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Workshop on good practices on increased accessibility of research/innovation infrastructure to industry for testing, demonstration and co-creation

Test beds as drivers for EU growth and innovation

*30 November – 1 December 2017
Gothenburg, Sweden*

Thomas MALMER, *Malmer Insight AB*

Sergio GRANDE, *Joint Research Centre*

Charlotte ANDERSDOTTER, *RISE & Teknikföretagen*

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Foreword

Test beds are critical for rapidly transforming new research and innovations into solutions that can benefit society and increase competitiveness.

RISE Research Institutes of Sweden and the Association of Swedish Engineering Industries (Teknikföretagen) are convinced of this potential based on the positive experience achieved so far by the Programme Testbed Sweden.

Together with the Joint Research Centre (JRC) of the European Commission, RISE and Teknikföretagen jointly organised the workshop: 'Good practices on increased accessibility of research/innovation infrastructure to industry for testing, demonstration and co-creation', held from 30 November to 1 December 2017 in Gothenburg, Sweden. The workshop included participants from the TTO CIRCLE network of the technology-transfer offices of large research organisations, industry, research and technology organisations (RTO), public authorities and academic representatives from across Europe.

Among other things, the workshop looked at how to develop an EU strategy for test and demonstration infrastructures to attract investment in R&D and innovation to the Member States and discussed practical challenges and opportunities for a possible upscale of Testbed Sweden to the EU level.

We would like to thank everyone who participated and contributed with their discussions to the workshop and, of course, the organisers for making this event happen.

We are confident that a strategy to promote testing, demonstration and co-creation of research and innovation in Europe will be part of the upcoming 9th Framework Programme for Research and Innovation (FP9), helping turn our vision of a Test Bed Europe into reality.

We invite you to find out more about this successful workshop and its results in the following report. Further information and the recorded streaming of the whole workshop are available on the [website of the event](#).

Pia Sandvik, *CEO RISE Research Institutes of Sweden*



Pia Sandvik

VD

Klas Wåhlberg, *CEO Teknikföretagen*



Vladimir Sucha, *Director General, Joint Research Centre*



Test beds as drivers for EU growth and innovation

From 30 November to 1 December 2017, a workshop discussing the role of test and demonstration facilities to drive innovation and growth was held in Gothenburg, Sweden. The event was co-organised by RISE Research Institutes of Sweden and the Association of Swedish Engineering Industries (Teknikföretagen) in collaboration with Joint Research Centre of the European Commission (JRC) under the JRC/TTO Circle network.

The theme of the workshop was: “Good practices on increased accessibility of research/innovation infrastructure to industry for testing, demonstration and co-creation”. Panel debates and presentations took place, during which representatives from business, RTOs, academic institutions, the Swedish Government and the European Commission expressed their views. This brief report summarises the workshop’s main findings and sets out the way forward.

The objectives of the workshop were to:

- Discuss how to develop a strategy for test and demonstration infrastructures at EU level, and how to integrate different kinds of infrastructures into attractive and leading global innovation environments.
- Review different approaches for business models, quality controls, IPR conditions, funding opportunities, etc., with a view to their potential harmonisation.
- Explore synergies with the ESFRI network.
- Look into In-Real-Life (IRL) test and demonstration sites, such as cities.
- Explore ways of open innovation partnerships, for example, collaboration between SMEs and larger corporations.
- Identify potential pilot activities within the framework of the Support to the TTO Circle network.
- Provide guidelines to the JRC on how to make their infrastructures more accessible for external use.

The conclusions of the meeting will feed into the broader political debate on how to maximise the use of test and demonstration facilities in Europe in the run up to the next EU Framework Programme for Research and Innovation.

In response to strategies on both regional and national levels, RISE and Teknikföretagen would like to see a comprehensive European strategy towards a “Test bed Europe” in the framework of EU, national and regional programmes. Such a strategy would encourage collaboration between business, the research environment and the public sector. It would also increase innovation and competitiveness and help the EU meet global challenges.

The slides presentations and recorded streaming of the workshop can be found at:

<https://ec.europa.eu/jrc/communities/community/european-tto-circle/event/workshop-best-practices-opening-rtos-researchinnovation>

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Executive summary

Test beds¹ and research infrastructures are platforms that generate and share knowledge to address megatrends and support research and innovation (R&I) efforts to increase the European Union's (EU) competitiveness. A well-developed ecosystem for transforming knowledge into products and services is vital for any knowledge economy.

