companies and markets; encourages the creation and growth of innovative companies through incubation and spin-off mechanisms and provides other value-added services as well as high-quality space and facilities.

This service has the objective of contributing to the collaboration between the companies installed in the science and technology parks that are members of APTE and their environment. The APTE offers a free service of a collaborative platform of technological offers and demands, both for companies and for research groups. These offers and demands are disseminated among the companies located in the Science and Technology Parks that are members of the APTE and only those alerts related to research, innovation and technological development activities are published.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Large number of incubated companies.	- Little knowledge transfer from the university and other research bodies, -There are no incentives for the creation and establishment of startups. -Activities, services and structures subject to policies.

Contact: info@apte.org

Website: <https://www.apte.org/ofertas-demandas-colaboracion-cientifico-tecnologicas>

Tool 35: Technological Centres

Name of the tool/methodology/training programme:

- Collaboration in the transfer of research results between public research centres and companies

Organisation in charge of the tool/methodology/training programme:

- Spanish Federation of Technology Centres (FEDIT)

Starting date: 2003

Description of the tool/methodology/training programme:

The Technology centres are private, non-profit research bodies that have their own material and human resources necessary for carrying out activities aimed at both generating technological knowledge and facilitating its exploitation either by existing companies or by generating new business initiatives. Their success is measured by the competitive improvement of companies and their contribution to the economic development of their environment.

The role of Technology centres in relation to SMEs is to act as a partner technology, acting directly as a transfer structure technology or as an intermediary between universities. The experience in R&D activities, their knowledge of the services and strengths of university research groups and technological services, and their proximity to the language and problems of small or medium sized companies, gives it an important role in the Innovation System.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Technology centres can be considered a basic factor of the Science-Technology-Society System as an interlocutor and a tractor for companies in their daily R+D+I work and in their approach to Europe and the National RDI Plan.	- Cooperation between public research centres or universities and technology centres should be encouraged. - Its role as a strategic partner of the system's agents closest to science must grow significantly in order to achieve greater efficiency in the transfer of the knowledge generated to the world of business and society.

Contact: info@fedit.com

Website: <https://fedit.com/>

Tool 36: Incubator for technology-based companies (CEEI)

Name of the tool/methodology/training programme:

- European Centre for Enterprise and Innovation (CEEI)

Organisation in charge of the tool/methodology/training programme:

- National Association of Spanish CEEI (ANCES)

Starting date: 1991

Description of the tool/methodology/training programme:

The CEEI is a company formed by public and private capital, founded in 1991 on the initiative of the CE, to support the creation of innovative SMEs, to promote the implementation of new innovative activities in existing SMEs and to the Public Administration. From its origin, the EC conceived the CEEIS as an international network that would allow the exchange of information and experiences among them and would favour the technological, commercial and financial cooperation between them and their clients. All the BICs are integrated in a network (EBN), an international scientific and technical association that groups more than 150 BICs distributed throughout Europe.

The National Association of European Business and Innovation Centres (ANCES) is a model for bringing together interests, working methods and for the interconnection of innovation and entrepreneurship nodes. The 31 members, CEEIs or BICs, located in different Spanish regions have been promoted by virtue of the commitment of local public and/or private agents to a key resource in the strategy of promoting innovation in their respective territories. Currently, there are 4 Andalusian CEEIs: [BIC Euronova](#) (Málaga), BIC Granada, CEEI Bahía de Cádiz and Emprende Linares (Jaén). The objectives are:

- Create a reference place both for researchers who wish to transfer their knowledge to society and for entrepreneurs who wish to innovate.
- Create synergies between innovation agents, between the public and private sectors, between researchers and entrepreneurs, between existing and new companies and between ICT and Biotechnology companies.
- To identify, within the capacities of scientific production and service provision of the University and Research Centres, lines of work that can be exploited from a business perspective.
- To promote the creation of new technology-based companies, mainly those arising from research results and with special attention to the life and health sciences sector.
- Mobilize public and private resources in the environment to support technology-based companies.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
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-Specialist business support.	- Lack of institutional support. -Poor visibility. -Lack of funding. -Low-tech company profiles.
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Contact:ances@ances.com

Website:<http://www.ances.com/>

Tool 37: Scientific Clusters (OnGranadaTech City, Granada Plaza Technology and Biotechnology Cluster Association).

Name of the tool/methodology/training programme:

- OnGranadaTech City. Granada Plaza Technology and Biotechnology Cluster Association

Organisation in charge of the tool/methodology/training programme:

- Granada Confederation of Businessmen (CGE)

Starting date: 2015

Description of the tool/methodology/training programme:

OnGranada has become the largest business organisation in the digital economy and the largest technology and biotechnology cluster in Andalusia. It has the support of institutions, business organisations and knowledge centres throughout Andalusia.

The cluster aims to help place Andalusian companies in the ICT, Electronics, Biotechnology, BioTIC and Health Science and Technology sectors in a leading position nationally and internationally, contributing to the development of Andalusia's Technology-Based Industry, strengthening the regional business fabric, promoting the creation of quality jobs and improving the competitiveness of the sector. OnGranada develops three strategic lines of work linked to innovation; training and employment; and the promotion of entrepreneurship, which are summarised below:

- Coordinate and develop projects linked to R&D&I, leading consortiums and working groups together with companies and knowledge centres associated with the cluster.
- To facilitate the processes of attracting talent from Andalusian technology companies, as well as to identify the training needs of the companies.
- To manage the necessary financial instruments for the promotion of entrepreneurship and technology-based companies.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Representation of the business sector and administration and university. -Pool of experts from different sectors and entities. -Agreements with banks to allocate funds to support entrepreneurship.	

Contact: comunicacion@ongranada.com

Website: <https://www.ongranada.com/conocenos/?lang=en>

Tool 38: KT Platforms (Market of Ideas and Technologies)

Name of the tool/methodology/training programme:

- Market of Ideas and Technologies

Organisation in charge of the tool/methodology/training programme:

- Andalusian Knowledge Agency (AAC)- Andalusian Government

Starting date: 2010

Description of the tool/methodology/training programme:

The Market of Ideas and Technologies is a public tool for the promotion and dynamization of technology transfer in Andalusia.

The mission is to help Andalusian companies launch new products and services based on innovative ideas or research results from research groups and companies.

The Market is an open space for suppliers and demanders of innovative technologies, where:

- Companies respond to their needs for technological innovation.
- Research groups and companies promote and transfer their innovative technologies.

