IDENTIFICATION OF OPEN INNOVATION PRACTICES WITHIN 6 COUNTRIES AND POLICY RECOMMENDATIONS AT A REGIONAL LEVEL

May 2023

***OPEN4U**: intrOducing Practices in opEn innovatioN 4U - project number 2022-1-IT01-KA220-VET-000085295*

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TECHNICAL REFERENCES

Project acronym	**OPEN4U**
Project title	OPEN4U: intrOducing Practices in opEn innovatioN 4U
Project number	85295
Instrument	ERASMUS+: KA220: Sector: VET
Call identifier	1st round - 2022
Type of action	Cooperation partnerships in vocational education and training
Start date of project	01.11.2022
Duration	24 months
Deliverable number	WP2.A3
Deliverable	Identification of open innovation practices based on focus group results and policy recommendations on open innovation practices at regional level
Deliverable type	Report Study
Work package	WP2 - Formation of open innovation interactive catalogue
Deliverable due date (draft)	28.04.2023
Deliverable due date (final)	19.05.2023
Responsible partner	PCO - FONDAZIONE IFEL CAMPANIA
Dissemination Level*	CO

(*) PU = Public
PP = Restricted to other programme participants (including the Commission Services)
RE = Restricted to a group specified by the consortium (including the Commission Services)
CO = Confidential, only for members of the consortium (including the Commission Services)

Version	Date	Partner	Author	Comments	Approved
V01	28.04.2023	IFEL Campania	Gaetano Di Palo	Ali Gökdemir, Joanna Bać, Klaudia Allajbej Milka Uzunova, Pavel Bartůněk	04.05.2023
V02	19.05.2023	IFEL Campania	Gaetano Di Palo		

Data processing

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Conceptual background and operational considerations

The aim of this document is to principally display, analyse and comment the outcomes of the Focus Groups (WP2.A2) carried out by the Consortium partners within February-April 2023 and single out policy recommendations applicable at a regional level and Open Innovation examples to undergo further studies.

Moreover, this work sets also the basis for the preparation of the upcoming tasks and deliverables foreseen within the WP2 such as:

- WP2.A6: Pre-checklist of open innovation practices in companies identified by Partners in their countries and launch of digital awareness campaign on key findings from the national report. Partners will short-list SMEs based on the sector and criteria of open innovation.
- WP2.A7: Interactive digital catalogue presenting Open Innovation practices in SMEs and companies identified by Partners in their own countries - focusing on 7 regions (representing 6 countries, though) and available in 6 languages - plus English.

Partners will further work on information from A6/A7, namely:

- How the company was founded
- What type of company it is
- Which OI practice are worth describing
- Why it was successful
- Who is the target group of the solution
- What is the portability of the practice
- Are there any transversal aspects for application across other sectors

Therefore the information gathered will not only serve as a ground for working on the interactive catalogue, but will be provided in the form of a digital awareness campaign.

The findings and outcomes set in this document will also provide useful ground for WP3 tasks such as:

- WP3.A2: Training material for senior SME employees and R&D staff at SMEs on new approaches for working with employees to introduce them to open innovation practices
- WP3.A5: Training material for junior SME employees and graduates on how they can contribute to open innovation practices
- WP3.A10: Testing of digital guides on mobile devices with target groups

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The main idea of carrying out national Focus groups arose from the need to assess the commonly accepted concept and the actual diffusion of the Open Innovation approach within the partners' countries in order to additionally single out the most recent Open Innovation practices, including innovative ideas, organisations, products, processes, services or methodology analysed at Consortium level.

WP2 was then designed to involve several actors: first of all innovative SMEs, start-ups and R&D responsible plus local institutions, VET trainers and academics so to assess and secure their support for the introduction of Open Innovation practices at institutional level and provide them with the Interactive digital catalogue as designed and aimed by WP2.

Thus, between February and April 2023, SMEs staff, R&D team members and other stakeholders, including academics, practitioners, Incubators of Entrepreneurship, Regional Development Agencies, Chambers of Commerce were invited to focus groups, receiving/providing suggestions, information and Open Innovation practices at regional level.

The key aim of the Focus group was assessing the open innovation awareness at national level in each of the countries of the Consortium and initial identification of areas/sectors/processes where Open Innovation (or innovation in general) is prevailing. An additional goal was to identify Open Innovation necessary pre-conditions based on focus group members' discussion and devise tentative policy recommendations at regional level. The results were to be summarized in a National Reports in order to compile this Final Report comparing the results from partner countries. The next step, i.e. the upcoming Open Innovation Interactive Catalogue (focusing on 7 regions/6 countries) is meant to be based on the findings from the focus group reports and feedback received from partners including open innovation practices and general awareness on open innovation in partners' countries, with recommendations on open innovation practices at regional level.

The facilitators of the focus group did act bearing in mind the further steps of the project and thus also supporting the achievement of project objectives, facilitating the final shape of each of their National Report of the focus sessions. Actually the activities performed in preparing and during the focus groups, including the drafting of the National report will help partners in short-listing an adequate number of SMEs based on the sector and criteria of Open Innovation which will be indispensable in the upcoming task of creating a digital catalogue of Open Innovation presenting open innovation practices in companies identified by Partners in their countries.. Furthermore the information gathered will not only serve as a ground for working on the said interactive Catalogue, but will be provided in the form of a digital awareness campaign.

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Assessment needs and main questions

Each of the Focus groups, as foreseen by the Application Form (*WP2.A2 - Focus group on assessing the open innovation awareness at national level*), were carried out following an identical paradigm shared by partners during the task's preparation and based on a commonly accepted methodology proposed by BitCZ.

They did take place between the end of February and the early days of April 2023, mainly – but not solely - carried out in video-conference mode in accordance with the schedule here below.

PARTNER	COUNTRY	FOCUS GROUP
ARID	POLAND	09/03/2023
BIT CZ	CZECH REPUBLIC	23/03/2023 24/03/2023
DANMAR	POLAND	16/02/2023
ECAM-EPMI	FRANCE	24/03/2023 25/03/2023 28/03/2023
IFEL CAMPANIA	ITALY	31/03/2023 05/04/2023
INNOMATE	TURKEY	25/03/2023
INNOVED	GREECE	22/02/2023

Each partner-country was supposed to involve 20 panellists from different backgrounds (entrepreneurial, academic, institutional etc.) and the Focus groups did principally concentrate in assessing the following three major issues:

1. Level of knowledge and diffusion of Open Innovation and of National and regional strategic documents and/or regulatory processes with respect to these issues.
2. Assessing significant changes in business and professional life. Obstacles that SMEs and professionals face in the implementation of open innovation. Role of decision makers in fostering this change.
3. Good practices that can lead the way in spreading Open Innovation: universities, companies or professionals at the forefront of open innovation in their territory.

In order to gain these information and lead the Focus group all partners followed the working methodology set by partner BitCZ (*WP2.A1 - Working methodology for the organization of focus groups)* for the organization and carrying out of the meeting and steered the debate so to get adequate responses to the following set of questions:

1. What do you know about open innovation? Can you recognize the difference between open and closed innovation? Are you aware of open innovation happening at your workplace? If yes, then please explain.
2. Please discuss about the strategic documents of government supporting the innovation in your country. Give a space to participants to express their knowledge and experience. In case of no experience, please facilitate the discussion with the information collected in preparation (desk research).
3. Which sectors and regions are the most successful in development and implementation of innovation in your country? Give at least 5 different examples that in your opinion can act as outstanding practices recognized in the region(s).
4. Please state the examples how the innovations and their implementation are supported in your country. How are employees in your country supported in introducing innovation to their workplace?
5. What are the obstacles for SME´s and private companies to develop and implement the innovations? And for employees to be involved in improving business operations?
6. How can the national and local policy makers support the companies to bring more innovations? You can also refer to policies of other countries.
7. Please name (and shortly describe) good practices of open innovation in SMEs in your country. Refer to different sectors.
8. What can senior SME employees, R&D staff, HR experts and employers do to support, initiate, and motivate their employees to develop an innovative mindset? If you already know such solutions that are working, please explain.

In total the number of participants were over the expected 120, as reported in the table here below, well representing the Consortium member countries and the stakeholders interested and/or affected by Open Innovation issues such as major companies, SMEs, R&D managers, start-uppers, VET-providers, business incubators, academics, solicitors, advisors, researchers, consulting companies.

Overall Attendance

Country	Participants
CZECH REPUBLIC	20
FRANCE	26
GREECE	26
ITALY	20
POLAND	30
TURKEY	20
TOTAL	**142**

Cluster 1 - Attendance

Country	Participants
FRANCE	26
ITALY	20
POLAND	30
TOTAL	**76**

Cluster 2 - Attendance

Country	Participants
CZECH REPUBLIC	20
GREECE	26
TURKEY	20
TOTAL	**66**

It can be definitely said that the Focus Groups have thus met both

- ***quantity goals*** in terms of attendance (more than 120 panellist in a whole, and at least 20 for each country)

- ***quality goals*** in terms of participants' satisfaction standards, scoring more than 85% satisfaction of attendees of Focus groups and in each quality control aspects set in the evaluation checking foreseen in the Application Form:
    1. understanding of the aim of the activity,
    2. meeting general objectives of the activity,
    3. activity relevance to the work package implementation.

All the detailed results of each partner's satisfaction Surveys can be browsed in a separated document RESULTS OF SATISFACTION SURVEY OF FOCUS GROUPS made available in the Project folders.