State of the art Research Infrastructures provide key services to the various scientific communities allowing them to extend the frontiers of knowledge and thus strengthening Europe's internationally leading scientific role. Examples of research infrastructures are CERN or the European Spallation Source (ESS).

For industry, it is equally important to have access to high quality and advanced test and demonstration (T&D) facilities, or test beds, as it is for the scientific community to have access to adequate research infrastructures. Test beds are essential to be able to improve products, services and processes and to develop new concepts to meet e.g., changing customer needs. Testbeds, or test environments, also allow companies to verify ideas and concepts under real conditions and by doing so, lower the risk before market introduction and to get ideas and concepts faster to the market. Examples of test beds are AstaZero or Biorukki Pilot Center Infrastructure.

R&I is crucial for Europe's industries to remain competitive, deliver sustainable growth and jobs, and face increased competition from the likes of Asia. Europe needs to open up its innovation infrastructures², intensify collaboration and exploit its collective knowledge. Test beds can support knowledge sharing and co-creation, in order to take advantage of the Single Market and streamline technology deployment. They are driven by industry demands and societal needs in diverse fields such as healthcare, communication and transport. The EU can play an important role by promoting a collaborative approach in order to develop critical mass and a one-stop-shop to facilitate test bed access.

Establishing a European strategy on how to maximise/further improve the use of test and demonstration facilities and to enhance co-creation can be achieved by using existing instruments and programmes. Within the regional funds, Horizon 2020 and other actions at national and local level, Europe already has a solid foundation for taking test beds to a higher level. To this end, we can learn from what is already happening at EU and national levels on research infrastructures and test and demonstration facilities. Actions that could be taken by the European Commission and Member States to strengthen European competitiveness with test beds as an instrument include:

¹ A test bed may be a physical or virtual facility, a constructed environment or real environment to test new technology, new products, methods or solutions.

² Innovation infrastructure can be seen as the sum of research infrastructures, test beds, and demonstration facilities.

- Facilitating dialogue and developing an EU strategy for test beds
- Embracing existing instruments such as regional funds, Horizon 2020, COSME etc.
- Taking advantage of public procurement for innovative solutions
- Using the public sector as test beds in real life environments (IRL), to which the public at large can contribute.
- Public authorities can also use test beds to improve policies, directives and legislation through so-called “Policy Labs”

Industry is often seen as a user of test beds, meaning its needs must be seen as a starting point. Industry can also open up its own test beds for collaboration with start-ups and SMEs, to, for example, develop innovative ideas.

To devise a Test Bed Europe Strategy, it is important to:

- Clearly define the added value of test beds at EU level over national or regional innovation ecosystems. For example, should focus on test beds that support EU policy goals.
- Create a common terminology (today we can see different terms used to describe more or less similar things, e.g. test beds, innovation infrastructures, hubs etc.).
- Harmonise access conditions. For example, publicly funded test beds should be open, but not necessarily free of charge.
- Make a comprehensive inventory of existing test beds.
- Promote test beds towards European industry.
- Coordinate and strengthen selected test beds together with relevant actors at regional, national and EU-levels so as to build critical mass.
- Align EU-financial instruments to support test beds.
- Identify long term funding sources to stimulate new test bed collaborations and projects, earmarking budget for the good management of facilities.
- Develop and adapt service offerings that meet companies’ needs.

Background

Today's rapid technological developments will no doubt bring many opportunities to Europe's industry, create new jobs and provide solutions to societal needs. However, it is important that technological and scientific developments can quickly be turned into solutions that will strengthen the competitiveness of our companies, and promote societal development.

Access to test beds is often a crucial part of the innovation process in that it rapidly brings high value solutions to the market. Test beds, or rather test environments, not only speed up the process; they also reduce risk and contribute to the acceptance of new products or concepts.

This is particularly important for SMEs and start-ups that often lack resources to test their ideas, concepts and innovations. As shown in a recent study³ from the European Association of Research and Technology Organisations (EARTO), Europe's landscape of start-ups is deeply rooted in technological development, rather than software applications, as is the case in the US. The typical European deep-tech start-ups have a greater life expectancy and a low rate of failure, but need more support to reach the market, even if they are usually compensated at a later stage.