The platform is aimed at:

- Andalusian companies looking for new technologies to incorporate into their organizations,
- Research groups and other entities that carry out RDi in Andalusia, which have innovative technologies. In general, to all entities that wish to be aware of the latest technological innovations in Andalusia and Europe.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Promotion of innovative technologies. -Meeting of partners for their RDi projects. -Personalised advice. -Free use of the platform	

Contact: info.aac@juntadeandalucia.es

Website: <https://www.juntadeandalucia.es/economiainnovacionyciencia/mitandalucia/?q=contacto>

Tool 39: Workshops on Technology Transfer (Andalusia Technology Transfer Conferences)

Name of the tool/methodology/training programme:

- Andalusia Technology Transfer Conferences (TTAndalucía)

Organisation in charge of the tool/methodology/training programme:

- Andalusian Knowledge Agency (AAC)- Andalusian Government

Starting date: 2010

Description of the tool/methodology/training programme:

The TTAndalucía workshops are a series of bilateral meetings of technological nature in which Andalusian researchers and businessmen meet with potential end users of their technologies, products and innovative procedures, find the technological solutions that best suit their needs, establish contacts for future collaborations or get informed about the latest technological trends and research activities in their sector.

These bilateral meetings are an ideal platform for:

Meeting potential end-users of your innovative technologies, products and processes

-Find the technological solutions that best suit your needs

-Establish contacts for future collaborations

-Information on the latest technological trends and research activities in your sector

The AAC periodically organises technology transfer conferences in the sectors of activity considered to be priority and strategic for the Andalusian Government.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Promotion of innovative technologies. -Meeting of partners for their RDi projects. -Free assistance and advice.	- Low business traction.

Contact: info.aac@juntadeandalucia.es

Website: <https://www.juntadeandalucia.es/economiainnovacionyciencia/mitandalucia/ttandalucia/>

Tool 40: Associations (RedTransfer)

Name of the tool/methodology/training programme:

- RedTransfer

Organisation in charge of the tool/methodology/training programme:

- Association of transfer, innovation and innovation management professionals

Starting date: 2013

Description of the tool/methodology/training programme:

Professionals from the public and private spheres of research result transfer and university-business relations are creating a new space for collaboration to contribute to the improvement of innovation processes in our country. RedTransfer takes as its reference the successful models of the AUTM (Association of University Technology Managers), which has a global scope, and ASTP-ProTon, which has a European scope.

The mission is to enhance the impact of research in and for society through the support to knowledge transfer, innovation and research management, carried out by Universities and R&D centres. RedTransfer will prosecute its targets through:

- Organizing and promoting learning activities and professional development events
- Networking and exchange for professionals
- Encouraging mobility
- Drafting and dissemination of reports and newsletters
- Developing projects aimed at knowledge transfer, innovation and research management
- Partnering with similar entities in other countries and territories

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Informative supporting tool for KT, innovation and research management carried out by universities and R&D centers.	- Poor visibility. - Lack of funding. - Lack of institutional support.

Contact: presidencia@redtransfer.org

Website: <http://www.redtransfer.org/?language=es>

Tool 41: Andalusia Institute for Research and Training in Agriculture, Fisheries, Food, and Ecological Production (Public administration)

Name of the tool/methodology/training programme:

- Andalusian Institute for Research and Training in Agriculture, Fisheries, Food and Ecological Production (IFAPA)

Organisation in charge of the tool/methodology/training programme:

- Andalusian Government

Starting date: 2003

Description of the tool/methodology/training programme:

IFAPA aims to respond to the demands of the Andalusian agricultural, fishing, aquaculture and food sectors. It aims to be an operation instrument and action program, ocused on promoting research, technological innovation and training in the fields of agriculture, fisheries and food industries. In the frame of fishing sector its functions include:

- Support the development of fisheries policies of the Administration of the Andalusian Government in the scientific and training fields.
- Design and carry out sector research plans, with the participation of the agents involved, taking into account the objectives, programs and instruments of the Research and Technological Development Plans in force at any given time in Andalusia.
- Plan and implement information and training programs for fishermen and technicians through technology transfer, based on the results of their own research or that of others or other sources of knowledge, as well as evaluating their results according to the degree adaptation of those technologies.
- Serve as an instrument to support the fishing sector through the provision of services, the carrying out of studies and advice, and the complementary actions that result in the improvement of production systems.
- Promote relationships and coordination in research and technology transfer programs and activities with public and private institutions and entities, establishing the necessary collaboration mechanisms, with special reference to Andalusian universities.
- Contribute to improve the effectiveness of fishing training programs, including the training of research staff, which are carried out in Andalusia through organizational and management formulas that allow for greater coordination of the resources of the Administration of the Andalusian Government, and of those of it with other institutions or entities, public and private.
- Promote research, innovation, development and application of fisheries and aquaculture production systems that are beneficial to farms, consumers or the environment.
- Support the development of fisheries policies Administration of the Andalusian Government, in accordance with the European Research Framework Program.
- Those others attributed by the Ministry of Agriculture, Fisheries and Food and as many functions may be assigned by the regulations that apply to it, without prejudice to those that may correspond to other bodies or entities.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Efficient public instrument for the promotion of research, technological innovation and training in the field of fishing. - free, public service web Platform (SERVIFAPA) for the transfer of knowledge oriented to the demand of the rural and marine environment. It offers a wide range of services and products related to agricultural and fishing activity.	

Contact: webmaster.ifapa@juntadeandalucia.es

Website: <https://www.juntadeandalucia.es/agriculturaypesca/ifapa/web/>

Tool 42: Canary Island Technological Institute

Name of the tool/methodology/training programme:

- Canary Islands Technological Institute (Public Administration).

Organisation in charge of the tool/methodology/training programme:

- Canary Islands Government

Starting date: 1995

Description of the tool/methodology/training programme:

ITC is an instrumental entity of the Canary Islands Government. Its activities are framed within the fields of Research, Development and Innovation, at the service of companies in the Canary Islands. Its mission is to contribute decisively to the promotion of technological innovation and development, as well as to the consolidation of a knowledge-based economy in the Canary Islands. Among its fields of action are Renewable Energies, Bioengineering, Entrepreneurs, Training, Quality, Information Systems and the promotion of Technological Programs and aid to SMEs.

ITC has the BIOASIS Platform. Blue Biotechnology and Aquaculture Platform that brings together scientific knowledge and experimental research infrastructures on the island of Gran Canaria with the aim of promoting the development of the industry linked to marine biotechnology. It is an initiative promoted by the Economic Promotion Society of Gran Canaria, in collaboration with the Canary Islands Technological Institute and the University of Las Palmas de Gran Canaria, through the Spanish Algae Bank and the ECOAQUA University Institute.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Definition of regional public investment priorities in research, development and innovation. - Improvement of the competitiveness of the Canarian productive sector through the systematization of innovation in the company. - Offers of advice, accompaniment and support services for innovation in companies and motivation for the transfer and internationalization of R + D + i through the promotion of networking. -Support for entrepreneurship through internationalization and business incubation. - Support in the drafting, implementation and monitoring of public policies in R + D + i of the	

Canary Islands Government, the management of regional observatories and other public programs linked to the dissemination of R+D+i.	
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Contact: <https://www.itccanarias.org/web/es/contacto>

Website: <https://www.itccanarias.org/web/es/>

Tool 43: Polytechnic Maritime Fishing Institute of the Atlantic of Vigo

Name of the tool/methodology/training programme:

- Polytechnic Maritime Fishing Institute of the Atlantic of Vigo (IPMP Vigo)

Organisation in charge of the tool/methodology/training programme:

- Galicia Government

Starting date: 1965

Description of the tool/methodology/training programme:

The IPMP was created to provide professional education in nautical and marine fishing. Transferred to the Xunta de Galicia in 1982, it is currently attached to the General Directorate of Fisheries Development of the Consellería do Mar. It is the national center of reference in the field of fishing and navigation. Its privileged location and modern facilities have made it a benchmark for training in the sector.

