

# Časopriestor Spacetime

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# ORMALA

Securing Europe's  
competitiveness  
and economic growth  
in the 2020's

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# Príhovor šéfredaktora

Tvorivá činnosť je nekonečný proces, ako sa to ukázalo aj pri stavbe webového portálu [www.kassay.eu](http://www.kassay.eu). Pri úvahách o napredovaní edukačných procesov, ktoré by boli v zhode s potrebami konkrétnych typov odborníkov pre veľké podniky je zrejmé, že takáto úloha je možná iba pri dostatočujúco relevantnej informácii o budúcich procesoch. Akékoľvek doteraz predkladané riešenia sa doteraz orientovali na predpokladané využitie mozgového potenciálu odborníkov. Zamyslime sa práve nad touto premisou. Čo prináša do budúcnosti akákoľvek výberovo ustanovená komisia, ktorá môže rozhodovať napríklad o pripravovaných študijných programoch. Nič iné ako minulosť. Vychádzam z toho, že prienik do budúcnosti vzniká ostrou konfrontáciou, akýmsi prirodzene sa vyvíjajúcim brainstormingom pri strete rozličných názorov, dokonca aj takých, ktoré potlačujú doteraz zaužívané spôsoby a stavajú sa do role priekopníkov. Nositeľmi takýchto názorov však môžu byť iba tí, ktorí si študijné programy stavajú pre vlastný osobnostný rozvoj v budúcich vývojových podmienkach. Môže to vyznieť paradoxne, ale budúcnosť by si mali projektovať práve tí, ktorí sú dnes študenti, ktorí ju budú využívať pre vlastný život. To je aj dôvod prečo sme sa dostali k myšlienke popri informačno-komunikačných procesoch konkrétneho typu, včleniť do spoločného európskeho systému aj typ artefaktu umožňujúci myšlienkovú slobodu. Preto mám odvahu si predstaviť, že do tohto elektronického

časopisu budú prispievať vysoko fundovaní ašpiranti na plnenie svojho životného profesionálneho záujmu spätého s pokrokom a humanitou, rešpektovaním požiadavky na vysokú pracovnú kultúru v danom odbore s možnosťou interdisciplinárneho prieniku v žiadúcom rozsahu. Samozrejmosťou požiadavkou je vysoký stupeň predikcie budúcich procesov vo vzťahu k súčasnej k súčasnej najvyššej úrovni potvrdenej výsledkami vedeckých výskumov. Predstavujem si to tak, že do arény tohto časopisu prídu tie najnovšie odborné diela s ambíciou priblížiť myšlienkový produkt do období najbližších desaťročí. Iskrenie na interdisciplinárnej špirále evokuje netradičné riešenia s vysokou mierou pravdepodobnosti, že skutočne vzniknú po intelektuálnej konfrontácii predstaviteľov dnes ešte nie celom známých vývojových smerov. Koniec koncov ak sa tak aj neudeje, nič nestratíme, iba sa posilníme v duchu zápasu o vlastnú existenciu a o prežitie na našej planéte.

**Štefan Kassay**

šéfredaktor časopisu

\*Prírodnosť vývoja preukáže najvhodnejšiu potrebu redakčného cyklu. Nádejame sa týmto pokusom o nenásilnú kontinuitu tak, ako diela budú vznikať a ako sa ich autori budú uchádzať o ich zverejnenie originálnych myšlienok.





# Dr. Erkki ORMALA

Dr. Erkki Ormala was born in 1950. He graduated in 1974 and received his PhD in 1986 from the Helsinki University of Technology.

He was a Senior Research Engineer at the Technical Research Centre of Finland (VTT) 1974-1987. He was a visiting scholar at the Stanford University in 1976 and further at the International Institute of Applied Systems Analysis (NASA) in 1982.