Europe's Research and Technology Organisations (RTOs) provide a backbone for test beds. In fact, they often operate test beds on behalf of other actors, such as regional or public organisations. RTOs provide not only the physical facility and test environment, but also the technical and scientific expertise. They also often act as hubs in networks together with universities and companies within the research and innovation ecosystem and innovation support. Such test beds, or innovation infrastructures, provide clients with independent, confidential services and experience. They tend to work with a broad range of stakeholders, from academic institutions to small companies.

However, companies' knowledge of test beds is generally quite limited. In addition, services provided to facilitate the use of test beds are in many cases not well developed and this is particularly true when it comes to SMEs. During a recent national programme in Sweden, RISE developed methods to increase access to the around hundred test and demonstration facilities it operates. One focus of the programme was to facilitate access for SMEs. As a result of its success, similar initiatives are now being considered in other Nordic countries.

Similarly, the Joint Research Centre of the European Commission (JRC) has started a programme to open up its research infrastructures to external partners and users from industry, academia and RTOs. The JRC has world-class research infrastructures, but they have until recently mainly been used by its own staff, or in projects where the JRC is a partner. The decision to increase access to its facilities is an important step towards meeting global challenges and improving the competitiveness of companies.⁴

³ How to Exploit the Untapped Potential of RTOs' Deep-Tech Start-Ups in Europe, www.earto.eu

⁴ <https://ec.europa.eu/jrc/en/research-facility/open-access>

Defining test beds and Innovation Infrastructures

The definition of a test bed was discussed in detail during the workshop. There are some characteristics that a test bed should have: it should be a real environment to test new technologies, products, methods or solutions. However, a test bed can also be virtual, offering the chance to test disruptive ideas and techniques. In Sweden, three types of test beds have been defined in the country's national strategy: "Test bed Sweden"⁵:

- "The laboratory": where individual characteristics/features of the technology can be tested in a controlled environment.
- "Constructed/simulated user environment": for system-level test/demonstration of entire products, services, or processes.
- "Real user environment" (IRL): where the technology or service is tested in the environment or by the end user.

Test beds that simulate a "constructed/simulated user environment" can take the form of a pre-commercial pilot facility and serve as a platform for evaluating R&D results to be industrialised at a later stage. This should, in an ideal world, allow the demonstrator to seamlessly develop the product or service so that it is ready for the market. Everything should therefore be as close to industrialisation as possible, including actors, business models, agreements, technologies and end users. The results will be a proof of concept for the product or service.

Test beds in a "real user environment" imply testing real production in an industry setting but also in a built environment. Examples include testing self-driving cars in cities or demonstrating new healthcare solutions in hospitals or homes. This process involves forging agreements with, and the involvement of, public agencies, municipalities and individuals.

Test beds can often be used throughout the entire cycle of the research and development process. For lower Technology Readiness Levels (TRLs),

development can be performed at research facilities, such as research infrastructures. For medium-level TRLs, test beds can be used, and for closer to market (higher TRLs), demonstration projects would be more suitable.

A test bed is a collaboration arena that links research and innovation with end-users' needs. This often makes them useful as innovation infrastructures. Test beds are important for spreading new knowledge to industry and society, and for enhancing business and societal development. But test beds are also important for providing feedback on the knowledge requirements from industry to RTOs and universities. If the test beds are connected to a university, they can be a place for students to interact with industry in order to increase

⁵ <http://www.government.se/information-material/2016/04/smart-industry---a-strategy-for-new-industrialisation-for-sweden/>

understanding of how their knowledge can be best used. A test bed can be an arena for training, educating and collaborating to create new knowledge. Test beds are not just about technology; they are also about addressing societal challenges.

Examples of test beds in Europe

There is currently no comprehensive overview of existing test beds in Europe. They are often operated by RTOs but can also be managed by other actors, like universities and other public organisations. Multinational Enterprises, (MNEs) have also recently started developing test beds to attract start-ups. At the seminar, test bed operators were represented by RTOs (TNO, Fraunhofer, VTT), universities (University of Latvia) and CERIC, a consortium of research infrastructures.

Test beds can have different purposes and varying degrees of accessibility.

The sharing of costs is a strong driver for increased cooperation on test beds and research infrastructures. Larger research infrastructures, such as CERIC, CERN and ESS are run and jointly financed by many countries. CERIC⁶ is a distributed research infrastructure with ten countries as funding partners. It offers open access to researchers if they publish papers. CERIC will soon open itself up to industry by offering R&D (contract research, joint application projects, access to instrumentation), spin-off and start-up support.