In the center, in addition to the training cycles of the professional family of sea fishing, training is carried out in the sectors:

- Maintenance and control of machinery for ships and boats.
- Coastal navigation and fishing
- Organization of maintenance of machinery for ships and boats.
- Maritime transport and deep sea fishing

There are also training and professional courses related to the nautical and maritime fishing industry.

The training offers of IPMP is structured in four blocks:

- Regulated training (fp)
- Unregulated training
- Specialized certificates
- Controls for nautical leisure ratings

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Benchmark of training in the sector at the national level. - Innovative and experimental actions in vocational training, to make it more competitive and able to respond more quickly to the needs of the work market.	

- Can provide training actions aimed at students, employed and unemployed workers, as well as employers and trainers.	
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Contact: inst.pesqueiro.atlantico@edu.xunta.es

Website: <https://www.edu.xunta.gal/centros/institutopesqueiroatlantico/node/1>

Tool 44: Centre for Industrial Technological Development E.P.E

Name of the tool/methodology/training programme:

- Center for Industrial Technological Development E.P.E. (CDTI)

Organisation in charge of the tool/methodology/training programme:

- Ministry of Science, Innovation and Universities

Starting date: 1977

Description of the tool/methodology/training programme:

Public Business Entity. Dependent of the Ministry of Science, Innovation and Universities. Financing agent for business innovation (LCTI).

It is the entity that channels requests for help and support to R & D & I projects of Spanish companies at the national and international levels. Thus, the objective of the CDTI is to contribute to improving the technological level of Spanish companies by developing the following activities:

- Technical-economic evaluation and granting of public aid for innovation through subsidies or partially reimbursable aid to R&D projects developed by companies.
- Management and promotion of Spanish participation in international technological cooperation programs.
- Promotion of the international transfer of business technology and services to support technological innovation.
- Support for the creation and consolidation of technology-based companies.

CDTI acts as an intermediate body for the Operational Program of the European Maritime and Fisheries Fund (FEMP) and finances innovation and investment projects aimed at the fisheries and aquaculture sectors.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Activities framed in the national and international dimension of the R + D + i system. - Internationalization of business innovation. -	

Contact: info@cdti.es

Website: <https://www.cdti.es/>

Knowledge transfer tools in France

Tool 45: SATT Ouest Valorisation

Name of the tool/methodology/training programme:

- SATT OUEST Valorisation

Organisation in charge of the tool/methodology/training programme:

- SATT OUEST Valorisation

Starting date: 2010

Description of the tool/methodology/training programme:

France has 14 SATT (Sociétés d'Accélération du Transfert de Technologies). In France, SATTs have the challenging mission to accelerate the transformation of French research into innovations. Their aim is to enhance the value and to accelerate the process of technology transfer from publicly funded research toward industry. SATTs evaluate, market and license technology from French Universities and Public Research Organisations.

With a unique maturation fund in France, the SATT protects inventions through patents and licensing, finance and support innovation projects until their adoption by companies, carrying the technological and financial risk inherent in these projects. They provide a Entrepreneurship support programme that teach the steps to Business creation, businesses model, key to success of business creation (the importance of the team, the business model...). .

SATT were created through the programme "Investissement d'avenir". Their role consists in filling the gap between scientific results and knowledge and the market. The SATT Ouest Valorisation is taking in charge the actions linked with the knowledge transfer through the creation of patents or start-up.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Contact point at the heart of the academic environment - Strong presence at the regional level -Money available to patent a technology to "protect" it. -Training programmes to entrepreneurship. -Networking activity with the investors and business ecosystem. -Provides communication for new technologies developed.	- Lack of visibility - Business model questioned by project leaders -Culture gap with researchers. -SATT were meant to be financially autonom after 10 years. This could have generated misunderstanding with researchers as they thought they were "used" to make money. -Difficulties to reach researchers

-Highlight the importance of having a good team in a business creation process.	
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Contact:

Website: <http://www.ouest-valorisation.fr/fr/accueil/>

Tool 46: Cellule Transfert d'Agrocampus Beg-Meil.

Name of the tool/methodology/training programme:

- "Cellule transfert": Service in charge of strengthening the links between research centres and local business.

Organisation in charge of the tool/methodology/training programme:

- Agrocampus Beg Meil: Training and Research Centre in agriculture and aquaculture.

Starting date: 2006

Description of the tool/methodology/training programme:

The "Cellule transfert" d'Agrocampus Beg Meil is aimed at enhancing the links between research centre and aquaculture professionals to transfer knowledges that have been discovered by researchers into the aquaculture sector. This tools mainly offers research support to the professionals.

To do so, Agrocampus provides training sessions to professionals about news productions methods that have been developed by researchers, how to grow new aquaculture species in a farm...

Research topics depend on the aquacultures professionals demands that are united in an Aquaculture professional organisation. This organisation chooses which researches are the most important to be done in the aquaculture after having questioned local professionals.

The cellule transfer works through national or European projects and try to involve research partners, local businesses and academic partners in their projects.

Example of programme that has been set up: Few years ago, a start-up in biotechnology was looking for a research centre support to learn how to control a new variety of algae hatchery. Agrocampus supported them and developed a methodology to do it. Then they train employees of the business to enable them to control the reproduction of this new algae species.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Training of aquaculture's professionals on recent innovations that meet local professionals needs. - Researchers and aquaculture professionals work together, that creates network that could lead to new innovation ideas. - Organisation very close to the sector and to the market.	- Research projects takes a long time and business partners have shorter views that could lead to misunderstanding. - No researchers training to commercialisation of products -

Contact:

Website: <https://www.agrocampus-ouest.fr/ecole/implantations/site-de-beg-meil>

Tool 47: « Service valorisation et innovation » - Agrocampus Rennes.

Name of the tool/methodology/training programme:

- « Service valorisation et innovation »

Organisation in charge of the tool/methodology/training programme:

- Agrocampus Rennes

Starting date:

Description of the tool/methodology/training programme:

Agrocampus Rennes is an organisation aimed to train Engineers in agriculture and aquaculture. It has three main missions: Training, research and enable innovation in the economy. Agrocampus aimed at transferring the research work into the economy through different initiatives that creates the conditions for the emergence of innovation. Amongst these tools there are:

The cooperation projects: bring together researchers and businesses to work on a common project. This enabled business to benefit from the researchers knowledge and the research centre resources to create new innovative products and services. . As an example, the project “France fillière pêche” brought together researchers from Agrocampus, Supermarkets companies and Fishermen organisations to adapt the fishing sector to the new market demands (online trading, algae demands...).