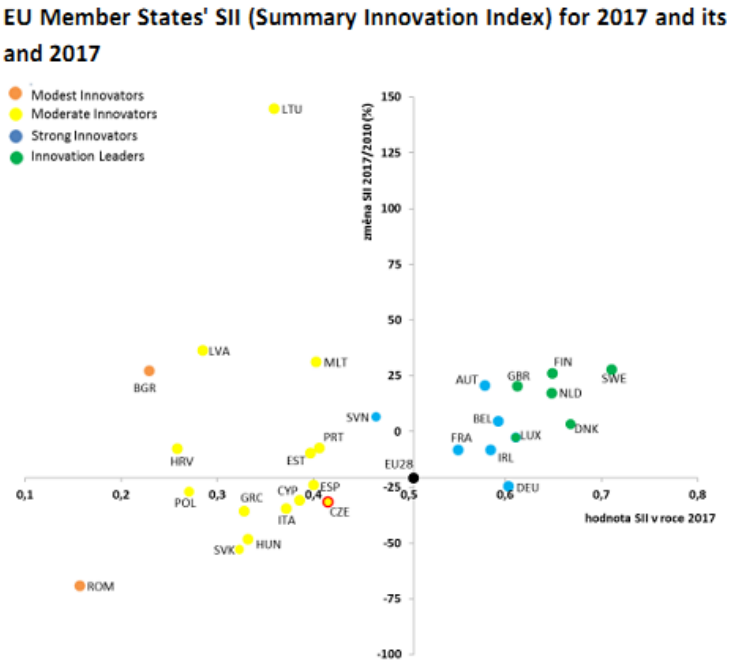
Further expected outcomes from the Sessions were also achieved, and namely:

- Obtaining recommendations on open innovation practices at national and regional level.
- Raising awareness on the different types of innovation for a more digitalized society.
- Increasing knowledge and motivation to contribute to taking action on open innovation.
- Exchange of good practices among participants

Foremost findings: Digital readiness

Like other topics related to digital innovation Open Innovation is also receiving more and more attention and this was clear from the interest showed by all participants., yet, defining 'Open Innovation' was not easy and, to avoid falling into any ambiguity, it was necessary to analyse together with the attendees the topic from both a practical and theoretical point of views.

It is interesting to note that there are many companies, especially large ones, that have put Open Innovation at the centre of their strategic choices as adopting this paradigm can bring important advantages, but it was evident during the debates that from theory to practice the transition is not ata all easy. During the Focus groups partners' facilitators did try to adjust the discussion bordering digital transformation and with the experience and insights from the start-up world and keeping an eye on the analysis of the processes linked to the Open Innovation wave. An interesting infographics was showed during the Czech focus group, where it was explained and commented the EU Member States Summary Innovation Index (SII) here below displayed



Source – Czech Republic Government

Before understanding how it is possible to do Open Innovation and which are the good examples in the consortium countries, it was necessary to start with a definition and its origin as a term and idea.[1] For the purpose of the project activities Open Innovation is a paradigm that states that companies can and must

[1] Henry W. Chesbrough, *'The era of Open Innovation'* MIT Sloane Management Review, April 15, 2003

[2] The Polish Product of the Future is a competition organised annually by the Polish Agency for Enterprise Development (PARP) and

make use of external ideas, as well as internal ones, and access markets with internal and external routes if they want to advance their technological competencies.

In other words, companies should rely on an innovation model that takes into account not only internal ideas and resources, but also tools and expertise from outside, in particular from start-ups, universities, research institutes, consultants and non-competing companies. Similarly, companies must no longer only think in terms of internal exploitation of ideas, but must also consider routes to market outside their own borders or alternatives to their own business model. It is definitely a widely shared fact that forms of open innovations, affecting the business model or the organization of the company, are today becoming increasingly important, even occasionally dominant in certain sectors. This seems to be the consequence of at least three transformations:

- Digitization: any idea, any concept takes a digital form, which makes it more flexible and customizable, it also facilitates dematerialization, but even more the association between products and services, and contributes to the acceleration of cycles. Ultimately data is becoming a key asset of the economy;

- Interconnection: ideas circulate faster all over the globe, which stimulates both collaboration and copying. The difference between professionals and amateurs is blurring. Value chains are constantly being restructured, often around large "platforms";

- Externalities: the rise of energy and climate issues, awareness of the limits of "classic" political action and the emphasis growing focus on the "social and environmental responsibility" of companies, lead to take into account the effects of innovations on employment, collective well-being or the environment, or even to make them the central objects of "social innovation".

This said, most of attendees agreed that to be competitive, a company today can no longer do without innovation. Digital permeates every business sector and activity, and the contrast is no longer only with competitors, but also with non-competing companies and realities where research is a key element for progress. Smart organisations also started to implement the principles of Open Innovation to cope with this new reality. Specifically, many companies have increasingly started to collaborate with external organizations and professionals such as universities, research centres, start-ups, competitor companies or more traditional players such as ICT vendors and consulting companies in pursuing the main goal of implementing new technologies and business opportunities, so as to reduce the risks and costs associated with innovation and share the benefits.

According to the results of focus groups those businesses and SMEs that are recognising the value of Open Innovation use many tools to this paradigm.

The main approach is mostly based on the adoption of external solicitations and idea in order to do innovation within the company. One of the most commonly diffused actions are collaborations with universities and established partners. The collaborations with research centres and universities is fairly diffused and provides possible access to inventions and patents, allows several kind of experimentation of new technologies as well as application of new methodologies.

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Normally they are the first step into Open Innovation and involve less investment and risk, but on the other hand also more modest results. Yet other less common actions, such as in-house incubators and business accelerators, might have a greater impact not only in terms of effort, but also in terms of results. One further step is the one related to the creation of Corporate Venture Capital.

Another quite used approach is the issue of Calls for ideas, Challenges and Contests. These initiatives are aimed at collecting, in a competitive environment, new and innovative ideas focused on specific topics that the launching company might be willing or considering to start with or implement/develop. Some of these activities might also become real events, shows and festival, where the competitions involving aspirant developers outside the company are set into kind of showcases and the challenge or contest itself becomes an event.

Further possibilities, rather more complex might envisage joint venture: in such agreement two or more companies undertake to collaborate on a joint project (being it industrial or commercial) and/or agree to jointly exploit their synergies, know-how or capital. Another way of doing Open Innovation could be the licensing of own products, thus transferring to another party, by the author or holder of a right, to use the product or technology, deriving economic benefits from it, such as licensed production. Finally, a very interesting line of implementation can be platform business model that creates value by facilitating the exchange between two or more interdependent groups, usually consumers and producers, through the use of certain platforms that facilitate interaction.

The start-up seems to be the best tool for the development of Open Innovation considering this as de-compartmentalising the company's innovation process, by opening up some or all of the phases of its innovation process to other company departments or even other companies (suppliers, customers or other partners). The making use of external resources and expertise to foster technological progress are in fact the main characteristic of the start-up model, which represents the ideal driving force to put the Open Innovation paradigm into practice.

There are many EU companies interested in collaborating with start-ups as an alternative source for the development of digital innovation. Open Innovation thus takes the form of different types of collaboration that can vary in duration and strategic value. Collaborating with one or more start-ups can lead to various and numerous benefits (both economic and strategic) for each of the parties. Adopting the Open Innovation paradigm reduces the main risks of producing innovation at home (high costs, waiting times before going to market) and offers the possibility of access to external technologies and competences.

Once assessed these main features and meaning, it was worth assessing whether – in the participants' opinion - companies in their own country/region did possess all the resources and skills needed to translate the Open Innovation model into practice.

According to what were the responses, feedback and impressions gathered during the focus groups if many large companies have already adopted Open Innovation approaches, with different modalities and levels of awareness, SMEs are still scarcely aware of the possibilities deriving from the Open Innovation adoption and the model is still struggling to take off and even if they do start, many initiatives are still undertaken without real confidence and without a systematic approach. The issue is that innovation requires tools, ideas and skills and small companies do not always necessarily possess all these resources.

Besides SMEs may not have a thorough understanding of their target market or customer needs, making it difficult to develop innovative products or services that meet their customers' needs, plus too often employees are resistant to change, particularly if it involves leaving their comfort zone of established processes or ways of doing things and starting new procedures which imply studying/learning. Therefore no wonder if the sectors where Open innovation models seem to be more diffused are

- high-tech, information and communication by far the most active;
- manufacturing
- financial and insurance activities
- building, construction and landscaping
- transport, packaging and storage
- large gross-retail distribution

Another key problem that has emerged resides in the organisational and cultural difficulties that limit the development of Open Innovation in all the considered partner countries. Actually despite positive adoption rates in large companies, still many of them do follow this innovation model only occasionally, and in fact many initiatives (calls, contests, challenges, hackathon etc) are undertaken without a real overall strategic plan; definitely the lack of a systematic approach and vision strongly undermines the effectiveness of this tool and its beneficial impact on the business.

It came out also that a large number of SMEs are not aware or interested in the Open Innovation approach, or if they did have some intention they gave up almost at the very beginning considering it too risky and/or expensive. It was pointed out, though, that this lack of awareness or interest may result in the loss of many good business opportunities and entrepreneurial growth.

Yet it was duly stigmatised that Open Innovation is not necessarily a universal model to be forcedly adopted. As well as not every department in a company can innovate the process and outcomes of their work, as this all depends on the focus of the department. Plus it must be considered that some companies may experience practical difficulties in implementing it such as management skills, organisational complexity (human behaviour impact on employees), increased costs and poor perception of benefits. On the other hand the technical aspect is only one of the many components necessary for the creation of an innovative project: there must be also communication, administrative, accounting skills - without these skills, it becomes difficult to create a viable Open project.

A major problem with the adoption and diffusion of Open Innovation is the real threat in view of intellectual property. Indeed, many innovative project ideas have been, and are, copied and replicated. For these reasons, Open Innovation sometimes is avoided as designers and project leaders are obliged to keep their project confidential for their own good and this has the effect of limiting the growth of their project and therefore the growth of the country.

Focus group Findings show that to succeed with Open Innovation there are certain factors that particularly stand out. In order to fully exploit the potential of Open Innovation employees must be motivated by working with external contacts and collaborations, and their efforts/results must be recognized. Employees need to have self-awareness that Open Innovation poses an opportunity to take advantage of external competence for his/her advantage in terms of professional development as well as

the opportunity develop better and faster products or service for the company. To enhance motivation among the employees each organization can facilitate Open Innovation centrally to reduce to resistance to undertake the effort to change way of working.

Ultimately the overall Open Innovation scenario in partners' countries can be considered as an ongoing process, and a promising one which need more awareness and knowledge and the support of skilled advise. The effort required to boost its adoption depends on factors such as corporate culture, company size, economic commitment and the reasonable impact on the organisational structure as a whole since Open Innovation permeate the symmetry and stability of the entire business organisation – no matter how large this might be.