1987-1999 he was the Secretary of the Science and Technology Policy Council of Finland. The Council is chaired by the Prime Minister with the task to give advice to the Government and administration in issues related to science, technology and innovation policies. In 1999 he joined the Nokia Group. At Nokia he is in charge of developing favourable business environment for Nokia globally. He was Nokia representative in a number of industrial organizations such as ICC, GBDe, ERT, UN ICT Task Force, WSIS, Digitaleurope, etc

He has more than 60 scientific publications. In 1992 he led an international evaluation of the economic and social impacts of the Eureka Scheme. 1996-1999 he was the Chairman of the Technology and Innovation Policy Working Group of the OECD. Since 1994 he has been a member of the evaluation and monitoring panels of a number of the EU RT&D programmes. In 2004 he chaired the Five-Year-Assessment of the EU Research Programmes covering 1999-2003. 2008 - 2012 he was a President and Chairman of the Executive Board of Digitaleurope. 2013 Dr. Ormala joined Aalto University as a professor of practice in Innovation Management at the Aalto Business School Department of Management and International Economy.





# Conditions for successful STI policy

Industrial innovation has fundamentally changed over the last ten years. The science, technology or corporate-driven innovation paradigm has been challenged by a new open, human and eco-system-based collaborative innovation paradigm since the 1990's.

Companies have widely adopted new tools such as open innovation, innovation networks and ecosystems, systemic innovations, public/private partnerships, crowd sourcing, social media, and demand based innovations.

Fundamentally IIT has helped realizing the innovation-based growth strategy for Europe through stimulating the modernization of current practices of innovation management. The objective has been to improve the innovation performance of European companies and the effectiveness of innovation policy instruments in order to generate new growth and jobs.

The project has examined the current level of new innovation tool adoption in European companies through in-depth interviews with 800 companies ranging from innovation leaders to followers in different parts of Europe. The results are now being disseminated globally for example in collaboration with

the European Round Table (ERT), Orgalime and other major institutions and initiatives active in the European RDI landscape.

The current innovation policy tools in Europe have been assessed through policy review and workshops with national and regional stakeholders. The results are summarized as recommendations for drafting future policies for innovation, especially in industrial domain in the Key Deliverables of the project (see Key Deliverables).

In order to maximize the return on investment for the project, a research toolbox has also been created for Member States and the EC for replicating this study. The toolbox provides a step-by-step guide for investigating the current state of innovation process adoption, and for analyzing how the current innovation promotion portfolios could be developed to respond to the needs of industrial companies.

Science, technology and innovation (STI) are universally recognized as key drivers for poverty eradication and essential components for achieving the Sustainable Development Goals (SDGs). However, to make STI work for the society, appropriate STI policy frameworks and participatory forms of governance need to be developed and reinforced.

In this regard, UNESCO supports countries' efforts to reform and upgrade national STI systems and governance. For the past decades, UNESCO provides technical advice, methodologies and guidance to Governments on design, monitoring and implementation of STI policies as integral parts of national development policies and plans.

As part of its work in STI policy, UNESCO develops partnerships with international and regional institutions working in the field of STI for development, and carries out activities that raise political awareness on the need to invest in STI as important pillar to achieve the 2030 Agenda for Sustainable Development.

The role of UNESCO in STI policy is threefold: a technical adviser on policy development and implementation; a standard-setter for national policy reforms; and a catalyst for regional and international cooperation.

The project is funded by the European Commission, under the Horizon2020 program, funding scheme H2020 RIS / EURO-2-2014. The project is implemented by a consortium consisting of universities and public research organisations. The partners include Aalto University, Manchester University, University of Twente, Joanneum Research Center and Zabala Innovation Consulting .

The objective of the project has been to create a holistic understanding of what are the current best practices in the most innovative companies in order to produce an updated best practice documentation for European CTOs. For this, IIT project will collaborate with the European Round Table of Industrialists (ERT) members in addition to extensive data gathering in innovation leader member states.

IIT project has gathered data from 800 companies ranging from innovation leaders to moderate innovators in multiple industries across the member states to provide an evidence base for reviewing how well the current innovation policies support the adoption of new innovation processes. The project

has produced a number of recommendations on how the innovation systems and policies in Europe should be developed to bridge the gap between Europe and its main competitors.

The project will further develop an innovation practice toolbox for Member States and the EC for bridging the innovation gap and promote economic and social inclusion in Europe. The toolbox provides an end to end methodology for checking the current state of new innovation process adoption and for analyzing how the current innovation promotion portfolios could be developed to improve the level of how current needs of industrial innovation are being met on a national level. The project results are disseminated broadly among the European industrial players and policy makers.