The service “Studies and transfer” that bring together around 20 researchers and engineers to work to improve innovation in the aquaculture sector. This is made through cooperation projects that bring together professional, communication and training to inform professionals of aquaculture on the last innovation and research works that could be used to by businesses.

The “Convention CIFRE” that promote the development of public-private partnership research and to place Phd students in employment conditions. The CIFRE conventions associate, for a period of 3 years, 3 partners from the private, public and research sector around a research project which will lead to a Phd thesis. The “Convention CIFRE” that is a national initiative.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Strong network with professionals - Diverse skill-set. -Interdisciplinary work	- Researchers do not develop hands-on projects and businesses have to transcript research results.

	- Not aimed at raising awareness of entrepreneurship amongst researchers.
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Contact: Marie Lesueur

Website: <https://www.agrocampus-ouest.fr/recherche/valorisation-et-innovation>

Tool 48: Ocean Hackathon - Campus Mondial de la Mer

Name of the tool/methodology/training programme:

- Ocean Hackathon

Organisation in charge of the tool/methodology/training programme:

- Campus Mondial de la Mer

Starting date: 2016

Description of the tool/methodology/training programme:

The ocean hackathon is an initiative led by the “Campus Mondial de la Mer” that is the first French community dedicated to the marine resources knowledge and valorization. The Ocean Hackathon brings together students, researchers, professionals and businesses of the sea during a 48 hours non-stop event during which small teams (of engineers, researchers, students...) works solely from a range of marine digital data to develop a prototype and examine possible issues. Teams are supported by coaches from business, research or institutional sector to improve the projects that proposed. Several Ocean Hackathons took place around the world (France, Mexico, UK...). The teams that win participate in the final session in Brest where they pitch their idea of project to a large audience of businesses, banks, academic institutions...

This event aims are:

- To bring out innovative projects related to the sea, based on the use of various digital data made available for the occasion. Moreover, the Ocean hackathon relies on the expertise of the entire local innovation ecosystem to support projects in their development.
- To find new uses for the data of suppliers partners of the operation.
- To create a community of interest around the sea sector: In three editions, more than 200 persons from different countries (Ireland, UK, Belgium, Canada, France) have been involved in the Ocean Hackathon, all from different sectors; businesses, banks, universities, institutions...

In three editions, 28 projects have been carried out with 226 participants (researchers, students...), 80 partners have been involved (businesses, institutions, academic researchers...

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Enable to cross the knowledge between the professionals' needs and the researchers/ students skills. - Strong involvement of businesses and institutions - Aimed at promoting creativity - Bring together the whole economic environment of innovation (Researchers, public institutions, banks, bodies that support start-up creation). - Raise awareness about entrepreneurship amongst participants. - Bring together researchers, students, institutions, banks and businesses - Attractive for students - Aimed at creating a community around science and Blue economy.	- Project that last 48 hours - Event focused on the digital and sea sector that can reduce numbers of participants. - Technical ideas but not commercialisation processes in the development of the project.

Contact:

Website: https://www.campusmer.fr/Ocean-Hackathon_-3567-0-0-0.html

Sources:

-Interview: Juliette Rimetz

-https://www.campusmer.fr/Ocean-Hackathon_-3567-0-0-0.html

- https://www.campusmer.fr/files/2739/Dossier_presse_OH3_v1.pdf

Tool 49: Disrupt Campus- Université de Bretagne Occidentale (UBO)

Name of the tool/methodology/training programme:

- Disrupt Campus UBO

Organisation in charge of the tool/methodology/training programme:

- Ministère de l'économie, Universities

Starting date: 2019

Description of the tool/methodology/training programme:

Disrupt campus is an initiative led by the Ministry of the economy that is aimed to develop Training courses in entrepreneurship and innovation that are delivered in a “start-up” mode by French universities and that closely associate businesses engaged in digital transformation initiatives. Ministry of the economy launched a call in 2017 to selected projects carried out by universities that were aimed to implement trainings in digital innovation and entrepreneurship.

During “Disrupt Campus” training, students must participate in at least one or more projects; For each of them, a mixed team is made up of students and businesses’ employees. These projects must target a real business problem, propose an innovative solution, if possible out of the box, allowed by digital in the broad sense, whether it is technology, process, process, methodology, experience, economic model, etc.

“Disrupt campus” programmes aims to raise awareness about entrepreneurship amongst students and researchers, improve networking between universities and businesses, and provide to people the right skills and knowledge to create and manage businesses.

Several training and event are carried out through Disrupt’ campus initiative such as:

- Workshop “co-design” for innovation for businesses: During one day attendees will explore the resources and methods needed to set up an innovation project, the multi-stakeholders project management and collective thinking.
- The “Creative marathons”: during 2 days a group of people (students, researchers, SME’s....) will test innovation processes. This is aimed to raise awareness about innovation to businesses and to entrepreneurship to students and researchers.
- Training sessions to entrepreneurship and innovation: Different scale of training from training from 5 weeks of duration to 8 month of duration that are aimed to train students, researchers, professionals to innovation processes, projects management, business model, design thinking, collective intelligence, lean star-up, MVP processes, how to pitch...

18 French universities have joined the “Disrupt Campus” initiative and delivers the “Disrupt campus” training programme.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
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This project has received funding from the European Union’s Interreg Atlantic Area programme through the European Regional Development Fund, project code: EAPA_842/2018. This output reflects only the author’s view and the European Union cannot be held responsible for any use that may be made of the information contained therein.

-Training provide associates business and universities. -Trainees work on real projects -Raise awareness to entrepreneurship to students. -Raise awareness about innovation to the SME's. -Mixed team of scientist and businesses employees.	- New initiative (2018), - Mainly focus on students and businesses not especially on researchers -
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Contact:

Website:

- <https://ubopenfactory.univ-brest.fr/Disrupt-Campus-UBO/Les-activites-proposees>
- « Disrupt campus dossier de presse », BPI France.

Tool 50: Training to researchers: “My research and after? “ - C.U.R.I.E Network

Name of the tool/methodology/training programme:

- Training to researchers: “Your research, and then? “Organisation in charge of the tool/methodology/training programme.
- C.U.R.I.E Network

Starting date:

Description of the tool/methodology/training programme:

The C.U.R.I.E Network has been bringing together professionals to promote transfer of technology and innovation stemming from public research for 29 years. With its 190 members, the C.U.R.I.E Network ensures a mission of promotion, development and professionalization of the transfer of technology, know-how and skills from the public sector to the socio-economic world. The C.U.R.I.E. is at the heart of a public-private ecosystem serving economic performance and social progress.

As part of its training mission, the C.U.R.I.E. Network organizes training sessions on topics related to the fields of promoting public research, technology transfer and innovation stemming from public research. This program covers a wide field ranging from "junior" training on the fundamentals of promoting research to "expert" modules on intellectual property strategy or remuneration for transfer.

