

#### Scenario 4: Prometheus Unbound, Innovations for Innovation Sake...

...citizens innovation contests...

...high-tech products race...

...technological clusters exploding...

...generation clash...



...rapid fabrication malls...

...prosumer workshop...

...sustainability beyond economic imperative...

## 4.5 Scenario 4: Prometheus Unbound: Innovations for Innovation's Sake

### Summary: The Scenario in a Nutshell

Europe has set the course for innovation and competitiveness. All major actors – from commerce, politics, and society as such – collaborate to open and streamline innovation processes, overhaul rigid administrative systems and promote innovation at every level, financially and by providing good framework conditions. Europeans are highly motivated to contribute ideas. Since innovations are guided mostly by an economic rationale, environmental problems are not addressed in a comprehensive and effective way and a part of the population drops out of this fast-paced lifestyle.

### Morphological Box: The Premises

INFU - FUTURE OF INNOVATION LANDSCAPE								
Global Innovation Centers	Crossover Innovation	Impact of Resource Scarcity and	Sustainable and Systemic Thinking	Societies' innovation Capability	Peoples' Involvement	Mediators of Innovation	Innovation Facilitating Technologies	Welfare and Growth Paradigm
Emerging Countries Catch Up	Crossover Innovation At It Best	Strong Impact: Global Rethinking	Holistic Perspective on Sustainability	Life-Long Innovation	Unleashing the Creative Spirit	Society Driven Innovation	Rapid & Widespread Diffusion	Gradual Paradigm Change
Rapid Shift to Emerging Countries	Inefficient Crossover Innovation	Low Impact: Global Waste	No One Cares	Innovation Gap	Wanted: Entrepreneurs	State Moderated Innovation	Slow Diffusion	Traditional Paradigm Prevails
Status Quo	Backlash to Crossover Innovation	Different Impacts: Regional	Sustainability Mistaken	The Youth Pays the Bill	Wasted Potential	Business Driven Innovation	No Diffusion	
Stronger Position of Europe	Status Quo				Innovation Fatigue	Locally Originated Innovation		
						No mediator		

(Premises are highlighted in blue.)

### Key Aspects of the European Innovation Landscape in 2025

- Strong focus on economic growth and innovation. Overall, Europe retains its competitiveness compared to other regions.
- Optimal conditions for people to engage in innovation projects and processes – inside and outside companies.
- Open innovation: Users and communities are important sources of innovation. They are often integrated into both public and private R&D processes.
- Best available technologies: Innovation facilitating technologies are in widespread use. High degrees of information flows and open structures.

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- Economic success and the imperative to innovate come with some severe drawbacks.
- Increasing innovation gaps: education systems hardly focus on life-long learning and fostering old peoples' innovation-related knowledge. More and more people feel left behind and unable to keep up.
- Only moderate awareness of sustainable development: solely isolated and technology-based measures to improve environmental sustainability of business activities. No change towards sustainable consumption patterns.
- Only few new social innovations; most innovations are market-oriented.

### **Description**

"Innovation is the way." By 2025, this slogan is not only widely accepted, but also implemented in the European Union. Faced with a lack of natural resources, a tremendous demographic burden, increasing global competition, Europeans simply have to be creative. And that's what they are. The evidence is everywhere from Lapland to Malta, from the Algarve to the Black Sea.

All major cities boast "citizens' innovation labs", "open technopoles", "innovation incubators", or R3F "rapid future fabrication facilities". Even small villages proudly present their "fab shop" or "inno playground". Companies regularly invite customers to "co-innovation days" or "prosumer workshops". "Create It Yourself" has become an important social movement with over 15 million official members throughout the Union. Fabbing is one of the most important leisure time activities (second to only football) – with a European CIY Contest that attracts at least as many spectators as (and far more participants than) the traditional European Song Contest.

"Europe: The future happens here." Innovations may be created all over the world, and many former developing countries have placed themselves well on the OECD's Innovation and Competitiveness Map. However, in particular with regard to its demographic challenge, the now literally old continent has succeeded marvellously. Globalisation has brought a level playing ground, and competition is no longer a race between countries or continents with jubilant winners and sorry losers but between global companies and their regional footholds. And good global networking is one of the main European assets.