Related H2020 projects funded by the European Commission:

**FIRES** [www.projectfires.eu](http://www.projectfires.eu)

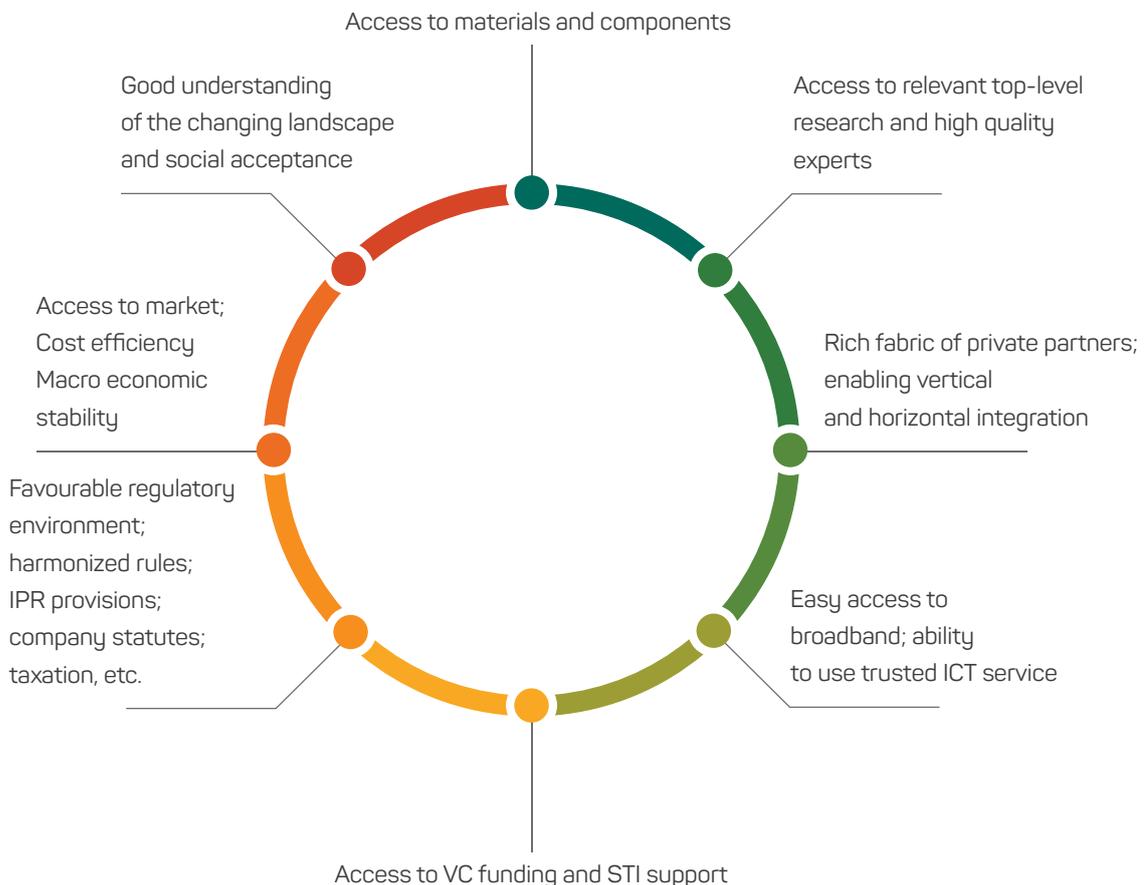
**ISIGrowth** [www.isigrowth.eu](http://www.isigrowth.eu)

**Qulnne** [quinne.eu](http://quinne.eu)

**Re-Invest** [www.re-invest.eu](http://www.re-invest.eu)

# Elements of Favorable Innovation Environment

- Economic growth, productivity growth and job creation are dependent on successful STI policy;
- The linear innovation process thinking has been dead for more than forty years; innovation processes are systemic;
- Innovation systems must be managed holistically and in a coordinated manner;
- Key principles:
  - Sufficient, predictable and balanced funding;
  - Good collaboration culture supported by clear incentives;
  - Innovations emerge from ecosystems lead by a system coordinator;
  - Knowledge sharing is the main function of the ecosystems, public research plays a key role;
  - Grants are most effective, loans and tax incentives less effective;
  - Skill shortages are taken care of proactively.