"My research and after" is based on an inspiring format for researchers, more inclusive, more fun and promotes greater ownership of the content transmitted. The decision is to no longer use power point supports for these meetings, but to replace them with a more immersive and interactive device, requiring simple logistics. This device adapts to all room arrangements and the number of participants.

The researchers are put back in the center of the half-day, because they will learn as much by exchanging with each other, as with the organisers. Speech around awareness will be all the more appropriate as exchanges between peers will take place.

This configuration changes the posture of the organisers, because it places them more in the position of facilitators / facilitators than experts. However, they are there to guide the participants in their questions.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Immersive and interactive courses. -No powerpoints - Enable exchanges between researchers	-Short training (Half-day) -Introduction about entrepreneurship not in-depth training about it. -

-Researchers are put back in the centre of the training.
-Organisers more in position of facilitators than experts.

Contact:

Website: <https://www.curie.asso.fr/MOOC-Innover-avec-la-recherche-publique-673.html>

Tool 51: MOOC Innovate with public research - C.U.R.I.E Network

Name of the tool/methodology/training programme:

- MOOC Innovate with public research

Organisation in charge of the tool/methodology/training programme:

- CURIE Network

Starting date:

Description of the tool/methodology/training programme:

Online training to raise awareness and help research stakeholders to get involved more easily in collaborative projects and the creation of innovative activities, stemming from public research.

On the program for 5 weeks:

- Key concepts and tools for the socio-economic development of research results: Innovation stakeholders, juridical aspects, patents, valorization strategies...
- Testimonials and feedback

For teacher-researchers, researchers, doctoral students, developers or staff in support of research, to develop the culture of innovation.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Online MOOC that enables many researchers to take part -testimonials that meet researchers demands of having more information about entrepreneurship -Free training	- Online training: creates distance between teachers and trainers.

Contact:

Website: <https://www.curie.asso.fr/MOOC-Innover-avec-la-recherche-publique-673.html>

Tool 52: Deep Tech Tour - Banque Publique d'Investissement

Name of the tool/methodology/training programme:

- Ministère de l'enseignement et de la recherche, BPI France

Organisation in charge of the tool/methodology/training programme:

- BPI France, (Banque publique d'Investissement).

Starting date: 2019

Description of the tool/methodology/training programme:

The Deeptech Tour is part of the Deeptech plan that is an initiative aimed to tie links between start-up ecosystem and the French research environment. One the main aim of this initiative is to raise awareness about entrepreneurship amongst researchers. The Deeptech Tour aims to bring together on campus the university ecosystem, local economic players and support structures to:

- Show through concrete examples and testimonies the bridges that exist between the academic world and that of startups;
- Provide operational tools for the creation of startups;
- Highlight the richness of an ecosystem that works for the success of deeptech startups with new means (Financial, Pact law).
- On the Deeptech Tour program.

Over half a day, the Deeptech ecosystem will be able to participate in:

- A plenary with testimonials from researcher-entrepreneur / coach duos
- 40-minute workshops on topics such as "who to contact in the ecosystem?" ; "What are the key points before starting a business?" ; "how to find my market?"
- Networking moments.

More than 12 French universities already hosted a Deeptech tour to sensibilise students, researchers and business to innovation.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Testimonial from researchers-entrepreneurs. -intervention of professionals. -Attendees could participate through workshop. -Networking moment	-Short event (half-day) -No follow-up -

Contact:

Website: <https://www.bpifrance.fr/A-la-une/Evenements/Le-Deeptech-Tour-47085>

Sources:

Tool 53: Les Innopreneurs

Name of the tool/methodology/training programme:

- Les Innopreneurs

Organisation in charge of the tool/methodology/training programme:

- Réseau CURIE, Retis, AP-HP, Conectus Alsace, Eurasanté.

Starting date: 2016

Description of the tool/methodology/training programme:

“Les Innopreneurs” provides different training sessions and workshop to sensibilise students, Phd students and researchers to innovation.

Open Innovons:

An entrepreneur in a lab: According to the principle of open innovation and co-creation, an entrepreneur with a given problem meets the participants (doctoral students, doctors, researchers) so that they can bring him new avenues of reflections, which go beyond the framework.

- Apply the principle of open innovation
- Bring in entrepreneurs from the territory who have a problem
- Brainstorm participants to find avenues for reflection and / or solutions
- Develop reflexes of innovation, identification

Innovons Meet up:

Raising awareness of entrepreneurship: To offer a first approach to innovative entrepreneurship and an introduction to intellectual property:

- Encourage vocations of entrepreneurs
- Bringing together participants from public research, entrepreneurs and the territory's ecosystem
- Raising awareness of intellectual property
- Discuss local actions and support for entrepreneurs
- Sharing time with researcher-entrepreneurs

Speed Meeting: Concours d'idées

Introduce participants to design thinking and what to do with it. This is a simple question to ask participants during Speed Meeting. Introduce participants to a technology to develop and brainstorm with them!

- Raise awareness of the promotion of French research and its mechanisms
- Raise awareness of the second life of technologies using co-creation
- Encourage vocations of entrepreneurs
- Bringing together technology and potential project leaders

Serious game:

Serious game is an online game that aimed is to raise awareness of entrepreneurship and innovation through the acquisition of key concepts in the creation of innovative businesses.

Concept covered:

Intellectual property: understand that intellectual property is involved in the creation of innovative businesses (patent filing, software protection, intellectual protection approach)

Finance: being able to identify the main stages of financing (business plan, financing players, Business Angel, seed funds, fundraising)

Strategy: assimilate the fact that the strategic dimension is one of the crucial issues

Communication: understand that communication is one of the pillars of creation (social networks, press, personal network)

Marketing: understanding the main concepts of the marketing of a product (internationalization, negotiation, markets, specificity of sectors ...)

Innovation: understanding the concept of innovation (R&D, breakthrough innovation, medical breakthrough)

Social skills: because everything does not depend on the project but the personality is important (charisma, daring)

Network: understand that you have to rely on your network to develop and seize opportunities (maintain your network, lobbying)

Surroundings: understand the importance of being supported by those around you (love money, support and impact)

Human resources: understand that you cannot succeed alone, that you must know how to recognize your limits and surround yourself with them (recruitment and training)

Competition: understanding the impact of competition on its market

Unforeseen events: because from the most absurd to the most rational the unforeseen happen

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Large variety of trainings -Several methodology used such as the design thinking... -Focus on PHD students. -	- Short training (1 half day or 2 days...) -No evaluation or long term follow-up.

Contact:

Website: <https://www.lesinnopreneurs.com/page/ateliers-des-innopreneurs>

<https://www.lesinnopreneurs.com/page/serious-game>

Tool 54: « Blue Valley »- Pays de Morlaix - Brittany

Name of the tool/methodology/training programme:

- Blue valley, Roscoff

Organisation in charge of the tool/methodology/training programme:

- “Pays de Morlaix”, Station bliogique de Roscoff, Technopole de Brest.