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Foremost findings: Open Innovation eco-systems

Each partner Country has been seen committed, even though to different extent, in creating necessary conditions for the development of Open Innovation and the adoption of its model and paradigm. Some national and local institutions have issued major plans and programs of incentives to boost Open Innovation, and enforced laws and regulations in order to favour and stimulate Open Innovation approach and solutions. Here below the results of the Survey carried out during the Focus groups on the two project clusters.

Cluster 1

France

In France, part of the public expenditure is intended for innovation. According to the French approach the purpose of innovation aid is to support organizational innovations and company process, but also the creation, feasibility and prototyping, with a view to the industrialization and marketing of new products and services. There are several innovation support plans in France, the largest being France 2030 (€34 billion) and the Future Investment Plan (€20 billion). They are broken down into calls for national projects to which companies and institutions apply. The projects are studied and financed according to the documented amounts.

The PIA (PIA Future Investment Plan), sets help for young entrepreneurs who develop their project and the regions are doing a great deal of work, in particular with their business incubators. This budget is mainly intended for SMEs to enable them to be competitive with other companies. This money is intended to stimulate French growth. This funds are managed by BPI (Public Investment Bank) or by Local authorities (department, region, etc.) have a certain budget allocated to innovation. This funds are is distributed through grants.

BPI (Public Investment Bank) has the role of distributing this funds to the most deserving projects. To do this, this organization organizes or attends innovation competitions where the best projects are rewarded. Bpifrance mission is the financing and development of companies and innovation. Funding for innovation, mainly in the form of bank loans (innovation loans, start-up loans) and, to a lesser extent, in the form of subsidies (State/Regions).

Bpifrance manages several innovation support schemes:

- Individual aid for innovation. A distinction can be made between aid for the feasibility of the innovation, which intended to help in the preparation of an RDI project, aid for the development of innovation, which aim to help companies carry out an RDI project with or without collaboration. These aids include the French Tech Grants (BFT), which aim to support the development of strong start-up potential;

- Competitions: The World Competition of Innovation (CMI), targets projects with high technological potential and aims to make emerging from leading companies in their field;

- Innovation competition - which contributes to financing of innovative projects led by start-ups, financed by the PIA (future investment plan) and regions.

- The National Fund for the Digital Society (FSN) - brings together many calls for projects, relating to uses, services and digital content innovative. It notably includes digital innovation competitions, which help mainly smaller companies for their innovative digital projects, on the various subjects (data economy, digital uses, connected objects, etc.)

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- The National Innovation Fund (FNI) – in a regional level in order to develop innovation project in a social/economy level;

- Young innovative company (JEI) - This status grants exemptions from employer contributions on R&D jobs for SMEs independent companies less than eight years old whose R&D expenditure represents at least 15% of their tax-deductible expenses.

Italy

Among the many strategic documents of the Italian Government and its local authorities (Regions and large Municipalities) in support of innovation a very important role is played by the:

The Strategy for Digital Growth which focuses on:
- the coordination of all digital transformation interventions and the initiation of a path of centralization of public planning and spending in matter;
- the principle of Digital First, through the switch-off of the traditional type of use of citizen services;
- the spread of digital culture and the development of digital skills in businesses and citizens;
- the modernization of public administration starting from the processes, overcoming the logic of technical rules and guidelines and aiming at the centrality of user experience and need;
- an architectural approach based on open and standard logics, ensuring accessibility and maximum interoperability of data and services;
- Solutions aimed at stimulating cost reduction and improving service quality, contemplating remuneration mechanisms also capable of invigorating providers to pursue increasingly innovative forms of service delivery/use.

The Strategy for Industry 4.0
The Plan envisages a steering Committee at the governmental level characterized by the presence of public (Polytechnics of Bari, Milan, Turin, Scuola Superiore S. Anna in Pisa, ITT, CREA, public long term investor companies such as Cassa Depositi e Prestiti) and private (economic and business world) operators, as well as trade unions, and relevant institutions (PCM, MEF, MISE; MIUR; Ministry of Labor, MIPAAF, Ministry of Environment). In light of the characteristics of the Italian industrial system (few large private industrial and ICT - Information and communication technology players capable of leading the transformation of Italian manufacturing; limited number of supply chain leaders capable of coordinating the evolutionary process; industrial system characterized on SMEs, key role of prestigious university poles and R&D centers; strong cultural connotation of finished products), the Plan envisages the following "horizontal actions":

- measures to support innovative investment, stimulating the growth of private investment from 80 billion to 90 billion in 2017 and increasing private R&D spending by about 11.3 billion;
- measures to support skills development;
- measures for enabling infrastructure;
- economic resources to the extent of:
- 0.9 billion for the refinancing for 2017 of the Central Guarantee Fund, with its simultaneous reform;
- 1 billion to be allocated to development contracts focused on Industry 4.0 investments;

- 100 million for investments on digital sales chains (“Made in Italy Plan”).

The National Innovation Strategy
The innovation strategy is rooted in the United Nations Sustainable Development Goals (SDGs), the analysis of which led to the identification of the three main challenges:

- the digitization of society;
- the innovation of the country;
- the sustainable and ethical development of society as a whole.

Each challenge was subdivided into three goals that are to be realized through concrete actions: the first twenty (+1) innovation and digitization actions in the "Action Plan" section, represent a starting point. The second challenge proposes structural changes to develop innovation in the country. In particular, it aims at encouraging the design and application of new technologies in the Italian productive fabric and the growth of technological sectors such as robotics, mobility of the future, artificial intelligence, cyber security.

Poland

In Poland two Innovation Acts provide the basis for innovative entrepreneurial activity, which is crucial for Poland's rapid economic development. The Acts were inspired, among other things, by the White Paper on Innovation, developed by the Ministry of Science and Higher Education on behalf of the Innovation Council, which coordinates innovation policy implemented by the government. The book presented 58 proposed solutions to specific problems.

PFR Open Innovation Programme

PFR Ventures is Central and Eastern Europe's largest Fund of Funds manager, supporting the expansion of the domestic Venture Capital and Private Equity market.
The programme is dedicated to teams willing to manage VC funds that will invest in SME companies working on research and development projects.

SOI – Sieć Otwartych Innowacji (Open Innovation Network)

The Open Innovation Network project is aimed at micro, small and medium-sized entrepreneurs who want to build a culture of open innovation in their business operations.
The aim of the programme is to create and support technology transfer transactions to micro and SMEs in Poland, but also to start-ups and special purpose vehicles. The project makes it possible to subsidise the purchase of innovative solutions, the donors of which can be entities from all over the world.
The project has two tracks: i) grants for advisory services and ii) grants for technology transfer. SOI technology brokers support entrepreneurs in choosing the best development path and going through the grant application process. Choosing the first approach, means providing substantive support and assistance in preparing a technology transfer transaction and implementing an innovative solution. The second approach, on the other hand, enables partial reimbursement of the costs of purchasing a licence, patent or know-how of a solution, thanks to which entrepreneurs become more competitive and increase their productivity.

The programme provides for two forms of financial support to choose from: regional investment aid or de minimis aid. The amount of refinancing depends on the location (more precisely, the voivodeship) where the innovation will be implemented.

First law on innovation:
The creation of good laws for innovation activities in the form of financial incentives has already started with the First Innovation Act, which has been in force since January 2017.
Second Innovation Act:
Since January 2018, entrepreneurs have been able to deduct 100 per cent of R&D expenses from the tax base, thanks to the Second Innovation Act.
The **Strategy for Responsible Development** (Strategia na rzecz Odpowiedzialnego Rozwoju, SOR), adopted by the Council of Ministers on 14 February 2017, defined a new model of state development in the medium term - a state that is entrepreneurial, active and socially responsible.
It defined the most important challenges that Poland will face in the perspective until 2030, the development traps development traps that Poland will have to overcome, and actions that will serve this purpose, by basing them on reliable economic analyses and institutional reforms.
The SOR, adopted by the Government, has as its main objective the creation of conditions for an increase in income of the inhabitants of Poland with a simultaneous increase in cohesion in the social, economic, environmental and territorial dimensions. According to SOR the realisation of this goal requires, inter alia, Poland's involvement in the so-called fourth industrial revolution and modernisation of the economy taking into account the challenges posed by new technologies, growth of innovativeness of Polish enterprises, the level of Poles' savings, labour productivity, a sustainable increase of the investment rate and enabling Polish enterprises to face global competition.
Increasing the innovativeness of enterprises and labour productivity requires parallel action on two complementary levels. The first of these is technical development, taking place through quantitative and quality progress - an increase in the number of machines and the use of more technologically advanced solutions. The second plane is the development of the competencies (skills) of employees, management and users, thanks to which physical capital will be put to good use. Technological progress and the growth and updating of competencies should be linked so as to ensure mutual complementarity. Even high availability of modern machines and solutions will not have the desired effect if enterprises are faced with a shortage of employees capable of implementing, operating and managing them properly.

Other:
Polish Act on Certain Forms of Support for Innovative Activity. Current legal status as of: 02.05.2023.
Journal of Laws 2022.0.2474 i.j. - Act of 30 May 2008 on some forms of support for innovative activity.
The Act defines the principles of support for innovative activity through:
1) granting of a technology credit by credit banks and a technology bonus by Bank Gospodarstwa Krajowego;
2) granting the status of a research and development centre to an entrepreneur;
3) aid granted under programmes in the area of innovation of the economy, established by the minister competent for economy.