Larger companies often invest in their own infrastructures, which are off-bounds to other actors. However, there are several recent examples of larger companies opening up parts of their laboratories or other facilities to SMEs. This is a way for these companies to gain new knowledge in open innovation environments and to involve innovative SMEs. Examples include ABB's SynerLeap who attended the workshop,⁷ and AstraZeneca's Bioventurehub⁸. In addition, Ericsson is using open test beds to implement 5G.

In the case of Research Infrastructures, the Commission is supporting policy-making through its European Strategy Forum on Research Infrastructures (ESFRI). This Forum includes a roadmap to identify and establish vital European research infrastructures over the next 10 to 20 years. Research infrastructures are key for bringing researchers, funding agencies and industry together. In fact, it became clear during the workshop that a good strategy for Test Bed Europe would be to draw from ESFRI's experience in order to develop a roadmap.

⁶ Central European Research Infrastructure, <http://www.ceric-eric.eu>

⁷ <https://synerleap.com>

⁸ <https://www.azbioventurehub.com>

Test beds for collaborating

For stakeholders to become involved in test beds, it is important that they feel that their interests are being met, and that they can see value in the time and resources that they make. For SMEs, cost is an important issue but equally important are the framework conditions offered by different test beds, in particular when it comes to confidence and handling of sensitive information. Intellectual property (IP) as well as data handling are therefore crucial elements in such framework conditions.

The public sector needs to respond to important societal challenges, including healthcare and infrastructure. In the early stages of development, the test bed can be used to explore areas of innovation procurement and joint test environments to create conditions for new products and services. Setting up legal frameworks and regulations can be done proactively to stimulate innovations and create test markets. Participating at an early stage can also allow co-development of the required regulatory framework regarding safety, security and environmental constraints. Proper management of integrity and personal data protection issues are important to build confidence.

Businesses should have the option of testing new knowledge and technologies to develop products and services. An example presented at the workshop was AstaZero, in which the Swedish automotive industry collaborates and partly finances a large test bed. There are also other drivers for test bed operations. Scania, one of the companies participating in the panel discussion, saw test beds as a way to create collaborations with suppliers when testing new products, processes and concepts/services to get proof of concept. In their view, SMEs are in particular need of test beds. Ericsson, also present at the workshop, has created a broad collaboration around their concept. This allows them to test 5G technology applications in real life and in different areas like manufacturing, transport and agriculture.

By collaborating with others on test beds, SMEs can share costs while creating an open innovation platform for knowledge transfer and collaboration. The very presence of SMEs at open test beds provides a meeting place, where large companies can identify new products and services and form coalitions with them.

At the workshop, DP Pattering, an SME active in printed electronics, argued that it is important for SMEs to have access to the environments, services and networks that are built around test beds. Without this access, SMEs would face difficulties to test and verify new solutions and at the same time get support from researchers and experts in the field. For them, cost is an issue that sometimes discourages them from using test beds. Support mechanisms are therefore crucial to facilitate SMEs initial entry into innovative test bed environments.

Institutes (RTOs) can play a key role in running test bed facilities and are an important element in any test bed infrastructure. They can also act as competence centres and innovation hubs. Institutes often have a lot of technology and expertise that can be used

for validation or testing. They can also provide a wide range of services and support, from idea generation, support for new business logic, business models and technology to project development and management.

Partnering with various test beds could be a good way for RTOs to build a stronger innovation environment that supports industry. By working together, both sides can create new collaboration areas for potential clients. But such collaboration does not come by itself. A European strategy supporting a closer collaboration between test beds is essential. In a panel discussion featuring VTT, Fraunhofer, CEA and TNO, it was agreed that building mutual trust is crucial for devising such a strategy.

Universities are essential as knowledge providers. To this end, it is vital to involve students to gain a better understanding of what kinds of employees and talent we want in the future. Therefore, test beds have an important role to play in the future of the provision of new skills. In addition, there are other roles for universities. For example, the Institute of Solid State Physics (ISSP UL), a test bed structure at the University of Latvia, is developing innovation capacity in collaboration with RISE and the Royal Institute of Technology, KTH, Stockholm with support from Horizon 2020.