Starting date: 2019

Description of the tool/methodology/training programme:

The Roscoff biological station is a branch of the Sorbonne University and the CNRS, which specializes in marine research. The Roscoff Biological Station employs over 400 people, including 150 researchers. In 2018, The Blue Valley is a scientific park that has been created by the local community le “Pays de Morlaix” and the “Roscoff Biological Station” and that rally local stakeholders of biotechnologies (training centre, businesses and local political institutions) around a local project of development.

Several actions have been undertaken to promote knowledge transfer. Especially the to sensibilise the local researchers on entrepreneurship, promote their competencies:

- Events to promote the entrepreneurship and links between young researchers and businesses. These events are the following:
- 2 hours “After-work” or “breakfast” where researchers and business members come to talk about a question of knowledge transfer research...
- Day events where researchers and local businesses representatives are invited to talk about on common topics.
- Talks in master’s degree classes to promote knowledge transfer events
- Visits of businesses for researchers...

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Rally local stakeholders of the area (business and research centre) -Local initiative that meet researchers’ needs -Strong relationship with local researchers and local businesses - Links a strong network of research and business network (Technopole de Brest, Campus Mondial de la Mer, University of La Sorbonne...). -Objective to creates network between researchers and businesses	-Recent initiative (started in 2019) - Actions undertaken at the moment promote knowledge transfer mainly to researchers and less to businesses. -Initiative financed every 4 year, difficult to create long term actions. -No businesses that take part in the follow up committee of the action.

Contact: Joy Toupet Station Biologique de Roscoff

Website:

Sources: Interview

Tool 55: Ouest Start-up - French Tech Brest+

Name of the tool/methodology/training programme:

- Ouest Start-up

Organisation in charge of the tool/methodology/training programme:

- French Tech Brest + (Brest, Morlaix, Quimper, Lannion)

Starting date: 2015

Description of the tool/methodology/training programme:

Ouest Startups is a pre-acceleration program deployed in the French Tech Brest + territory (Brest, Lannion, Quimper, Morlaix) for future entrepreneurs wishing to challenge their idea or project. This programme support entrepreneurs to:

- Test their ideas and potentials as entrepreneurs during a 2 days traineeship that are aimed at:
 - Mapping your strengths, obstacles and motivations to take action
 - Benefit from feedback from entrepreneurs in the territory
 - Test the Lean Startup method
- Identify and interview your first customers. During a 10-workshop duration accelerated training, aimed at:
 - Validate the desirability of my project
 - Design a business model
 - Finalize a Business Model
 - Pitch training
 - Social selling
 - Design thinking
 - Benchmarking
 - Communication

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Free training - Mentors with business background - A pre-start-up programme that enable participants to verify if their project is good enough before being launched. - Two range of training, one to test ideas, the other one to pit the idea against reality through the interview of potential clients. - Bring together local businesses as mentors or partners.	- Short training: two days training. - The second training “identify and interview your first customers” is not free.

Website: <http://oueststartups.frenchtech-brestplus.bzh/#block-b0m5ddc22b0650e0>

Tool 56 : « Cluster Algae », Pays de Brest - Campus Mondial de la mer

Name of the tool/methodology/training programme:

- Cluster Algae

Organisation in charge of the tool/methodology/training programme:

- Pays de Brest, Campus Mondial de la Mer

Starting date: 2015

Description of the tool/methodology/training programme:

The « Cluster Algae » is an exciting idea developed in Brest (France) to promote the algae sector.

In 2018, «Le Pays de Brest », an organisation aimed at supporting the economic development in Brest's area, created "Le cluster Algues" to support the algae sector to grow. This initiative is part of the economic development process of the "Campus Mondial de la Mer" which is an organization that promote innovation in the marine sector in western Brittany (France).

With a unique algae biomass by its quality, diversity and quantity, the presence of a large quantity of innovative business, universities and research centers that work on the marine sector, Brest and its surrounding has huge potential to develop the algae sector.

This cluster enables the different stakeholders of the algae sector to work together (producers, research, public...). Algae cluster's main objectives are:

- To strengthen R&D and transfer to algae's businesses.
- To structure algae supply to make it efficient and sustainable.
- To develop synergies and cooperation to stimulate the local algae sector.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Organisation that bring together the local whole environment of innovation (businesses, researchers, institution) around the development of the algae sector. -Enable researchers, business and institution to meet to create common projects. -Networking events...	- Not especially dedicated to knowledge transfer - No training developed in knowledge transfer

Website: <https://www.clusteralgues-brest.bzh/>

Tool 57: Protisvalor - Aix-Marseille University

Name of the tool/methodology/training programme:

- Protisvalor

Organisation in charge of the tool/methodology/training programme:

- Aix-Marseille University

Starting date:

Description of the tool/methodology/training programme:

Created in 2002 to provide AMU's laboratories and researchers with the support they need to make the most of their skills and the results of their research, Protisvalor operates in the legal, administrative, financial and intellectual property fields.

Their main mission is to appraise and manage the contracts financed. This involves advising, guiding and supporting researchers throughout the entire life cycle of their research projects.

The contracts resulting from the funding of research projects can be of two types: partnership-based (private funding or funding from local or national non-profit organisations) or European (funding within the framework of the European Commission's innovation and research programmes).

They act at several levels: monitoring and detection, financial engineering, project engineering and set-up, negotiation and drafting of intellectual property contracts, accounting management, administrative and financial management, and human resources management.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-	-
-	-
-	-
-	-

Contact: protisvalor@univ-amu.fr - Tel. : +33 (0)4 13 55 02 00

Website: <https://www.protisvalor.com>

Tool 58: Master 2 Innovation and Valorisation of Research (IVR) - Université Paris Saclay.

Name of the tool/methodology/training programme:

- Master 2 Innovation and Valorisation of Research (IVR)

Organisation in charge of the tool/methodology/training programme:

- Université Paris-Saclay

Starting date: 01/06/2020

Description of the tool/methodology/training programme:

The Innovation and Valorisation of Research (IVR) programme offers training in the fields of research valorisation and technology transfer.

These professions consist of supporting technology transfer to lead to product or process innovations. The transfer can take several forms:

- * Protecting and managing intellectual property - Patents, Trademarks and Licenses
- * Asset portfolio management
- * Scientific and financial evaluation of projects
- * Identifying potential, promising markets - finding industrial outlets and applications
- * Technological maturation
- * Accompanying the search for funding at the different stages of innovation
- * Negotiate partnership agreements
- * Develop and maintain partnership and communication networks
- * Supporting the creation of start-ups
- * Innovation management

In order to master the different stages of the innovation process, this profession mobilises very different skills in the fields of law, economics, management, science and engineering.