# Consortium

The IIT consortium consists of five partners in five different EU member states. Each consortium partner has a specific responsibility and together, the partners have the insight and networks to cover 11 EU member states in the study.

## Aalto University (Finland)

Is the coordinator of the project and responsible for conceptualizing the extensive field work to be conducted among small, medium sized and large companies in eleven member states. Aalto University has a good track record in following and initiating new innovation management practices in both the public and private sector and this experience will be utilized in the high level dissemination of lessons learned.

## The University of Manchester (UK)

Is responsible for leading the rigorous data analysis and drawing bottom-up policy recommendations rising from the study of the extensive and rich interview reports. The University of Manchester is also responsible for leading the methodological aspects of data analysis.

## Zabala Innovation Consulting (Spain)

Is responsible for the activities targeting companies and for providing insights into the analysis regarding innovation policy recommendations for countries more severely hit by the economic crisis.

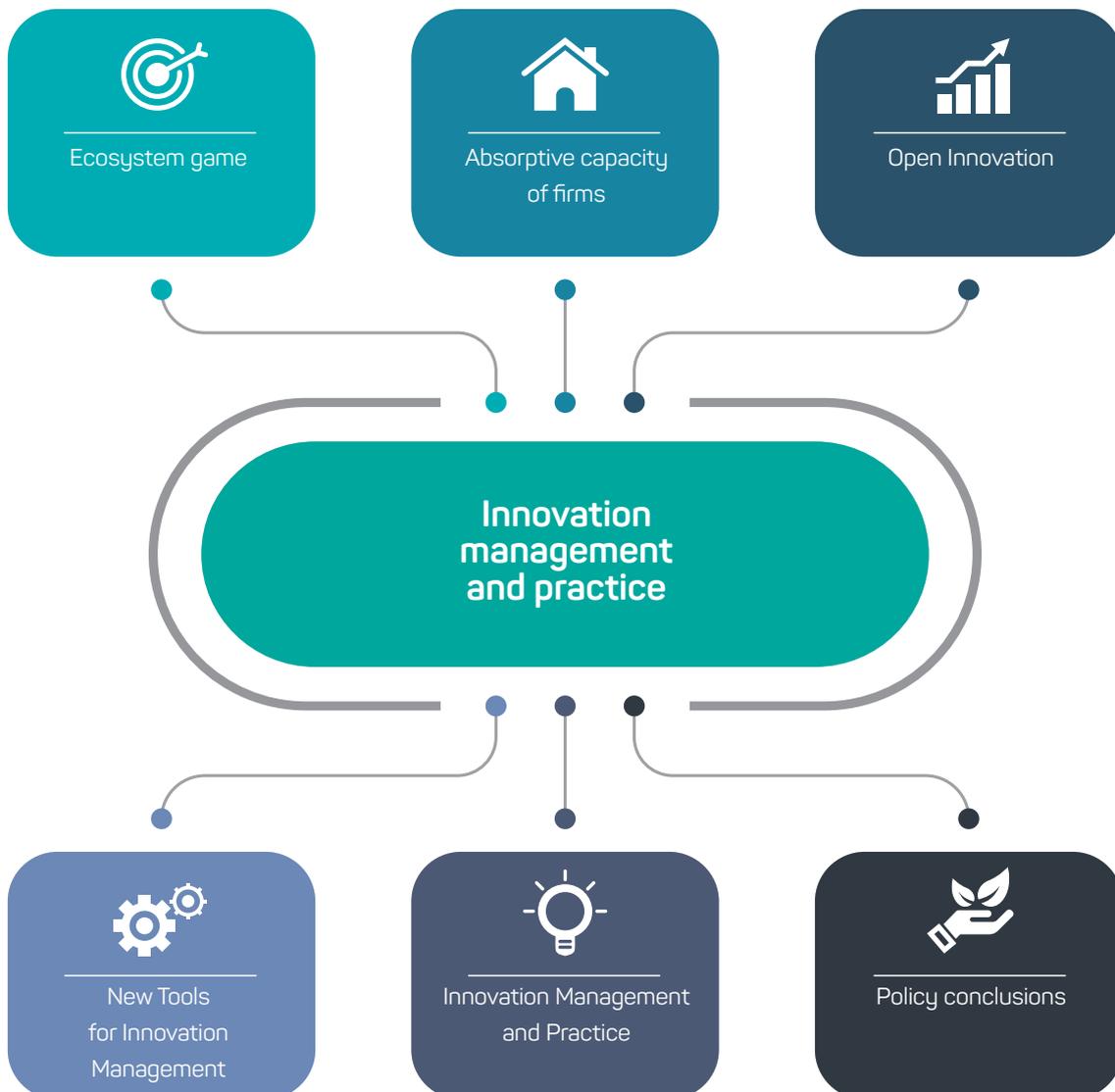
## Joanneum Research Center (Austria)