The draft entitled Regulation of the Minister of Funds and Regional Policy on the granting of aid to support innovation and process and organisational innovation under the regional programmes for 2021-2027 - was submitted on 17.02.2023
Different institutions and instruments/programmes in Poland are supporting innovation:

- National Science Centre - scholarships for scientists.
- National Centre for Research and Development - InnoTech, KadTech, BroTech, Creator of Innovation, "Support for innovative academic entrepreneurship", "Patent PLUS Support for patenting inventions" programmes.
- Polish Agency for Enterprise Development - National Network of Innovation (orignal name Krajowy System Usług, KSU), "Voucher for innovations", Loan for innovations, competition "Polish Product of the Future"[2].
- National Economy Bank - Technology Credit, National Capital Fund.
- Patent Office of the Republic of Poland - Internet Service Portal of the Patent Office.
- By the end of 2023, a Centre for Innovative Research (CBI Plus) will be established at the Medical University of Bialystok (UMB). The project will contribute, among other things, to increasing the innovativeness of the entire region, strengthening cooperation with entrepreneurs and increasing the quality of scientific research in the field of prevention of civilisation diseases and individualised medicine.
- In 2023, 100 jobs for innovators will be created at Łukasiewicz - Poznań Institute of Technology. The new employees will join, remotely or on-site, teams conducting advanced research projects, including those carried out in international consortia, such as under Horizon Europe.
- **For students:** The Kielce University of Technology has once again in 2023 rewarded the best young innovators. In the 13th edition of the nationwide Student-Inventor competition, the winners were teams from the Universities of Technology: Warsaw, Lublin, Krakow, Swietokrzyska and the University of Silesia, amongst others, for a method and system for monitoring the vital functions of an infant during sleep, based on a neural network; a method of obtaining new nanomaterials for renewable energy sources. The main objective of the competition, which has been organised at the Świętokrzyska University of Technology since 2010, is to encourage students to create and develop an innovation-based economy.

Cluster 2

Czech Republic

Czech Republic has a National Research and Innovation Strategy for Smart Specialisation (RIS3) which aims to support innovation in various sectors. The RIS3 focuses on areas such as advanced materials, nano-technologies and micro-technologies, biotechnologies, and advanced production technologies.

[2] The Polish Product of the Future is a competition organised annually by the Polish Agency for Enterprise Development (PARP) and the National Centre for Research and Development (NCBR). Its aim is to identify and promote the most interesting and innovative products that have the potential to achieve market success in Poland and abroad. In this competition, prizes will be awarded in three categories: product of the future for entrepreneurs, product of the future for institutions of higher education and science and joint product of the future resulting from cooperation between business and science. However, the jury may also decide to award special prizes: for a young entrepreneur, for a product from the information and communication technology (ICT) sector and for eco-innovation. The Polish Product of the Future competition is financed by European Funds from the Operational Programme Intelligent Development (OPIR). It is held under the patronage of the Polish Ministry of Funds and Regional Policy, the Ministry of Development and Technology and the Ministry of Education and Science

Another well-known document is the National recovery plan (NRP), funded by the EU. Under NRP is possible to support innovation in the companies and education (up-skilling and re-skilling). Innovation is one of the 6 components of the NRP. Innovation under the NRP conditions focuses on health care, support for research and development in enterprises and introduction of innovations into business practice.

Additionally CzechInvest is a Government Agency that provides support to innovative companies. The Agency offers a range of services, including grants and loans, as well as assistance with finding partners and investors.

The Innovation Strategy of the Czech Republic 2019-2030 which is one of the core documents connected with innovations, together with:

- National Research, Development and Innovation Policy of the Czech Republic 2021+
- Law on investment incentives in relation to R&D related incentives, assessing innovation capacity as part of the evaluation of research centres of excellence,
- operational programmes funded by EU 2020+ funds with a strong focus on R&D&I,
- development of the M17+ Methodology for individual segments of the R&D system in the Czech Republic, i.e. full launch of all modules

In 2017, the Czech Republic introduced a Startup Visa Program to attract foreign entrepreneurs and start-ups to the country. The program provides a streamlined process for obtaining a visa and offers a range of support services, including access to co-working spaces, mentoring, and funding.

The Prague Start-up Centre is a city-run initiative that provides support to early-stage start-ups. The Centre offers mentorship, networking opportunities, and access to funding, as well as office space and other resources.

Strong links are favoured between the universities and the business world:

- Czech Technical University in Prague: The Czech Technical University in Prague is a leading research institution that has produced numerous innovative start-ups. The university has established partnerships with industry and provides support to students and researchers who want to commercialize their ideas.

Greece

The main official documents and Plans dealing with innovation in Greece are:

Digital Transformation Book 2020-2025: The Digital Transformation Paper (Government Gazette 2894/B/5-7-2021) is a record of the necessary interventions in the technological infrastructure of the state, in the education and training of the population for the acquisition of digital skills and in the way Greece uses digital technology in all sectors of the economy and public administration.

The National Strategy for Research, Technological Development, and Innovation . The national strategy for research, technological development, and innovation is the country's strategy in these areas. The priority areas that have been identified for the period 2021-2027 are the following:

- Agri-food chain
- Digital technologies
- Life sciences, health, medicines

- Tourism, culture, and creative industries
- Sustainable energy
- Environment and circular economy
- Materials, construction, and industry
- Transport and supply chain

Cooperation between the Greek government and Volkswagen for Astypalaia: The Greek Government and the Volkswagen Group have agreed on a pioneering project to transform Astypalaia into the first smart and green island in the Mediterranean, which will be energy autonomous.

Programme Research - Innovate 2021-2027" refers to businesses and the main objective of the action is to link research and innovation with entrepreneurship and to enhance the competitiveness, productivity and extroversion of enterprises towards international markets, with a view to the transition to quality innovative entrepreneurship and the increase of domestic added value.

Elevate Greece: Elevate Greece is an initiative of the Hellenic Government, which aims to map start-ups and support their development, with the ultimate goal of creating a strong innovation ecosystem.

The Hellenic-American Chamber of Commerce and the Endeavor Greece are committed in actions trying to stimulate participation of employees in innovation processes.

Some other interesting successful cases are particularly related to the academic world:

- ITE (Foundation for research and technology) in Crete, and EKETA (National centre of research & technological development) in Thessaloniki, which both conduct research and produce innovative products at an academic level.
- Plus Centre for Entrepreneurship and Innovation (ACEin) of the Athens University of Economics and Business and the Center for Innovation and Entrepreneurship ARCHIMEDES of the National and Kapodistrian University of Athens are supporting the implementation of innovation in Greece.

Turkey

Research and development (R&D) activities and incentives for these activities in Turkey are regulated in the Law No. 5746 on Supporting Research and Development Activities and the Implementation and Audit Regulation on Supporting Research and Development Activities published based on this law. In the field of research and development, which received special incentives with the Law No. 5746.

Techno-enterprise Capital support is given, which refers to the capital support made to encourage them to transform their business ideas into enterprises with high added value and high potential to create qualified employment, within the framework of a business plan that is approved to be supported by the public administrations within the scope of the central government

Turkish Government has grant programs that support innovation, especially KOSGEB and TUBITAK TTGV grants are more known. TUBITAK supports are for technology development zones in the incentives related to this field. Under the name of Public Institutions Research and Development Projects Support Program (KAMAG), TÜBİTAK supports basic research and due diligence projects developed by public institutions and R&D projects aimed at establishing infrastructure.

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R&D and innovation projects are also supported within the framework of the provisions of the Small and Medium Industry Development and Support Administration (KOSGEB) Supports Regulation. Industry Thesis (SAN-TEZ) projects carried out by the Ministry of Science, Industry and Technology, R&D tax incentives applied by the Ministry of Finance, supports provided by development agencies, investment supports provided by the Undersecretariat of Treasury, export supports provided by the Undersecretariat of Foreign Trade and for this purpose,

TTGV Supports: Within the scope of TTGV, within the framework of the concepts of "Technological Product and Technological Process Innovation", R&D activities at the technology development level, where products with commercial value are obtained, are supported, provided that the know-how remains with the company that realized the project..

Some interesting efforts have spontaneously developed. One of the most innovative events in Turkey is TeknoFest competitions. Especially universities and vocational schools try to bring innovation to the highest level. In this competition, which has the concept of developing a technological tool on certain subjects every year, innovative studies are supported and students get even hired.

Technoparks in Turkey are keen to the ideas and have their own incubation centres. where you can develop prototypes of innovative products at no cost thanks to the large innovation centres owned by Istanbul Technopark and METU(ODTU) Technopark (the most innovative Technopark of Turkey). The Technopark management invites the businesses interested in the prototyped product to meet its designer so to favour possible financial support or partnerships.

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Further findings

A deep search using a bibliometric software was performed in order to check the importance and focus of Open Innovation within the research and academic world[3]

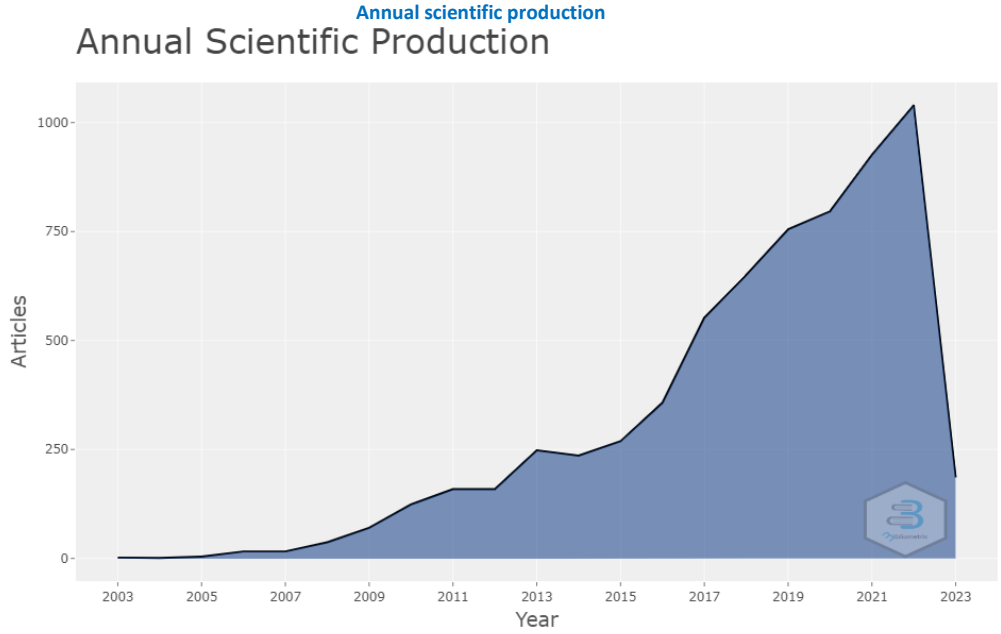
Description of the metadata extracted using the query "Open Innovation", filtering English language articles