JRC/TTO Circle on test beds in Oxford

In June 2017, a JRC initiative known as the Technology Transfer Office Circle, or TTO Circle, held a meeting on test beds in Oxford. A take away from this event was that more dialogue and analysis are needed to meet various challenges, such as legal and IPR requirements, attitudes towards change in business logics and models and the scientific and technological expertise required to drive the work with innovation infrastructure. Examples of more specific challenges include:

- Industry awareness and training – customer understanding
- Intersectional mobility and confidence building
- Appropriate experimental environments
- Increased SME involvement
- Overcoming the “not invented here” predicament of potential customers
- Minimising bureaucracy and cutting red tape
- Difficulties in spotting trends and understanding the potential of emerging technologies

At EU-level, an increased effort to support innovation infrastructures, or test beds, would bring added value by:

- Taking into account the need for critical mass
- Research infrastructures positioning themselves as parts of a supply chain

- Developing common standards and policies at EU level

A concrete suggestion from the meeting in Oxford was to design and run a pilot action for increased SME/start-up access, which would include the sharing of best practices across the EU.

Test Bed Sweden

Test Bed Sweden (Testbädd Sverige)⁹ is an initiative from the Swedish Government to enhance the country's image as a competitive environment for research and development. At the workshop, the initiative was presented by a representative from the Swedish Ministry of Enterprise and Innovation. The focus of Test Bed Sweden is to encourage direct investment towards areas of new industrialisation, open up public actors for real life testing and support public procurement as a tool for development and innovation. The main focal points of Test Bed Sweden are:

Turning investments in research and innovation into competitiveness and growth

- Supports projects that make use of test and demonstration facilities to implement research results
- Opens up test bed environments for education to promote innovation
- Facilitates the possibility of testing new developments and encourages an atmosphere of experimentation

Bundling test beds to make them internationally competitive and attractive

- Promotes a coordinated effort to develop test beds
- Establishes a portal for test beds fulfilling certain requirements to make them attractive
- Supports participation in international innovation activities

Encouraging collaboration for societal benefit

- Facilitates collaboration between public actors and industry in different policy areas in open innovation, linking industrial development to societal challenges
- Supports the use of public procurement

Promoting investment with industrial and innovation focus

- Facilitates collaboration between small innovative companies and MNEs
- Promotes examples of best practice to give visibility to test beds as an important element of industrial policy

⁹ <http://www.government.se/information-material/2016/04/smart-industry---a-strategy-for-new-industrialisation-for-sweden/>

Building a European Innovation infrastructure or an eco-system

The Commission has high ambitions for a competitive Europe. At the workshop, a panel including DG RTD, GROWTH, JRC and CNECT presented a number of incentives focused on increasing the competitiveness of companies in EU. An Industrial Strategy¹⁰ is in place and innovation is considered key for the future. In order to be innovative, R&D investments are of great importance. At the same time, it is important to turn knowledge (R&D, education) into growth and competitiveness, which requires good conditions for companies to grow in the EU. Test beds can play an important role here.

Increased collaboration between different actors is vital for success. This includes collaboration between industry, users, SMEs, RTOs, universities and the public sector. EU actions should therefore embrace and support collaborative ones.

Test beds and innovation infrastructures can be platforms for sharing knowledge to meet megatrends and for making the EU one of the most competitive economies globally. The different panels clearly underlined that a well-developed eco-system for bringing knowledge to products and services to develop high quality solutions at different markets is vital in a knowledge economy.

At the workshop, it was emphasised that a European ecosystem, in which test beds form an important part, cannot start from the European level. Any action at European level must build on national initiatives and should support the potential for transnational collaboration. ESFRI has long-standing experience in facilitating collaboration on research infrastructures, and it could serve as a model to support closer collaboration between test beds.

¹⁰ https://ec.europa.eu/growth/industry/policy_sv

A Test Bed Europe strategy

There is a definite need to formulate a Test bed Europe strategy. Based on input from the participants, such a strategy would include:

Efficient R&D for competitiveness and growth

To empower European industries to continue to deliver sustainable growth and jobs, competitiveness is crucial for the EU. Regions like China and India are challenging Europe and increasing their R&D investment, meaning European investment in R&D must also remain high. However, investments in R&D must also be turned into competitiveness and growth as efficiently as possible.

Test beds can be important for collaboration and enhanced innovation. We need to open up research infrastructures and to increase collaboration so that knowledge will contribute to innovation.

There is a need for more awareness on what test beds can offer. Awareness on European test beds must also rise in order to increase investment in Europe. Therefore, it is important to identify existing test beds so they can be part of the innovation process.