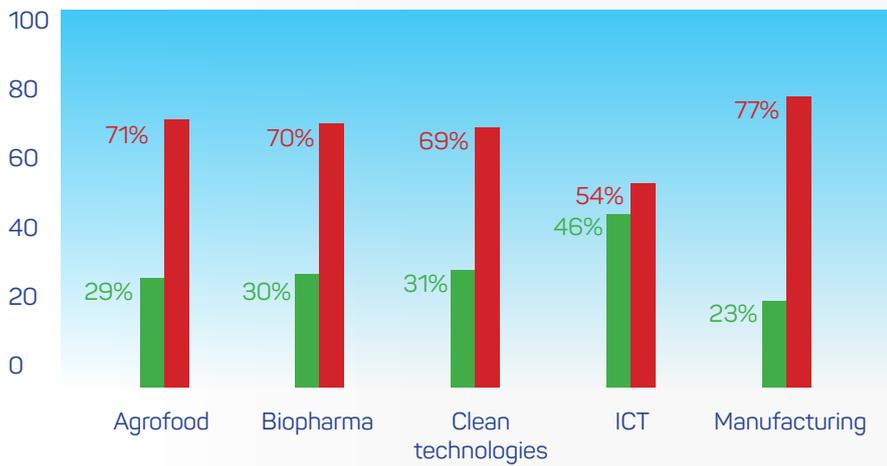
Is responsible for a forward looking national and European level innovation policy analysis and a series of high level policy expert workshops aiming at recommending with regard to future development paths for individual member states as well as Europe as an entity.

## The University of Twente (The Netherlands)

Is responsible for cross-industry comparisons and the analysis of the rich and extensive interview reports with novel categorizations giving novel insights into innovation practices among different types of companies. The University of Twente will also be responsible for leading the industry specific recommendations of innovation policies and innovation support. The Advisory Group members and the dissemination partners (e.g. ERT and OECD) complement the consortium in a way that elevates the expected impact to a very high level.

# Industrial Innovation in Transition





## Open Innovation/Knowledge sharing

- Complementary competence and excellence;
- Genuine commitment for knowledge sharing/trust;
- Collaboration platforms/joint campus presence;
- Mobility of research personnel;
- R&D/recruitment/education all involved;
- Transparent management and collaboration rules;
- Fair rules for IPR ownership and use;
- Reformed reward and incentive systems.