The master's degree offers students skills in:

- * Economics: Analysis of markets and the innovation eco-system, economic intelligence, ...
- * Management: business model, finance, marketing, engineering and project management...
- * Law: intellectual property, contract law, .
- * Teamwork, Intermediation and accompaniment

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-	-
-	-
-	-
-	-

Contact: Anne Plunket - anne.plunket@universite-paris-saclay.fr

Website: <https://www.universite-paris-saclay.fr/formation/master/innovation-entreprise-et-societe/m2-innovation-et-valorisation-de-la-recherche>

Tool 59: Directorate of Research and Development – Sorbonne University

Name of the tool/methodology/training programme:

- Directorate of Research and Development – Sorbonne University

Organisation in charge of the tool/methodology/training programme:

- Directorate of Research and Development – Sorbonne University

Starting date:

Description of the tool/methodology/training programme:

At the level of the Faculty of Science and Engineering, the Research and Valorisation Department contributes to the development of the university's research and innovation policy, participates in the drafting and monitoring of the contract of objectives and means, coordinates and supervises the operation of research support, contributes to the quality and specifications of steering tools and, more generally, implements the university's research and innovation policy within the Faculty. It benefits from support from the university's Directorate of Research and Innovation (DR&I) in terms of the development of contractual activity, particularly in terms of European projects, both for research and valorisation activities.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-	-
-	-
-	-
-	-

Contact: Bruno BACHIMONT - Sciences-DRV@admp6.jussieu.fr

Website: <http://sciences.sorbonne-universite.fr/faculte/organisation/directions/direction-de-la-recherche-et-de-la-valorisation>

Knowledge transfer tools in Ireland

Tool 60: EPA Resource Kit: BRIDGING THE GAP BETWEEN SCIENCE AND POLIC

Name of the tool/methodology/training programme:

- EPA Resource Kit: BRIDGING THE GAP BETWEEN SCIENCE AND POLICY

Organisation in charge of the tool/methodology/training programme:

- Environmental Protection Agency (EPA)

Starting date:

EPA STRIVE 2012 call Developing a framework for bridging the gap, between scientists and policymakers, AquaTT has completed a desktop study, workshops and a pilot training initiative.

Description of the tool/methodology/training programme:

A Step-by-Step Guide for Researchers to Develop and Carry out a Knowledge Transfer Strategy including templates as to carry out Knowledge Transfer actions and to measure success.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
-Good introduction -Great guideline notes and templates -list of all related government agencies in one easy to read paper	-Not an “interactive” tool - No List of the “relevant”/ go-to people in the government agencies - HEI’s who wish to collaborate not listed

Contact: EPA Ireland

Website: https://www.epa.ie/pubs/reports/research/spr/133_AquaTT_Interactive.pdf

Tool 61: Technology Transfer Offices (TTO)

Name of the tool/methodology/training programme:

Technology Transfer Offices (TTO)

- Research and innovation are cornerstones of Ireland's economic development policy. Significant State investment has been made over the past decade in science and technology resulting in a strong base of research expertise. Ireland's Universities, Institutes of Technology (IoT) and research organisations have a professional technology transfer infrastructure in place to work with existing companies and to support new enterprises to leverage the value in this investment.

Organisation in charge of the tool/methodology/training programme:

Ireland's institutes are now working together in knowledge transfer consortia to share and scale expertise.

The consortia are as follows.

- Dublin City University (DCU) working with Dundalk Institute of Technology (DKIT)
- TU Dublin (formerly DIT, ITB, ITTD) working with, Dun Laoghaire Institute of Art, Design and Technology (IADT), National College of Ireland (NCI) and The Dublin Institute for Advanced Studies (DIAS).
- National University of Ireland Galway (NUIG) working with Galway-Mayo Institute of Technology (GMIT), Institute of Technology Sligo (ITS), Letterkenny Institute of Technology (LYIT).
- Maynooth University (MU) working with Athlone Institute of Technology (AIT), Institute of Technology Carlow (ITC), Waterford Institute of Technology (WIT).
- University College Cork (UCC) working with Cork Institute of Technology (CIT), Teagasc, Institute of Technology Tralee (ITT)
- University of Limerick (UL) working with Limerick Institute of Technology (LIT).
- University College Dublin (UCD) working with National College of Art and Design (NCAD) (now a college of UCD).
- Trinity College Dublin (TCD) working with the Royal College of Surgeons of Ireland (RCSI).

Starting date: 2007

Description of the tool/methodology/training programme:

The Technology Transfer Offices (TTOs) and industrial liaison offices in Ireland's HEIs and research organisations help companies and investors to:

- Access new knowledge and expertise to drive innovation through research collaboration, contracted services and consultancy.
- Identify and license new technologies and intellectual property (IP) relevant to their business.
- Make use of state-of-the-art facilities and equipment.

The majority of people working in technology transfer in Ireland have a background working in companies, from multi-nationals to start-ups, and understand the issues that businesses face when seeking to innovate. Technology transfer teams have scientifically trained business managers and act as sector experts, able to translate the needs of business and to identify exciting new commercial propositions.

Technology Transfer Staff are skilled in:

- Finding academic partners for companies
- Commercial assessment
- Contract drafting and negotiation
- Protecting and managing intellectual property (IP)
- Company formation
- Company incubation

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- National & International Expertise - Collaboration between HEIs' - Good website with a detailed map of state funded research organisations such as universities, institutes of technology and research centres of scale - Nice find a researcher tool kit for so many sectors	- Website doesn't show industry partners or potential partners - The find a researcher tool kit does not show marine or blue economy sectors

Contact: KTI@knowledgetransferireland.com

Website: https://www.knowledgetransferireland.com/Contact_Us/

Knowledge transfer tools in United-Kingdom

Tool 62: UKRI

Name of the tool/methodology/training programme:

- Funding

Organisation in charge of the tool/methodology/training programme:

- United Kingdom Research and Innovation

Starting date: 2018

Description of the tool/methodology/training programme:

UKRI is an integrated body that works in partnership with universities, research organisations, businesses, charities, and government to flourish research and innovation. It is a mechanisms upstream that funds research and innovation in the UK, being critical on knowledge transfer and value creation. UKRI integrates since 2018 academia and industry, including the 7 thematic Research Councils, Research England and Innovate UK.

UKRI supports projects from academia, by funding universities, non-profit distributing Research & Technology Organisation (including Catapults), Public Sector Research Establishments and Research Council Institutes.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- UKRI objectives are foster research and innovation providing sustained funding and resources. - Large scope and long-term support to tackle difficult and novel challenges - It benefits multidisciplinary research, through transparent and open competitions. - For business funding applications it has into consideration the added value (e.g. novelty and levels of risks beyond the normal activity of the business).	- Identify the issues which can accelerate the speed of change to create a sense of what success looks like, focusing on outputs rather than inputs. - Improve alignment between academia and industry to improve access to capital, leveraging strong capabilities into a stronger ecosystem. - A principle metric from the academic research is paper public publications and citations. The pressure to publish disincentivise UK researchers to develop aligned with the requisites from industry. Industry avoids to disclose market-sensitive information.