### **Human capital is the key**

At the beginning of the century's second decade, when the storms of the financial crisis had only just been weathered, companies all over Europe complained about a lack of well-trained young people. There were at least two reasons for that. At first, the younger age groups were much smaller than their parent "baby boomer" age groups. Already in 2011, much more old people left the labour market than young ones grew into it. The second problem was education and training. An important part of the younger generation lacked even fundamental "3 R" competencies, and others were well trained, but not in the professions needed, or they lived in regions without sufficient jobs. This mismatch produced per-

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sistent high unemployment rates among the young. Thus recruitment became increasingly problematic, and economists were already calculating the impact of vacancies esp. in high tech industries: loss of value creation, setback to competitiveness and –secondary job loss! Companies themselves started training programs, often in combination with public vocational training schemes. Years previously, education, research, and innovation had been humdrum topics in almost all political Sunday speeches. Yet now, driven by an economic rationale, governments in the EU realised key efforts to bring the Bologna process to fruition, to foster professional training, to refurbish the high school system, and to increase the mobility of researchers – in a nutshell: to make the “Single Market for Research and Innovation” a reality. After years of debates about working languages and legal subtleties, even the European patent finally saw the light of day.

It had become common wisdom that human capital combined with a new spirit of entrepreneurship and innovation are the key factors to cope with the huge challenges of ageing and global competition. One, perhaps oversimplified, argument was the following calculation: Due to the ageing of the European population, retirement and health costs are rising, while workforces, despite migration, are shrinking in almost all EU member states. Every year, each member of the European working population has – on average – to pay about 1.5% more for the retired population. Rather than cutting pensions or increasing the retirement age, the suggested solution was boost productivity to compensate for ageing. Estimates ranged from 1.5% to 5% annual increase of productivity...

### A spirit of innovation

In the second decade of the century, reforms and joint efforts of policymakers, the business community, and private citizens came to fruition. The most significant change was possibly a change of mentality, the optimistic attitude of “We can do it” which prevailed in the Union, a spirit of creativity and experimentation. Creative people no longer considered the risk of failing to be a barrier. Failing implies learning. Dust yourself off and try again. Not every fascinating idea makes a good product or service. But without fascinating ideas and without the courage to realise them you will never get to anywhere.

Naturally, Web 3.0 helped a lot. The web helped to make the new, positive perception of “trial and error” popular, brought people together, improved networking between users and producers, companies and citizens, but above all, it promoted a new kind of cooperation. In the beginning, *open source* was all the rage, with a focus on sharing software code, enabling specialists to contribute. In the 2010s, some pioneers inside and outside corporations already experimented with “*open innovation*” – users and communities became important sources of innovation. The “wisdom of the crowd” was more and more frequently integrated into public and private research and development processes. This could be done in the form of *innovation on request*: A user might register a task on one of the numerous innovation forums or platforms or, the other way round, an innovation manager in a company would start an open competition for the best idea to solve a technical problem. Remuneration schemes, of course, were and are highly disputed – and itself a field for innovation.



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Many municipalities and a number of companies run “*innovation shops*” or “*innovation labs*”, either in city centres, close to large shopping malls, or within technology parks. People, ordinary citizens from young children to the elderly, are invited to experiment with new products – or to invent new solutions themselves, things they miss in their everyday lives. In most cases, these shops or labs are equipped with standard innovation facilitating technologies: virtual design and construction toolkits, rapid fabricators (fabbers) for 3-D printing of objects, diverse measuring instruments, etc. Trained staff – “*innovation mid-wives*” – help young and old innovators, e.g. by moderating brainstorming sessions or rapid creativity workshops. As a rule, contracting models are used to finance municipal innovation facilities, since most cities continue to suffer from budget constraints.

Previously, many promising inventions never made it much further than the drawing board: They perished in the “*valley of death*” between research and market. This valley has lost its terror. Businesses are far less risk-averse and venture capital is in sufficient supply, often from funds which combine private equity and public monies. Many regions in all parts of Europe rightly claim to be “*innovation hot spots*” and compete – modelled on the Silicon Valley – for titles such as “*European Biotech Valley*” or “*Northern Robotics Valley*”.

The European Union contributes greatly to fostering the appropriate framework conditions for innovation through several programmes that build on the “*European Research and Innovation Partnerships*” from the 7<sup>th</sup> Framework Program with its Lead Market initiatives, the European Technology Platforms, Joint Technology Initiatives, and – last but not least – the Flagship Initiative “*Innovation Union*”. The EU does much to ensure the coherence and focus of national and European research and development programmes, esp. with demand-side measures such as public procurement, standardisation, and regulation. It has also brought forward the GIN – Global Innovation Networks – so that neither Europe nor its overseas partners significantly suffer from brain drain, but benefit from cross-continental cooperation and mutual learning.

#### Spotlight 2025

“If you feel that a community rules a whole industry– you’re not crazy, you’re just part of In-nounity”. Report from KölnerStadtAnzeiger, June 30, 2025

**Cologne.** The idea is not new. “Open Innovation” is a 20<sup>th</sup> century buzzword. But current developments in Cologne finally seem to make it reality. During annual “InnoUnity” conference, the largest such gathering of communities involved in idea generation, a new project was announced: the development of Intelligent Road Markings and Pavements.