Test beds are excellent meeting places for large and small companies as well as for private and public actors, which help propel the innovation process. But for test beds to become attractive, they must become more accessible and offer a service that meets companies' needs. Support mechanisms, including services as well as financial instruments, in particular for SMEs, are of utmost importance.

Actions required

- Coherent European support for access to test beds, in particular for SMEs
- A comprehensive mapping of European test beds

Bundling test beds to make them internationally attractive

Test beds should be embraced to make Europe more attractive for R&D investment. To meet global competition, test beds must be of high quality and in the forefront of technological and scientific development. A process for prioritisation must be developed. For European test beds to be world class, they should focus on areas where Europe is taking the lead and has strong potential. For example, the process developed by ESFRI could be used to great effect.

Linking test beds to support a complete supply chain is another way of improving their attractiveness. For example, in the Vanguard initiative¹¹ in 3D printing, a partnership of four regions has created a chain of test beds that supplies the automotive, machinery and aerospace industries.

Actions required

- A prioritisation process and strategy similar to ESFRI is needed for test beds
- Structures and instruments for cross border collaboration, which build on ESFRI's experiences, should be developed

Trust between public sector and industry

The public sector can in many cases serve as a test bed. For the introduction of new technologies and services, public acceptance is a prerequisite. Equally, the adoption of rules and regulations may be necessary to accommodate new innovations. Examples include access to open data, use of self-driving cars in urban environments, and the introduction of new systems and products in health care. Test beds can provide a forum for dialogue, understanding and the identification of interest from municipalities, agencies or other public entities. Companies can also open up their own infrastructures for collaboration, so-called 'open innovation' by, for example, allowing SMEs to use parts of their infrastructure or facilities.

In this context, public procurement procedures related to innovation should be given attention. Today, public innovation procurement is under intensive discussion in many Member States, but its implementation is slow. Test and demonstration facilities could be used to run projects and initiatives that develop innovative solutions for the public sector.

Good collaboration must be built on trust. This means that handling project data and IPR must be done in an acceptable and trustworthy manner. An important success factor for collaboration around test beds is to know how IP should be handled. At the workshop, a session on the handling of knowledge, including IP, offered important input on this process.

Actions required

- Encourage the public sector to open up as test beds
- Develop framework conditions to build trust, e.g., IP and data handling

¹¹ <http://www.s3vanguardinitiative.eu/>

Improve investment with an industrial and innovation focus

Investment in and the operation of test beds involve high costs. Access to public finance for test beds is becoming scarce, while investment from at RTOs is today more strained than before.

To meet these challenges, business models to finance test beds must be developed. Recently, new business models were introduced to counter the funding dilemma. AstaZero¹², also present at the workshop, is an example of such a model.

Within the different funding programmes at European level, there is already a wide array of actors working to solve societal challenges and improve competitiveness. Regional funds and grants from Horizon 2020 are the most common EU instruments, but there are also instruments from the EIB Group. Making use of all of these instruments to fund test beds could well be an important step in promoting investment in industrial competitiveness and innovation.

Actions required

- Development of new business models to finance test beds
- Facilitate access to EU instruments to support the development of test beds

Suggestions for next steps

It is important that there are long-term perspectives and continuity in “Test Bed Europe” and in the connected facilities. At the same time, there is a need for both flexibility and adjustment based on industrial needs. Therefore, strategy, governance and planning are required to establish priorities based on needs.

The work needs to be undertaken in close cooperation with industry, RTOs and relevant higher education institutions. Organisations such as EARTO, ESFRI, JRC and the business community are essential partners to develop and implement the strategy. Potential obstacles for EU test beds can be coordination, meaning there is a need for an agile policy and legislation structure.

¹² <http://www.astazero.com/>

Conclusions

- Increase awareness of test beds and their role in the innovation process by promoting good examples of where they have been of importance
- Define test bed best practice for SMEs, including support for IPR, access to finance, quality assurance etc.
- Coherent European support for access to test beds, in particular for SMEs
- A mapping of European test beds
- A prioritisation process and strategy similar to ESFRI is needed for test beds
- Structures and instruments for cross border collaboration, building on ESFRI's experiences
- Encourage the public sector to open themselves as test beds
- Develop framework conditions to build trust (IP and data handling)
- Develop new business models to finance test beds
- Facilitate access to EU instruments to support the development of test beds

Annex I - Agenda

Thursday 30 November Good practices on increased accessibility of research/innovation infrastructure to industry for testing, demonstration and co-creation