## Absorptive Capacity of firms

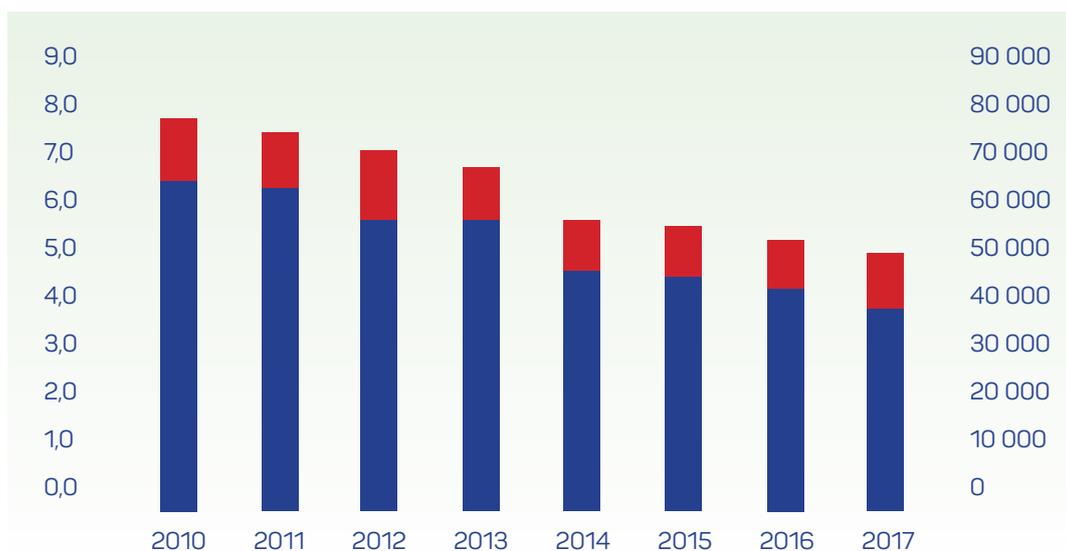
- Personal motivation and incentives;
- Enabling management system;
- Efficient use of web tools;
- Extensive collaboration with external partners;
- Stimulating corporate culture;
- Creative and innovation oriented people.

# Most frequently mentioned policy gaps



Securing Finland's competitiveness and economic growth in the 2020s.

Industry funding to university R&D



■ Industry funding to universities R&D 2010-2017 the highest funding was 2008 EUR 81.1 million

■ Share (%) of industry funding to universities 2010-2017; the highest industry funding share 2008 was 8.0%



Insufficient seed, venture and growth funding

Insufficient skilled people and development of talent capabilities

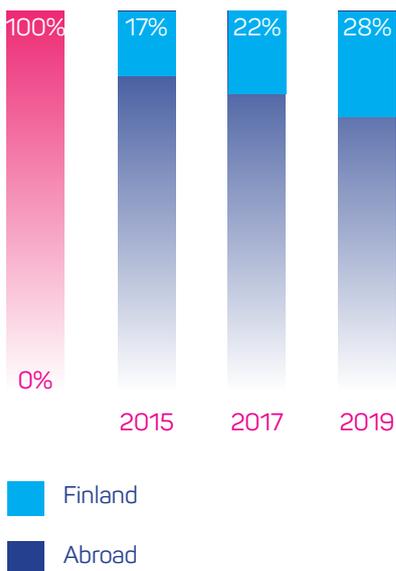
Regulation around innovation (seen both as barrier and positive factor).

Need for more demonstrators, pre-commercial procurement, procurement of innovation