MAIN INFORMATION ABOUT DATA	
Timespan	2003:2023
Sources (Journals, Books, etc)	1.816
Documents	6.863
Average years from publication	4.78
Average citations per documents	22.92
Average citations per year per doc	3.371
References	237.229
DOCUMENT TYPES	
article	6.103
article; book chapter	5
article; data paper	2
article; early access	246
article; proceedings paper	114
article; retracted publication	4
review	368
review; book chapter	6
review; early access	14
review; retracted publication	1
DOCUMENT CONTENTS	
Keywords Plus (ID)	10.568
Author's Keywords (DE)	15.078
AUTHORS	
Authors	16.297
Author Appearances	30.798
Authors of single-authored documents	481
Authors of multi-authored documents	15.816
AUTHORS COLLABORATION	
Single-authored documents	569
Documents per Author	0.421
Authors per Document	2.37
Co-Authors per Documents	4.49
Collaboration Index	2.51

[3] Aria, M. & Cuccurullo, C. (2017) *Bibliometrix: An R-tool for comprehensive science mapping analysis, Journal of Informetrics*, 11(4), pp 959-975, Elsevier

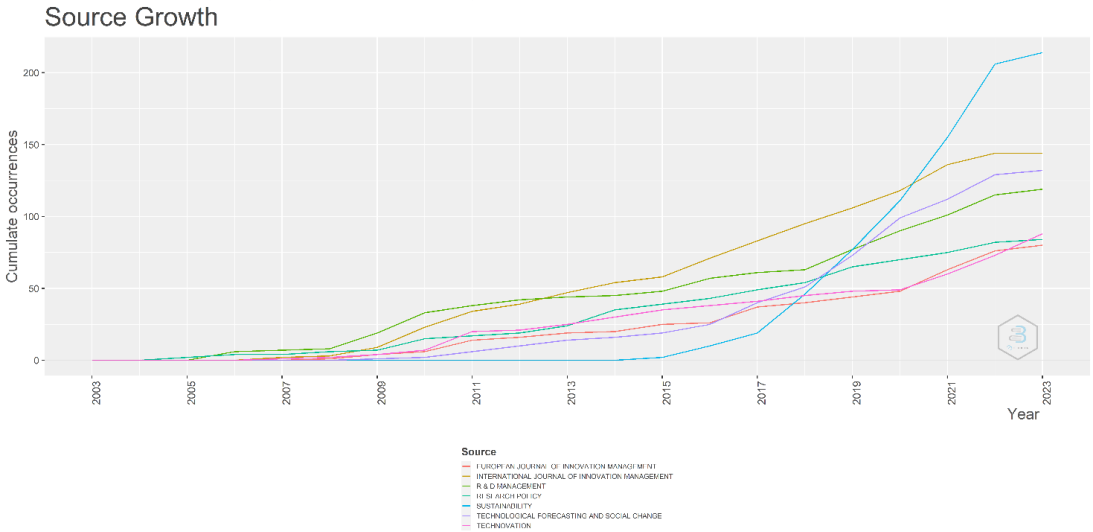
The results do corroborate the importance and the current attention of the topic within both IT and Management departments, but also involving more and more social and psychological aspects of human resources studies. The annual scientific production has been lately increasing, reaching a peak of over 1000 articles and essays on the subject in 2022.

Annual scientific production

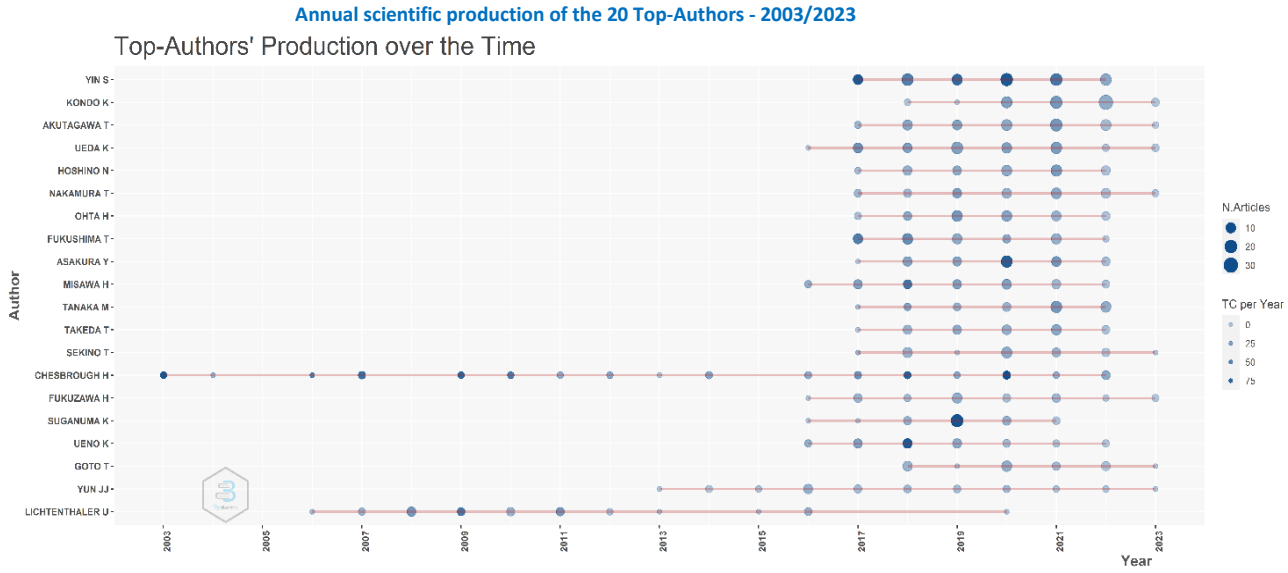


It is worth to point out that Open Innovation related articles are catching the interest of more and more Management journals and reviews compared to IT and high-technology related magazines.

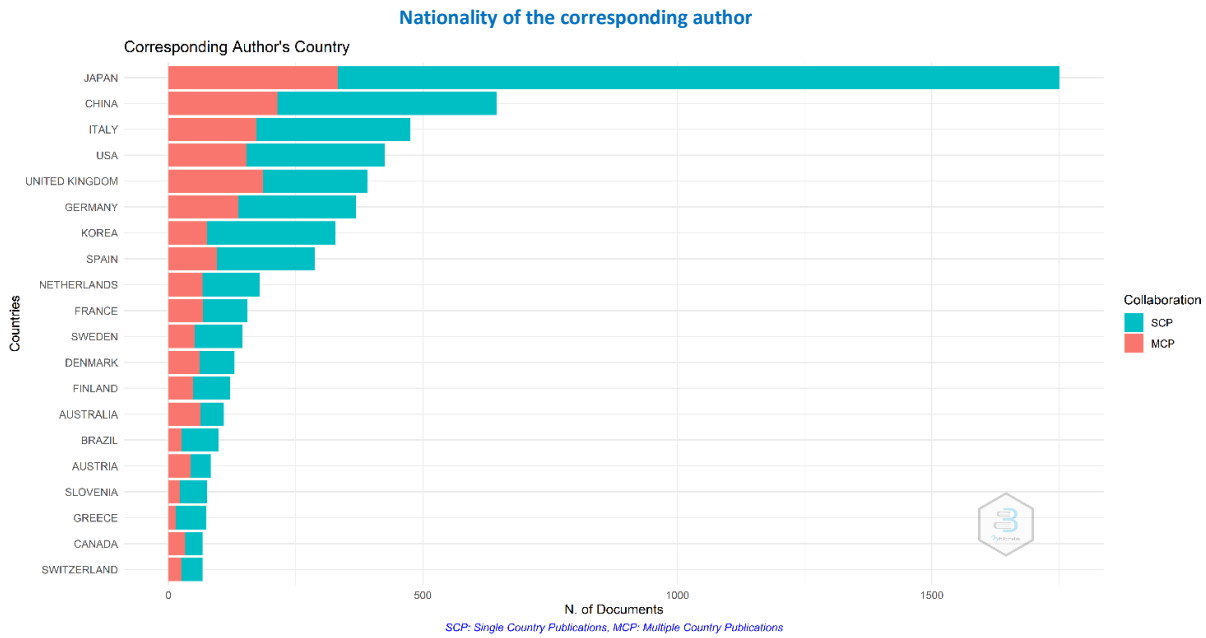
Dynamics of cumulative publications in the main scientific sources



The same trend is perceivable when it comes to the authors



Some project partners' countries (Italy, France and Greece) are particularly active in carrying out and publishing studies in the Open Innovation field:



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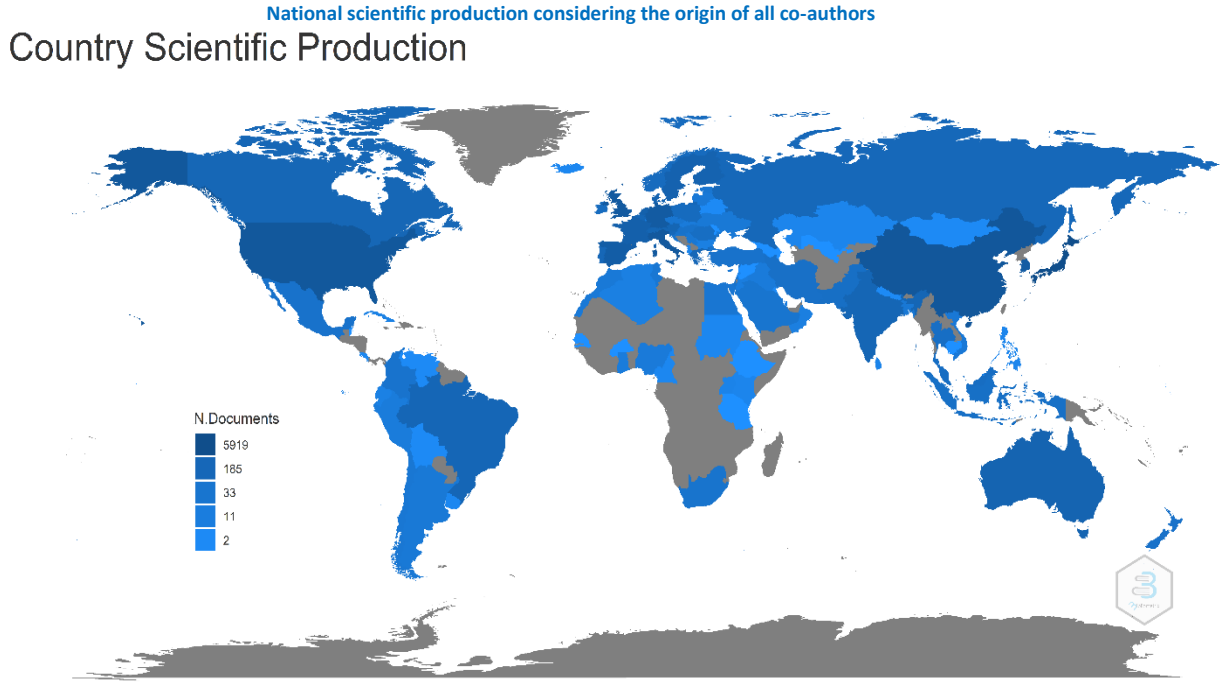
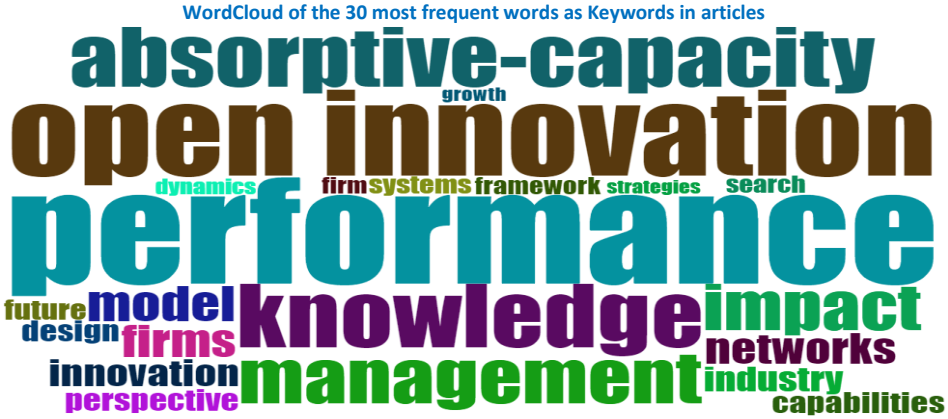
The authors of article and essays come principally from China, Western Europe and the US.

National scientific production considering the origin of all co-authors



The following WordCloud shows evidence of key topics related to the Open Innovation research production, where **performance** and **absorptive-capacity** seem to overcome all of other - rather vague indeed - subjects such as **knowledge** and **management** impact and model.

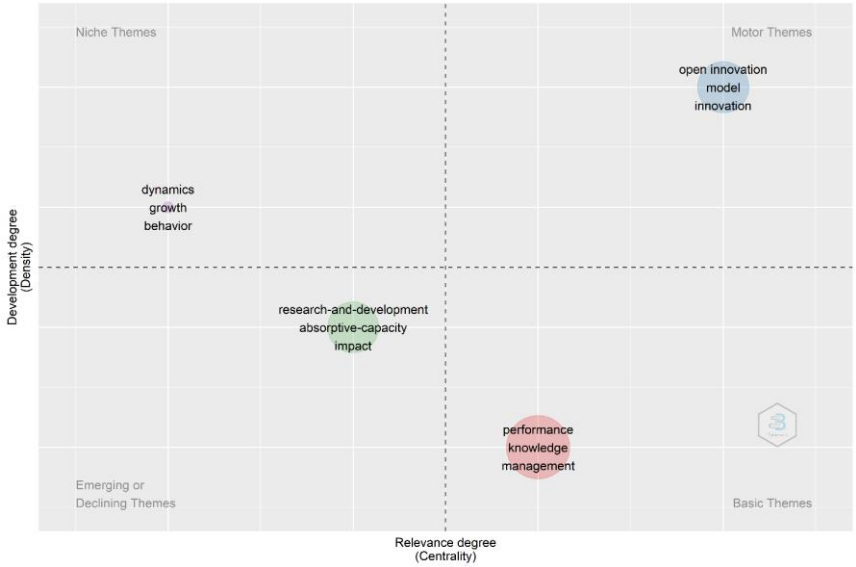
WordCloud of the 30 most frequent words as Keywords in articles



As to the theme deepened within the researches and studies performed the “Model” issue is central, as the interest of researchers seems to be concentrating on how to analyse, build up a model and try to

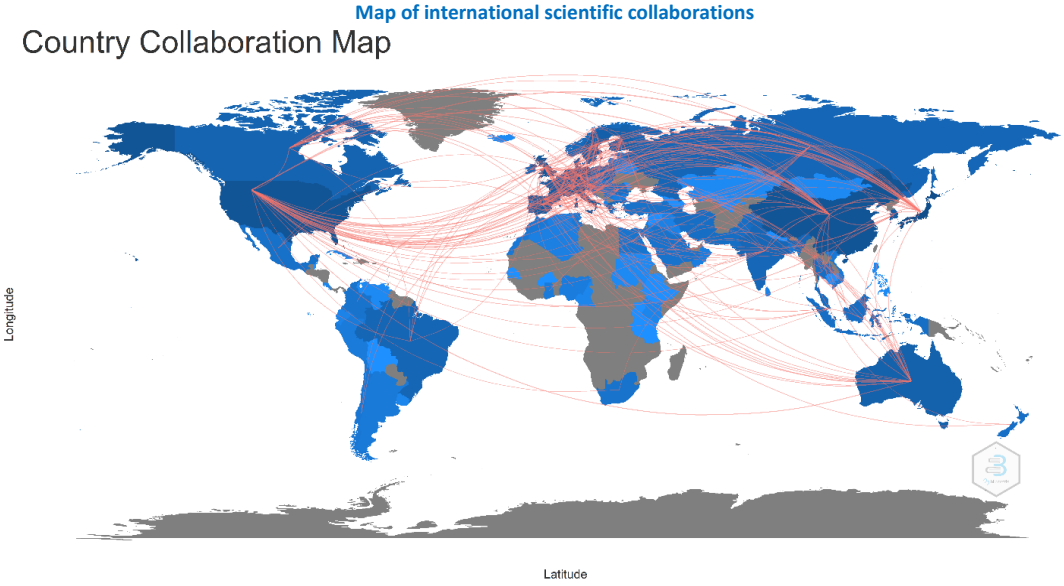
replicate it. Another set of important studies concerns the ability to recognize the value of new external information, assimilate it and apply it for business purposes, which is particularly linked to both performance and behavioural aspects of human resources management.

Thematic map: representation of the main themes with respect to their degree of development and relevance



Finally it is interesting to point out that most of the works are output coming from cross-national joint researches and many are the teams where scholars and practitioners from different countries join forces in common research projects

Map of international scientific collaborations



These authoritative academic sources might reveal fairly useful in the next steps of the Project implementation.

Conclusions and Policy recommendations

Opinions and statements of participants were quite numerous and various, however they seem to converge on several common ideas impressions and suggestions which I will try to summarise in the following paragraphs, organised in a five items pattern: concept/glossary. benefits, obstacles, paths and policies.

Shared concept and glossary

Open Innovation is a form of innovation based on collaboration between different actors who will pool their ideas and knowledge to develop major shared innovative results. Open Innovation allows the contribution of new ideas and solutions in relation to a given problem. Its objective is to accelerate progress and advancements in terms of innovation, in particular by comparing and sharing visions.

Closed Innovation is based on a reflection carried out only internally. From an intellectual property point of view, closed innovation is definitely safer since discussions are carried out only within members of the establishment/company.

Open Innovation is often used by large groups that occasionally call on new resources to respond to a problem, for example during a Challenge or hackathon. The targets are often young entrepreneurs, students or start-ups to whom is given a very short time to find a solution to a problem. Also local authorities can use Open Innovation by proposing to a community of start-ups/companies to respond to a given problem. The local territory then becomes a stage of experimentation for the candidate selected as having proposed the best innovation.

Benefits

In truth he list of benefits attributed to Open Innovation is quite a long one, however most of the impressions and opinions of the Focus Group attendees coincide, shortly they focus on:

- Identification of new business opportunities for a more open vision.-
- reduction of risks in innovation projects for the adoption of already advanced solutions;
- reduction of R&D costs for the use of already developed solutions;
- adoption of new technological trends for better interaction with the ecosystem of innovators;

Obstacles

The main obstacles coming out from the discussions are related to both businesses/employers and their employees, and can be thus summarised here below.

Those encountered by SMEs, companies and entrepreneurs:

- A want for more skilled personnel: SMEs may not have the personnel with the indispensable skills and expertise to conceive and implement innovative solutions
- Scarce access to funds: SMEs seldom have resources to fund innovation, due to their structural limited financial position.
- Resistance to innovation: SMEs are often reluctant in adopting new technology because of their limited expertise and resources.

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- Legal hindrances. SMEs often have problems when coping with the costS and complications deriving from complying with new laws and regulations.
- Limited market share: SMEs might not have enough customers or consumers in their selling market to justify large and reasonable investment in innovation.

The obstacles slowing or preventing employees' involvement in boosting Open Innovation came out to be:

- Hesitation: A vague understanding of their role and responsibility or the impending effects of their changes can make it uncomfortable for employees to be involved in boosting new business activities.
- Little (or no Motivation): Employees might not feel motivated to participate to new ideas or take initiative due to lack of recognition for their efforts or a feeling of disconnect between their role and the company's goals.
- Shame for possible failing: A shame, or even fear, of failing can prevent employees from engaging in the process of enhancing business operations, since they are sceptic about the outcome and thus are not running the risk of any change from their ordinary workflow.
- Lack of necessary time and focus: Working hours and ordinary tasks to be performed can limit the quantity and quality of effort by employees in trying participate to new solutions and ideas to improving business
- Behavioural issues: Employees might encounter awkwardness when dealing with innovation as they might feel their job in danger because of new processes changing their role, or afraid of showing disagreement towards some choices and decisions made by the management.