Co-chairs: Giancarlo Caratti, Head of Unit IP and Technology Transfer, Joint Research Centre, European Commission
Olof Sandberg, Strategic Public Affairs, RISE AB

12:00 - 13:00

Registration & buffet lunch

13:00 - 13:20

Welcome addresses

Ann-Sofie Hermansson

Mayor, Gothenburg Municipality

Klas Wåhlberg

CEO Teknikföretagen

Giancarlo Caratti

Head of Unit IP and Technology Transfer, Directorate-General Joint Research Centre, European Commission

13:20 - 14:30

Keynote speeches

Synerleap, an innovation accelerator

Helena Malmqvist

Head of External Research Collaboration, ABB Sweden

The Role of RTOs in Innovation Hubs

Sophie Viscido

Policy Officer, EARTO

The ESFRI Research Infrastructures in the innovation chain: diversity of their industrial interactions

Jean Moulin

BELPSO Honorary General Advisor

14:30 - 15:45

How RTOs support innovation through test and demonstration facilities

Moderator: Olof Sandberg, Strategic Public Affairs, RISE

Angela Zennaro

Industrial Liaison & Technology Transfer Officer, CERIC-ERIC

Maurits Butter

Senior researcher and R&I Advisor, TNO

Sébastien Sylvestre

Technology Transfer Officer, CEA

Thomas Bergs

Managing Director, Fraunhofer IPT

Leena Sarvaranta

Vice President EU Affairs, VTT

Martins Rutkis

Director, ISSP UL, University of Latvia

15:45 – 16:00

Coffee Break

16:00 – 17:15

Test and demonstration environments, key to sustainable growth and jobs

Moderator: Magnus Olsson, Head of Test and Demonstration Office, RISE

Round table:

Lars-Henrik Jörnving

Vice President, Global Industrial Development, Scania

Hans Bergström

Director Technology, Ericsson

Staffan Nordlinder

CEO, DP Pattering

Jan-Eric Sundgren

Senior Advisor

17.15 – 18.00

Why testbeds are important for attraction

Johanna Carnö

Deputy Director, Ministry of enterprise and innovation, Sweden

18.00 – 18.30

Before In-Real-Life – presentation of AstaZero

Monica Ringvik

CTO, AstaZero

20.00 – 22.00

Reception and dinner

Friday 1 December

Good practices on increased accessibility of research/innovation infrastructure to industry for testing, demonstration and co-creation

Co-chairs: Giancarlo Caratti, Head of Unit IP and Technology Transfer, Joint Research Centre, European Commission
Olof Sandberg, Strategic Public Affairs, RISE AB

08.30 – 09.00

Registration & welcome coffee

09.00 – 10.30

From research infrastructures to in-real-life testing. A workshop on elements of a strategy.

Introductory speeches:

Knowledge management in inter-organisational collaborative environments (the case of research infrastructures and testbeds)

Ulf Petrusson

Director of the Centre for Intellectual Property and Professor of Law, University of Gothenburg
What should test-beds offer to attract industry, particularly SMEs?

Leena Sarvaranta

Vice President EU Affairs, VTT

Open discussion

10.30 – 11.00

Coffee Break

11.00 – 12.15

Prospects for EU policy support

Moderator: Björn Stigson, Chairman of JRC Industrial Panel

Round table:

Laure Baillargeon

Policy Officer, DG Internal Market, Industry, Entrepreneurship and SMEs, European Commission

Fabio Taucer

Policy Officer, Directorate-General Joint Research Centre, European Commission

Laura Esposito

Policy Officer, Research Infrastructure, Directorate-General Research and Innovation, European Commission

Soren Bowadt

Deputy Head of Unit, Advanced Materials and Nanotechnologies, Directorate-General Research and Innovation, European Commission

Tapio Virkkunen

Policy Officer, DG Communications Networks, Content and Technology, European Commission