- Universities perceive UKRI as mechanism to encourages engagement outside of academia, such as with the community.

- Increase the success rate on knowledge transfer by understanding what are the best practices but also what can be critical steps with high chances of failure (i.e. by decreasing outputs failure rates).

Contact: +44 (0) 1793 867005

Website: www.ukri.org

Tool 63: Innovate UK

Name of the tool/methodology/training programme:

- Knowledge Transfer Partnerships/ Knowledge Transfer Network

Organisation in charge of the tool/methodology/training programme:

- Innovate UK

Starting date: 2003

Description of the tool/methodology/training programme:

Innovate UK is the United Kingdom's innovation agency. It is a non-departmental public body operating at arm's length from the Government as part of the United Kingdom Research and Innovation organisation. Knowledge Transfer Partnerships is a UK-wide programme that has been helping businesses to improve their competitiveness and productivity through the better use of knowledge, technology and skills that reside within the UK Knowledge Base by Knowledge Transfer Network (KTN).

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Sufficient funding from Innovate UK - Funding support from Innovate UK can be fundamental to mitigate projects' risks - Knowledge Transfer Network - links new ideas and opportunities with expertise, markets and finance through our network of businesses, universities, funders and investors.	- A KTP is part-funded by a grant, and with fixed cost. They must contribute to the salary of the Associate who will work with your business, plus the cost of a supervisor who will oversee the scheme. - Innovate UK timeline usually are not aligned with market timings (e.g. open calls and grant decisions). When there's an imminent market opportunity, to have the financial support from

	Innovate UK, it is needed to await for the opening calls for certain thematic. - Highly demanding in terms of bureaucracy and paperwork – it demands time from the team to comply with paperwork,
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Contact: +44 300 321 4357

Website: <https://innovateuk.blog.gov.uk/>

Tool 64: The Catapult Network

Name of the tool/methodology/training programme:

- Catapult centres

Organisation in charge of the tool/methodology/training programme:

- Innovate UK

Starting date: 2011

Description of the tool/methodology/training programme:

Catapult centres are organisations set up from 2011 onwards by Innovate UK in the United Kingdom to promote research and development through business-led collaboration between scientists and engineers to exploit market opportunities. They receive grants from public funds but are also expected to seek commercial funding. The Catapult centres are a network of world-leading technology centres designed to transform the UK's capability for innovation in specific areas and help drive future economic growth.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Independent physical centres for connecting businesses, for providing regional studies. - Each Catapult is focused on a specific area of technology and expertise for turning commercial ideas into reality. - Network - Impactful initiative, especially for high-risk and investment intensive technological areas.	- Relatively limited R&D resources as the project is based on commercial ideas. - For areas with many competitors already in the market it might not bring much value. The presence of many competitors in the same place exposes competitors. - Lack of commercial outputs

- Ideal for areas with few market players that benefit collaborating alongside.

- The end of national endowment has restricted the financial sustainability of certain Catapults. Some Catapults had been merged to continue operating.

Contact: +44 179 344 2700

Website: <https://www.catapult.org.uk>

Tool 65: Alliance of Technology Transfer Professionals

Name of the tool/methodology/training programme:

- Alliance of Technology Transfer Professionals

Organisation in charge of the tool/methodology/training programme:

- PraxisAuril

Starting date: 2010

Description of the tool/methodology/training programme:

ATTP's mission is to promote and maintain global standards in knowledge and technology transfer. ATTP does this via the Registered Technology Transfer Professional (RTTP) designation, the international professional standard for knowledge transfer and commercialization practitioners working in universities, industry and government labs.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- ATTP is an alliance of fourteen knowledge and technology transfer associations. - ATTP provides training events for technology transfer. - Share of methodologies and best practices among TTO professionals. - Access to specific knowledge to support TT activities (grants, IP protection, software protection, marketing, finance, etc).	- It is not a funding organisation for implementing projects. - No direct outcomes (from projects). - -

Contact: +44 1223659950

Website: <https://attp.info/>

Tool 66: National Centre for Universities and Business

Name of the tool/methodology/training programme:

- National Centre for Universities and Business

Organisation in charge of the tool/methodology/training programme:

- National Centre for Universities and Business

Starting date: 2012

Description of the tool/methodology/training programme:

The National Centre for Universities and Business (NCUB) develops, promotes and supports collaboration between universities and business across the UK. It promotes business-university collaboration for a prosperous and inclusive economy.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Sufficient funding from Innovate UK - - -	- University-business collaboration requires business driven. - - -

Contact: +44 2073837667

Website: <https://www.ncub.co.uk/>

Tool 67: UK centre for maritime innovation and technology (“MarRI-UK”)

Name of the tool/methodology/training programme:

- UK centre for maritime innovation and technology (“MarRI-UK”)

Organisation in charge of the tool/methodology/training programme:

- Maritime UK

Starting date: 2019

Description of the tool/methodology/training programme:

They are a collaborative innovation vehicle for UK industry and academia to jointly tackle innovation and technology challenges. They focus on research and innovation within mid TRL (3 – 7) levels to address the opportunities between "discovery and research" and "commercialisation" of Maritime Technologies and Systems. The first area of collaborative focus is Clean Maritime.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Specific on shipping research - - -	- Relatively less amount of cooperating organisations - The first area of collaborative focus is Clean Maritime only - -

Contact: +44 141 574 5271

Website: <https://www.marri-uk.org/>

Tool 68: NESTA Innovation Methodologies

Name of the tool/methodology/training programme:

- NESTA Innovation Spiral

Organisation in charge of the tool/methodology/training programme:

- NESTA (National Endowment for Science, Technology and the Arts)

Starting date: 1998

Description of the tool/methodology/training programme:

Formerly NESTA, National Endowment for Science, Technology and the Arts, NESTA were established in 1998 with an endowment from the UK National Lottery. In 2012 it became an independent charity.

Methodologies: They use different innovation methods against an innovation spiral (with various structured stages:

- 1) Opportunities & challenges: Innovation mapping, Futures
- 2) Generating ideas: Challenge prizes
- 3) Developing & testing: Accelerator programmes, Experimentation, Crowdfunding, Prototyping
- 4) Making the case: Experimentation, Standards of Evidence
- 5) Delivering & Implementing: Public and social innovation labs, The 100 day challenge
- 6) Growing & Scaling: Crowdfunding, Impact Investment, Scaling grants
- 7) Changing systems: Anticipatory regulation

Areas: Artificial intelligence, Collective intelligence, Data analytics, Future of work and skills, Environment and climate crisis and Financial inclusion.

Strengths and weaknesses of the tool/methodology/training programme:

Strengths	Weaknesses
- Comprehensive approach to develop an idea to a demonstration and scale-up and useful product (focused on society needs)	-

Contact: +44 (0) 207 438 2500, information@nesta.org.uk

Website: <https://www.nesta.org.uk/>