Insufficient grant funding available

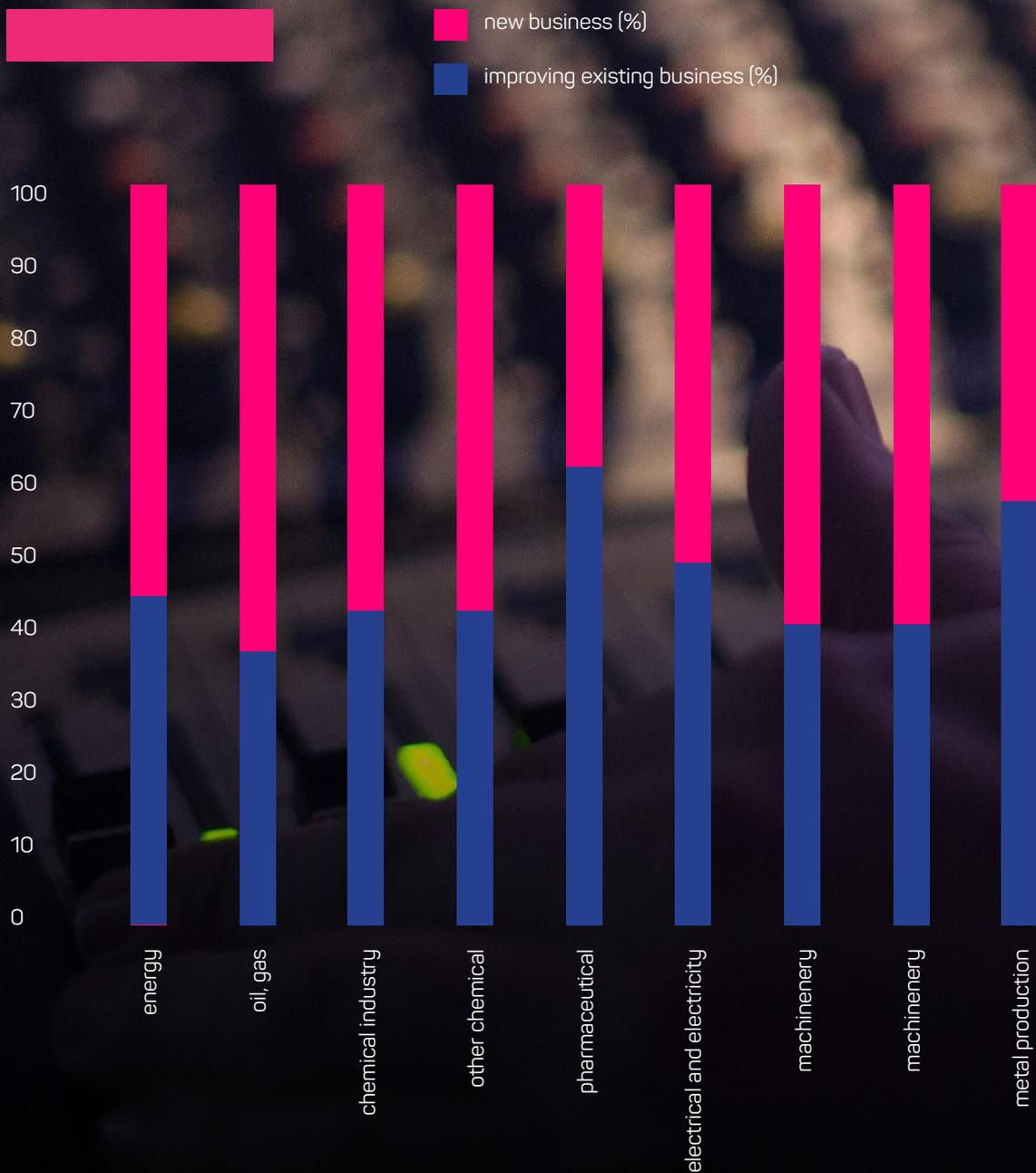
Systemic bias difficulties for small firms

## Business R&D in Finland and abroad 2015-2019, number of companies that responded (n=135)



- Foreign reviews (EU, OECD, WEF) all agree: the innovation environment in Finland has weakened significantly during the last five years
- STI policy is currently inconsistent and unpredictable
- Increasing share of business R&D is moving abroad
- Business/university collaboration decreased over 40% 2010-2017
- Public support for business R&D (0,08% of the GDB) among the lowest (28th) among the OECD countries
- Skill shortage is a growing problem for innovation in industry
- Public support for innovation has declined dramatically and the rules are not appropriate (discrimination of large companies, bureaucracy, funding restricted only to prioritised themes, severe cuts of the funding supporting PPPs)
- Strategic objectives of the Government's Research and Innovation Council impossible to achieve (R&D investments of the GDB 4% 2030, most attractive test environment in Europe, new billion € industry driven ecosystems, increased collaboration between industry and academia).

# R&D aimed at generating new business and improving existing business by sector



## Conclusions and recommendations

- Restore the coordinated and predictable R&D&I policy practise with appropriate organizational reforms at the government level (money, knowledge, collaboration and regulatory environment)
- Increase 300 million € 2020-2022 to R&D&I funding
- Reform VTT's role
- New incentives for universities and public research institutes to increase collaboration with industry
- Increase the flexibility of the education system to respond to skill shortage much more efficiently and provide opportunities for life-long learning
- Change the work permit principles to help foreign experts move in and be employed
- New funding principles and instruments:
  - Eliminate the existing restrictions of funding (company size, research area, etc.)
  - Longer time span for strategic national R&D&I programs (5-10 years)
- Increase Business Finland and the Academy of Finland collaboration with joint programs. Proper preparation of the strategic R&D&I programs with better coordination and collaboration. (Each program must have a steering board where both the research community and the user communities are represented)



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