It’s not the topic that makes this project revolutionary, it is how the project evolved. In recent history, it was mostly businesses that initiated innovation projects, launched innovation contests and rewarded the best ideas. But the initiator of this particular project is neither a company nor a public institution; it is an innovation community itself.

Roger Flock, speaker of the EU Node of InnoUnity, explains “We had never expected anything like this. At the beginning, we simply recognised the high market potential of intelligent road marking and pavement solutions. We saw this as a major opportunity and couldn’t see why market research departments hadn’t picked up this future business potential.” So InnoUnity began to ask companies to put out tenders for innovation communities. Today, Mr Flock says, more than hundreds of companies from different sectors have contacted InnoUnity, seeking for solutions to their specific needs and business units. He considers this to be the first time the entire community is

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collaborating on a single project. “All of a sudden, demand for creativity skills in our communities skyrocketed.”

Where does the business community’s interest come from? Professor Born, Managing Director of Goolyota Corp. and winner of prestigious awards for his company’s innovativeness, sums it up: “Today, the strength of a community, especially of InnoUnity should not be underestimated. Many companies lost their ability to come up with groundbreaking innovations years ago. Now the community sets the pace. If there is evidence of this kind of momentum, entrepreneurs know that they have to become part of it, that they have to participate and to collaborate – or they will be left behind. If there is a way to get things done in the future, this is the way.”

### The economic imperative

Europe has regained and retained its competitiveness, but this has come at a price. With everything subjected to a purely economic rationale, non-monetary aspects often are neglected. Sustainability may remain on the top of the political agenda, yet it has been downgraded to mere ideology, to which lip service is paid, but something that is disregarded in everyday life. Sure, the EU may continue to promote the transition to renewable energy and adhere to CO<sub>2</sub> trading schemes, but all measures taken remain half-hearted, short-sighted, and non-systemic. There are some innovative solutions, e.g. carbon capture and storage in bio-systems and minerals, but these are temporary efforts and isolated solutions – and some environmentalists argue that they ultimately extend our dependency on fossil fuels. In principle, European societies have implicitly decided to employ only technology fixes for all environmental and resource problems and to retain their lifestyle. – “We can do it” with innovations!

Another dark side is what is often referred to as “acceleration”. Many, in particular the elderly, find themselves outpaced by innovation. New communication devices, new kinds of food, new medical treatments, new means of transportation, new ways to pay for goods or services, in other words: there is too much newness. Most elderly feel disconnected; they increasingly lose their links to the past, to their roots, to their region. Old people just feel cut off. Most schemes to integrate them into innovation processes fail; life-long learning is more of a duty than an opportunity. Even among young people, many feel challenged by a life of constant change. Politicians discuss “flexicurity”, e. g. flexibility in the market for researchers with security for the individuals. In fact, however, the security side remains underdeveloped, and many suffer from burnout syndromes...

As a whole, Europe has gained a lot in 2025; thanks to its renewed spirit of creativity and innovation. Unaware of quoting Shelley, observers from other continents sometimes even invoke the metaphor of “Prometheus Unbound”.

#### Spotlight 2025

A trip to the “Rapid Fabrication Land” in Lyon, France. Report from Christian-Jaque Beauchamp, self-styled DIY-enthusiast from Charleroi, Wallonia.

I can’t tell you how long I had been waiting for this special moment. It was a dream come true. All my colleagues from the DIY-club in Charleroi had already visited this holy grail of every single DIY-enthusiast in the world. To me and my colleagues, this place is so important....it is like