12.15 – 12.45

Closing Addresses and next steps

Pia Sandvik

CEO RISE

Vladimir Šucha

Director-General, Directorate-General Joint Research Centre, European Commission

12.45 – 14.00 Closing lunch

Annex II – List of participants

First Name	Last Name	Organisation
Stefan	ADOLFSSON	Joint Research Centre
Marie-Louise	AINALEM	European Spallation Source ERIC
Andris	ANSPOKS	Institute of Solid State Physics- University of Latvia
Laure	BAILLARGEON	DG GROW
Murat	Baybali	TUBITAK
Peter	BERGGREN	Göteborgs Stadshus AB
Thomas	BERGS	Fraunhofer IPT
Hans	BERGSTROM	Ericsson
Daniel Daugaard	BOBERG	GTS - ADVANCED TECHNOLOGY GROUP
David	BOHMERT	CESAER
Soren	BOWADT	DG RTD
Maurits	BUTTER	TNO
Giancarlo	Caratti	Joint Research Centre
Elis	CARLSTRÖM	Swerea AB
Johanna	Carnö	Ministry of Enterprise and Innovation
Orges	CICO	Joint Research Centre
Bernard	Denis	CERN
Matthias	DESCHRYVERE	VTT Technical Research Centre Finland
Laura	Esposito	DG RTD
Farah	FAHIM	Accademia Europea Bolzano
Louise	Felldin	RISE
Sonia	Florez	Tecnalia
Lars	FREMEREY	GTS - Advanced Technology Group
Maidier	Garcia de Curtazar	Tecnalia
Emil	GÖRNERUP	Svenskt Näringsliv
Sergio	GRANDE	Joint Research Centre
Annette	GRANELI	RISE
Åsalie	HARTMANIS	SwedNanoTech
Andreas	Hedlund	Handelsradet
Ann-Sofie	Hermansson	Gothenburg Municipality
Tanja	Huoponen	
Panagiotis	IGNATIADIS	Praxi Network
Lucia	INIGO-PAARMANN	CDTI
Peter	JOHANSSON	Industry organisation
Niklas	Johansson	Ministry for Enterprise and Innovation
Lars-Henrik	Jörnving	Scania
Rune	KARLSSON	NordMiljö AB
Desimir	KNEZEVIC	University of Pristina- Faculty of Agriculture- Kosovska Mitrovica-Lesak
Martin	KOHTZE	Organisation for Economic Co-operation and Development (OECD)
Eiwe	LJUNGBLOM	Tillvaxt i Mansklihetens Tjanst

Eiwe	Ljungblom	Tillväxt I Männsklighetens Tjänst
Thomas	Malmer	Malmer Insight AB
Helena	Malmqvist	ABB Sweden
Katrien Françoise Theresia	MEUWIS	IMEC
Jean	MOULIN	BELSPO
John Rune	Nielsen	RISE
Staffan	Nordlinder	DP Patterning
Magnus	OLSSON	RISE
Ulf	Petrusson	Centre for Intellectual Property
Marie	PROUTEAU	Euronovia
Teresita	QVARNSTRÖM	RISE
Cecilia	RAMBERG	Swerea IVF
Mathias	RAUCH	Fraunhofer-Gesellschaft
henric	RHEDIN	Gothenburg University and ASTP-Proton
Monica	Ringvik	AstaZero
Melissa	RIVADENEIRA	ESRF
Carlo	Rizzuto	ELI
Lula	ROSSO	VTT Technical Research Centre of Finland
Martins	RUTKIS	Institute of Solid State Physics University of Latvia
VINCENT	RYCKAERT	IMEC
Michael	SALTER	RISE Acreo
Olof	Sandberg	RISE
Pia	Sandvik	RISE
Merja	SÄRKIOJA	Academy of Finland
Leena	SARVARANTA	VTT technical Research Centre of Finland
Julia	Schmalenberg	Fraunhofer
Mirjana	STANKOVIC	World Bank Global Forum on Law- Justice and Development
Björn	Stigson	
ŠPELA	STRES	Center for Technology Transfer and Innovation (CTT)- Jožef Stefan Institute
Dusan	STRIC	European Spallation Source ERIC
Vladimir	Šucha	JRC
Jan-Eric	Sundgren	
Magnus	SVENSSON	Joint Research Centre
Sébastien	Sylvestre	CEA
Fabio	Taucer	JRC
Rachel	TURNER	EURAC
Albert	Van Der Steen	TNO
Siimon	Vaske	ICTH
Andrea	VILARDI	Eurac Research
Tapio	Virkkunen	DG CNECT
Sophie	VISCIDO	EARTO
Klas	Wählberg	Teknikföretagen

Louisa	Westblom	Lindholmen Science Park
Lars	Wiigh	IBM
Martin	Wikstrom	IVA Sweden
Angela	ZENNARO	CERIC-ERIC
Borys	ZLOBENKO	State Institution IEG National Academy of Sciences of Ukraine

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