Possible improving paths

It was almost generally admitted that there are several paths SMEs should follow in order to achieve a better and wider diffused approach to Open Innovation practices:

- Develop a culture of collaboration: SMEs should hearten collaboration both internally and externally. Encouraging employees to share ideas and work together on projects can help generating new ideas and approaches, while cooperating with other colleagues, businesses and departments can provide access to new pieces of information and new viable solutions.
- Participate in innovation networks and partnerships: SMEs should seek out innovation networks and partnerships that can provide access to knowledge, expertise, and funding. Collaborative networks can provide SMEs with opportunities to share resources and expertise, while partnerships with research institutions can help to develop new technologies.
- Invest in R&D: SMEs should allocate adequate resources in R&D to support their innovation efforts. By investing in R&D, SMEs can generate new ideas and develop new technologies that can help them stay competitive in the market.
- Participate in government-funded programs: The government offers various programs and funding opportunities to support SMEs in their innovation efforts, they should constantly

monitor the official Calls and Tenders at a EU, National and local level in order to catch and profit of any opportunity offered.

- Train employees and bring them in touch with the world outside of the office by sending them to conferences, meetings, and seminars: through interactions with other professionals and companies in the field, they will grow experience and knowledge and bring it in the company.
- Motivate employees to be more innovative by rewarding their efforts by providing financial incentives, promotions and opportunities for career advancement, and most of all recognizing and celebrating their successes
- Promoting an entrepreneurial spirit, encouraging creativity and experimentation, and providing a platform for employees to share their ideas and insights and more importantly make them will feel free to express their ideas
- Creating a well equipped work environment that encourages experimentation and risk-taking, a supportive environment that providing the necessary resources and tools encourages employees to develop ideas

From a more HR managerial point of view some interesting quick-hints are worth noting:

- Setting a clear innovation goal for their team and communicating it clearly.
- Challenging employees to come up with creative solutions to current problems.
- Providing resources to help employees research and experiment with new ideas.
- Encouraging employees to engage in reading, research, and attending conferences and seminars that promote innovative thinking.
- Encouraging collaboration, brainstorming, and idea-sharing in the workplace.
- Giving employees the autonomy to take risks and make mistakes without fear of repercussions.
- Rewarding employees for innovative thinking, creativity, and successful projects.

Policy and Actions

Generally speaking all policy makers (both national and local) ought to endeavour in encouraging the scouting and emerging of disrupting innovations, and this by stepping and support several fields and areas:

- the incubation, flourishing and maturation of new technologies
- the creation joint experiences and laboratories
- the creation of deep tech start-ups
- the relationship between businesses and researchers
- the relationship between businesses and institution in particular by proposing targeted calls for projects

In terms of actions to be taken these should focus on main issues such as:

1. **Funding**: by providing funding to SMEs and companies in general that are working on innovative projects. Policymakers should offer grants, loans, or tax incentives to companies and SMEs to help them develop innovative products or services.

2. **Regulations**: Planning, policies and rules in general can be of a hindrance instead of boosting innovation, especially SMEs suffer this threat and often give up even trying to innovate. National, regional and local policymakers should try to work to streamline regulations and create an ecosystem that is favourable to innovation. Also, naturally tax exemption of reduction could be a successful move.

3. **Support**: Policymakers could offer services to support SMEs to consider, conceive and implement some innovation processes. These actions might be implemented via tutorship and mentorship programs, easier access to research and development advisors and facilities, and increasing networking opportunities. Incubators and accelerators, for the most promising ideas and businesses can also benefit of support in developing and scaling their prototypes.

4. E**ducation**: Of course skills and knowledge have a pivotal role in developing the culture of innovation. National, regional and local policymakers should invest in high-quality education both undergraduate and post-graduate programs to accompany students in developing necessary skills and culture in order to succeed in implementing innovation.

5. **Cooperation**: All policymakers must also promote collaboration among entrepreneurs/companies, academic world and research centre and institutions – not locally but also at an international level - to help creating a more animated and dynamic innovation environment where ideas, experiences and expertise can circulate and be shared.

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Open Innovation Examples

Several good examples were singled out in each cluster of the participants' countries:

Cluster 1

France

BlaBlaCar an online marketplace for carpooling. Its website and mobile apps connect drivers and passengers willing to travel together between cities and share the cost of the journey. The company does not own any vehicles; it is a broker and receives a commission (between 18% and 21%) from every booking.

Safran Electronics and Defense, part of the Safran group (1st French patent filer in 2021), the group has a strategy to support employees in patent. The Recognition of employees who have innovated for the company consists of putting the innovations of different employees in competition with each other and rewarding those who have achieved the greatest innovations within the company. Plus they also organize innovation competitions among employees with projects. These employees have the possibility in the event of victory to see the company invest in their project and to see their employer remunerate them for the development of their project.

Nickel a alternative banking service open to any natural person aged twelve or over, with no income requirements and no overdraft or credit possibilities. The service was created in 2014 by the payment institution Financière des Paiements Électroniques, with electronics engineer Ryad Boulanouar and financier Hugues Le Bret as co-founders and developers. This banking service is an alternative means of the bank account.

Cozy Cloud developer of Cozy, a scalable, open source personal cloud platform that simplifies the use of a personal server. Cozy's core application suite allows users to host, share and synchronize files and images, as well as keep track of appointments and contacts, and manage multiple email accounts. Third-party applications available through a dedicated app marketplace can be used to extend Cozy's default functionality, including applications to read RSS feeds, manage tasks, host a blog, etc.

La Ruche qui dit Oui ! a commercial enterprise born of the collaborative economy. It provides farmers and food processors with an internet platform to facilitate short circuit sales. This service is intended for the marketing of agricultural food production and food processing, with the hive manager and Equanum SAS being the intermediaries interested in the percentage of transactions between food producers and processors and consumers. The Beehive that gives everyone the means to better feed themselves and support farmers who cultivate a better world.

Ulule A pioneer in crowdfunding, Ulule supports those who are working for a more diverse, sustainable and open to all world. A pioneering platform for collaborative financing, Ulule enables creative, innovative and interdependent projects to raise funds, test ideas, to gather and grow a community.

Italy

APPLE ACADEMY (**Software**) - Developer Academy of Naples, a "school for developers" that was established within the former Cirio area of San Giovanni a Teduccio, just outside the Neapolitan

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capital, in the Federico II University complex that also houses the Faculty of Engineering, now a true international digital district has been created where technology history is being made, one that can offer a future to many promising young people. The Apple Developer Academy opened in 2016 and from a few hundred students has now trained thousands. The Academy provides students through tutors and faculty with the basics of learning how to design an app, how to design it, how to produce it, how to market it, how to make it available to users and how to make a business out of it. According to an Apple estimate, the school provides tools and training to find and create jobs in the growing iOS app economy, which is worth more than 1.7 million jobs in Europe alone. And through an "Alumni" program dedicated to alumni, Apple also provides a training and networking plan to support the development of new digital businesses

COMING UP (Start-Up Advisors) Start up specializing in defining of development and promotion programs of the territory that exploit the synergies between SMEs, associations and local authorities. They work with motivated entrepreneurs and institutions to create skills, define social innovation proposals and build relationships on the ground with companies, organizations and associations, We offering consultancy for the definition of online and offline communication strategies that enhance and give visibility to companies through the creation of ad hoc content contextualized to different reference scenarios and through the management and development of relationships with major national newspapers and magazines.
They conceive, organize and promote events, conferences and working tables, following all their strategic and organizational phases (creative concept, selection and proposal of the location, set-ups, management of the organizational secretariat and media relations).

NED (Innovative Project Management) New European Dream is an association and think tank that creates synergies among Central-South territories, local and European institutional bodies, Italian and foreign associations, experts and young people sensitive to Europe, the environment, gender equality, legality and security., Planning, NED is a space for meeting, discussion and innovation where to talk about European, international and national politics and solutions, addressing the present, delve into the past and try to imagine the future while maintaining an open and critical point of view. We defend political, civil and social rights inspired by equality and non-discrimination, in a context of secularism and democracy.
nnovate means actively contributing to the development of the territory, particularly the inland and Central-South areas. Knowing how to intercept European funds means creating political, social and economic opportunities and fostering the process of European integration. If planning is a way of changing the world, training is the engine that triggers change. It starts with books and leads to practice, because the only way to learn design is to design.

STUDIO 5T (Open Innovation Facilitator) – Based in Rome, strongly committed in innovation, the studio is winner and then became advisor of Region Lazio for issuing and facilitating Open Innovation Challenges

1) in IoT solutions for the health of elderly and disabled patients" and "Biomedical robotics for patient monitoring and entertainment.".
2) Design & Fashion, Creative & Cultural industries, Tourism , Italian Style;

3) IoT & Smart Manufacturing;
4) Life Science & Well Being, Food;
5) Smart Cities, Clean technologies, Mobility, Security.

Its activities include:

- Fablab and Prototyping Labs: design, set up and run fablab digital fabricationlabs, for schools, coworking and business incubators.
- Applied Research: Development of prototypes and pre-industrial products, combining basic and applied research to result in prototypes developed for their customers.
- Startup scouting and studio: a community of designers and inventors, believing in good ideas and the interconnection between corporate ventures and startups. They do matching between the innovation demands of the market and the ideas of the new entrepreneurs of the future.
- Training and reskilling: Research and development activities and the adoption of innovative methods enable the company to carry out training and consulting activities in Industry 4.0 and STEM fields.

MICROGAME (**Gaming and Betting Software**). products tailored to the needs of all players in the industry: operators, distribution networks, affiliates and players. Their success is based on strong customer relationships that make Microgame not just a service provider but a strategic partner of small software and app producers: salways couting for new codes and programs. Gaming Platform are multi-channel, secure and flexible system provides. They are platform, designed and developed by Microgame with innovative technologies and thanks to a long experience in the gaming industry, the ideal solution for all operators looking for a unique management tool, characterized by great flexibility, high customization and a considerable number of products offered in multi-channel mode. All applications are designed to be immediately usable on any web or mobile device with the following features.