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Mecca to the Muslims. Last Friday, finally, in the very early morning hours my family and I packed our van, entered the address in the navigation system and hit the road. Destination: Rapid Fabrication Land. Distance: 636 kilometres. Pulse: 180 bpm. Some 7 hours on the highway and a short stop at a mustard shop in Dijon later (my son would kill for mustard) we finally arrived at the pearly gates of the “Rapid Fabrication Land”. The park was originally built by GlobFab United, the world’s largest manufacturer of fabbing systems. It was not supposed to be a public service: they reserved to commercialise the “fab-ulous” stuff fabbed in the park area. Before entering the park we had a short stop at the “FabVille” to drop off our baggage and check our rooms. The “FabVille” is the park’s own hotel complex holiday homes solely created by the latest version of the world’s largest 3D printer, the “FabZilla 4.2”, one of the many attractions one can explore in the park. Having paid the entrance fee, we received a map of the park and headed to the first station of our visit, the CAD-Land. The pyramid-shaped buildings are located in a pleasant park area and surrounded by monumental statues of previous winners of the annual European CAD championships. Inside the buildings are some 100 terminals with the latest state-of-the-art computer systems and CAD-software applications. There is even a CAD-area for kids, which quite reminded me of the kids’ corner of Ronald McDonald ;). While my wife and I jointly designed new luggage racks for our pedelecs, our son Francois designed a mustard mill (I told you, he is crazy for mustard). The great thing about the park is how the areas are interconnected. Our designs were automatically sent to the Fab-O-Universe, the park’s fabbing area. Here, you can find the world’s largest collection fabbers. Our designs of the luggage racks and the mustard mill were printed by the FabFox 3.3, one of the most powerful small-scale fabbers ever built. After we picked up our new printed acquisitions we went to the restaurant to close this wonderful day with a dinner....Well, at this point I had actually planned to tell you about our great experience at the Virtual Simulation Paradise and our visit at the “Fast-Fab – Fast Waste-Centre”, a kind of museum where you can find an exhibition of all the useless stuff that had been designed and thrown away by their makers, but unfortunately we had to leave early on Saturday morning. My son was sick, and guess why...he had really eaten the entire can of mustard we had bought in Dijon...

## Basic Impacts

### Positive Impacts

- Increasing business opportunities and sales potential for European companies with high innovation rates.
- Public budgets recover as tax revenues increase.
- Innovative people, in particular of younger generations, find excellent conditions for sharing and develop ideas.

### Negative Impacts

- Older Europeans feel increasingly “cut off” as life-long learning concepts bring little help.
- Increasing risks for small and medium-sized companies with insufficient capacities for generating high numbers of innovative products and services.
- Negative environmental impacts as the wasting of resources continues and awareness of CO<sub>2</sub> emissions remains insufficient. No change in lifestyles and lack of shift towards sustainable consumption patterns.

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## **Main Milestones: A Short Roadmap**

- 2010** European population shrinks, high public debt; increasing awareness of the demographic challenge.  
European Union and member states effectively pursue an agenda of innovation and competitiveness.
- 2015** Dramatic lack of young and skilled workforce. Increasing number of joint vocational training programs.  
Companies recognize the importance of users and communities as sources of innovation and develop models for user integration and remuneration.  
Open innovation as dominant mode of innovation, mostly conducted in large EU-networks.
- 2020** Notwithstanding strong innovation activities in all fields, increasing environmental problems (esp. climate change) and challenges of resource scarcity.  
Some open and user-driven innovation processes are even detrimental to sustainability.
- 2025** Europe among the leading world regions in innovation.  
First protests against the exploitation of peoples' ideas for purely economic reasons rather than for the benefit of society.

## **Related Innovation Visions**

The following (consolidated) visions, which have been developed and discussed in the previous INFU work packages, are particularly relevant and become mainstream within this scenario:

### **Open Source / Innocamp Society**

Innovation Camps are becoming increasingly popular. Here, people come together for a limited time to solve specific innovation tasks. Often, the concept is linked to the open source society where a number of products and services are developed in close interaction among users.

Innovation camps are used by companies, the public sector, and the civil society to solve problems which range from coping with high-tech challenges to providing neighbourhood facilities. Most people join innovation camps regularly.

### **Laboratory Stores**

What if stores were to become laboratories where companies and customers co-develop innovations? Laboratory Department Stores would offer theme worlds such as "Family Life" or "New Sports" and offer customers an opportunity to experience unreleased products, individualise existing goods, and get access to products which better fit their needs and desires.



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### **Innovation on Request**

What if companies generated most innovations on special request from user communities? Together with sociologists, designers, and developers, communities of users develop innovation scenarios and sell them to companies.

### **Scenaretto: Closed and Gated Innovation**

Open innovation is fine, but closed is better. During the 2020s, many companies experienced this platitude the hard way. Most Eurostoxx companies experimented, for a while, with opening their innovation silos, with integrating citizens – and their ideas! – into corporate invention, research, and development processes and made much (marketing) ado about “user designed products”. Ultimately, however, the detrimental effects of throwing away intellectual property became too much. Asian competitors quickly learned how to leech off open innovation processes and often were first on the global market with products developed in Europe. European IP initiatives were no real help, prosecution of infringements was slow and inefficient. As a consequence, companies shut their doors again. Of course, users – ordinary citizens and consumers – are still invited into the labs, but no longer have access to data and other processes. Even worse: The public labs and creativity parks established during the “innovative tens”, applied the same “data protection” rules as private companies. Innovation may not have stopped; perhaps it is even more valued as before. But if any real or would-be innovator can claim to be a “bearer of secrets”, innovation has lost much of its social charm and is now distinctly commercial in character.