- Fast integration of new products
- Multi-brand support
- Cross-selling between channels and products
- ADM-approved

NEOSHU (Innovative Fashion), a company active in made-in-Italy fashion accessories integrated with NFT design art fashion redeemable, designed for metaverse redeemable in real life under the Valni brand and the Dafnet.io platform using Binance Smart Chain, (abbreviated as BSC). Recent products include the creation of backpacks with solar panels originally ordered by Maire Tecnimont as corporate gifts and soon become a must-have…

Poland

Open innovation is nowadays a characteristic across most industries in Poland. Worth mentioning is that three Polish cities have been included in the Tholons Global Innovation Index 2021 - TOP 100 Super Cities ranking, with Kraków taking 20th place, Warsaw 35th place and Wrocław 99th place. Especially Kraków, compared to 2020, has noted a high increase in the Innovation and Digitalization category (Innovation/Digital), which is the result of more start-ups and innovations in the city.

More start-ups are also set up (and being recognized) in the Podkarpackie region where Danmar Computers, Open4U project partners is located (Rzeszow).

Examples:

Confessor Capital from Rzeszow. They have developed a tool that allows for instant investment in the stock market. The solutions they have applied are known, among others, in nuclear physics.

Creativity AR, creating immersive XR experiences. Their goal is to use technology to enhance the learning process with the so-called 'Flow', which is a fivefold acceleration of the learning process. They also organize VR trainings.

ParkCash, solutions in between Smart City and PropTech. With the support of the NCBiR, they have developed an innovative technology for managing parking spaces based on the idea of a sharing economy, with the goal of improving the quality of life in the city and optimising the use of parking in enclosed spaces. Thanks to the reservation system, drivers do not waste time looking for parking spaces, which has a real impact on reducing traffic jams and air pollution in large city centres.

Medu offers a mobile app filled with accessible knowledge, repetition questions, practical exercises and mini-games. Selected courses are complemented by physical products so that you can practice surgical suturing or laparoscopy, among others, at home.

CinematicVR is a creative XR Agency and one of the most experienced teams of VR and AR creators in Poland, based in Rzeszow. They create interactive and immersive XR solutions using for business clients for marketing and training purposes.

Aquares offers a product in the form of a distributed intelligent micro-retention system for the adaptation of urban environments to climate change, observed in the form of torrential rains or periods of drought. The system is used for rainwater retention in dense urban areas, where flash floods occur after the passage of heavy rainfall.

The primary purpose of the proposed solution is to relieve the pressure on the rainwater drainage system during heavy rainfall. In addition, the proposed solution makes it possible to generate electricity for the external lighting of buildings or squares and also introduces an element of greenery in the city, thus having a positive impact on the local urban microclimate during hot weather. It was introduced in the city Rzeszow and now is also a solution for others cities.

On a more national basis ARID focus group hase singled out the following examples:

Polska Wytwórnia Papierów Wartościowych (Polish Security Printing Works) The company's mission is to strengthen the stability of the state by creating secure and innovative solutions for administration, businesses and every citizen. They are constantly analysing and implementing new ideas in order to not only respond to, but also anticipate changes in the environment. The innovation and creativity of PWPW's solutions is based on scientific achievements and our own experience and research.

Celon Pharma S.A. is an integrated pharmaceutical company that conducts advanced scientific research and produces cutting-edge medicines. The company also conducts effective and professional marketing of its own products. Their medicines help thousands of patients to live better and longer lives. We obtain funding for research and development from the sale of our own products, funds from the capital market.

Its great asset is its strong research and development facilities, which allow them to create entirely new classes of effective medicines. The research and development department of Celon Pharma S.A. is made up of more than 200 scientists, one third of whom hold a PhD in molecular biology, pharmacy or chemistry.

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Drutex Almost four decades of experience in the creation of windows, doors and roller shutters have allowed us to achieve the highest level of technological advancement, high quality and professionalism of operation. During this time, they have created a brand that is recognised worldwide, valued and awarded, both by independent expert bodies and customers.

In Krakow area there are interesting examples:

InPhoCat Kraków The company's activity is focused on research and development works aimed at the implementation of innovative technologies and products. Our experience and competence can be useful for customers without their own research and development facilities. In our laboratories innovative active coatings are developed and tested. The coating materials are engineered to achieve specific functionalities, such as, e.g., the photocatalytic activity for elimination of organic and microbiological pollutants, removal of unpleasant odors and volatile organic compounds, as well as water treatment.

3D-nano -3D-nano conducts research, production and sales activities in the field of high-tech. The company has its own research and development laboratory, which implements proprietary solutions in hi-tech products. Furthermore, by providing scientific and technical consulting services, it helps customers to implement nanomaterials in new innovative products. 3D-nano is the exclusive representative of the German company Plasmachem in Poland. Its commercial offer includes more than 140 products in the field of state-of-the-art nanomaterials. The range of nanomaterials is complemented by products from Emfutur.

ADE Diabetics Kraków - It is a new technology company that has developed an innovative solution for diabetics - the Diabetomat - is the new direction for the listed company Invisty S.A., which has changed its name to New Tech Capital S.A. since June this year. Together with ADE, the listed company's management intends to work on the first non-invasive breathalyser for diabetics. The device, with the working name Diabetomat, has passed the testing stage and is now planned for commercialisation.

Wido-Profil Kraków - Wido-Profil Sp. z o.o. has been present on the market since 1994. During this time they have realised dozens of multi-family and public buildings as well as single-family houses. They have become a leader in the field of substructure systems for ventilated facades, as well as balustrades and railings. As a confirmation of the quality of their services, in 2014 Wido-Profil Sp. z o.o. became the first supplier in the country to obtain the ITB TECHNICAL APPROVAL for complete substructure systems for fixing ventilated cladding.

diCELLa Kraków - diCELLa is a young, promising company established in 2018, which is proud to employ young IT and mathematical talents from the Jagiellonian University.

The company provides its clients with the best products: dedicated solutions for laboratories, microscopic image analysis tools, data analysis, state of the art reports, big data, dedicated SAAS systems. diCELLa deals with advanced techniques for the analysis and interpretation of microscopic images designed for user convenience.

Looking at good practices in open innovations of SMEs from different sectors:

Hanbud is a manufacturer of sheet metal roofing and metal fencing from the Podlasie region. The company was facing a logistical problem associated with a very large number of fencing types and challenges for sales representatives struggling with individual quotations. The solution was to invest in and implement a 3D fencing configurator, which allowed the simple design of an individual fence using an online tool, including calculating the cost, creating specifications and even the possibility of viewing on site, using augmented reality (AR).

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Blees is a technology company from the Silesian region, creating IT solutions for the public transport industry. The problem was monitoring in public transport vehicles, as real-time monitoring required a large number of employees. The solution was to invest in active monitoring technology based on image analysis using artificial intelligence, which makes it possible, among other things, to detect dangerous events in real time.

Magam is a company from the Łódzkie region specialising in the production of woven labels and curtain and curtain tapes. The problem was rising costs, and the answer was an investment in the automation of the production process, which resulted in a reduction of waste, electricity consumption and minimisation of manufacturing costs.

PROGRAFIX in Debica launched the B2B Direct Mail online platform, which allows its clients to send offers/personalised advertising themselves. Thanks to this possibility, adverts are targeted at an appropriately selected group of potential customers. The completed project was the first such comprehensive and automated system of its kind in Europe

Dobis in Trzciana (near Rzeszow) has put into production and introduced biostatic and completely eco-friendly paper bags with high quality and performance parameters, which are widely used in the food industry. The biostatic substance developed is capable of inhibiting the growth and destruction of bacteria and the way it is applied to paper bags. The project is a response to the demand of potential customers and the realisation of the company's strategy based on increasing its competitiveness in the target market as a manufacturer of ecological and innovative products with high quality and attractive price.

Cluster 2

Czech Republic

ALD Automotive is a car leasing and fleet management company that has used open innovation to improve its services. The company has established partnerships with car manufacturers and technology companies to offer new services, such as electric vehicle leasing and telematics-based fleet management.

Mitas is a manufacturer of agricultural tires that have used open innovation to improve its products. The company has established partnerships with universities and research institutions to develop new tire technologies and has also collaborated with other companies to integrate their technologies into its products. Mitas has also created an online platform where farmers can share their feedback and suggestions for new tire features.

TESCAN is a manufacturer of electron microscopes that have implemented open innovation practices to improve its products. The company has established partnerships with universities and research institutions to conduct R&D and has also collaborated with other companies to integrate their technologies into its products. TESCAN has also developed an online platform where customers can share their feedback and suggestions for new features.

Flowee is a fintech startup that has used open innovation to develop its payment processing platform. The company has collaborated with banks, payment providers, and other fintech startups to develop new features and services.

VSHosting is a web hosting company that has implemented open innovation practices to improve its services. The company has a community forum where customers can share their feedback and suggestions for new features. VSHosting also partners with other companies to offer complementary services to its customers.

Greece

Mama's Flavours Using the Greek mother as our centrepiece a group of women entrepreneurs worked with local women producers to create unique gastronomic tours, starting from the beautiful region of Messinia! Whether from Greece or abroad, guests are able to experience the unique Greek hospitality through selected gastronomic excursions and agrotouristic activities tailored to their needs, all designed by the Hippolyte-mama's flavours team. Next step, will be combining these wonderful activities with products made by women producers, which will be sold through our dedicated e-shop.

Turkey

Boyner Büyük Mağazacılık A.Ş. (operating as **Boyner**) is a Turkish retail company, selling mainly textile products. In 2013, it had 78 Boyner and 61 YKM (Yeni Karamürsel) stores in 37 provinces of Turkey and employed around 5,200 people. as an innovation and it's called BOYNER NOW. There are a few important innovations that Boyner Now brings. There is no need to pay at the time of order, delivery in 90 minutes, different sizes are allowed to be tried, and popular the product can be purchased at the door. They have already advertised this application by saying it is innovative

Baykar is a private Turkish defence company specialising in UAVs (unmanned aerial vehicle), commonly known as a drone, aircraft without any human pilot, crew, or passengers on board and C4I (Command and control set of organizational and technical attributes and processes employing human, physical, and information resources to solve problems and accomplish missionan) and artificial intelligence.

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