The European Network of Research Infrastructures and Industry for Collaboration
H2020 INFRAINNOV-02-2019
Grant Agreement Number: 871112

Deliverable Report: "Drivers and barriers to research infrastructure and industry engagement – survey results (D2.4)"

Project Deliverable Information Sheet

ENRIITC Project	Project Ref. No. 871112	
	Project Title: ENRIITC - European Network of Research Infrastructures & Industry for Collaboration	
	Project Website: www.enriitc.eu	
	Deliverable No.: 2.4	
	Deliverable Type: Report	
	Dissemination Level: Public	Contractual Delivery Date: 31/07/2022
		Actual Delivery Date: 31/08/2022
	EC Project Officer: **Simona Misiti**	

Document Control Sheet

Document	Title: Drivers and barriers to research infrastructure and industry engagement – survey results	
	Version: v1.0	
	Available at: ENRIITC OwnCloud	
	Files: ENRIITC_D2.4.pdf	
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Executive summary

The ENRIITC project (European Network of Research Infrastructures & Industry for Collaboration) aims to establish a permanent, pan-EU network of ILOs and ICOs in order to increase networking opportunities between RIs and industry, and provide a platform where they can build stronger partnerships to jointly fuel innovation. ENRIITC is implemented during 2020-2022 by a consortium of 11 partners from 7 countries. The project activities are also supported by over 60 Associate RIs.

This Deliverable provides an overview of the collected data and is aimed to be used by ENRIITC to develop a deeper understanding and a more effective strategy to aid the project's pan-EU network of ILOs and ICOs to work with industry.

In order to better understand the barriers and drivers for industrial companies to engage with RIs, ENRIITC conducted an interview-based survey at the start of 2022. The interviews, conducted on a 1:1 basis by phone, Zoom or in person, were developed around two overarching topics: "Industry as an RI supplier", and "Industry as an RI user".

The key findings can be summarised as follows:

Block 1 - About the respondent
- The resulting company sample is distributed across Europe and beyond, with a total 19 companies being interviewed of which seven were user industries and 12 were supplier industries.
- Most respondents were top managers with experience of working with RIs, and are used to public funding mechanisms.

Block 2 - Getting to know RIs
- The information that industry actors have about the RIs appears to be sufficient in both cases
- The personal contacts are reported in both instances as a key ingredient to start the collaboration.
- For industry users, the provision of use cases could be particularly effective in demonstrating the RI potential to support industrial innovation
- The parties do not report trust issues as a limiting factor, however industry users do value a sincere interest of the RI in their industrial needs.

Block 3 - RI tenders for suppliers
- The suppliers felt that the process to deliver their basic information to the RIs implies a lot of labour which smaller companies cannot afford. A pre-qualification/expression of interest round could be useful, with the main criterion being "best value for money" (rather than lowest cost).
- For suppliers, a national support structure would be useful, mainly to SMEs, e.g. providing guarantees and advancing money.
- Pre-competitive procurement (PCP) is a tool that the respondent suppliers do not know about and do not yet use but it was found to be an interesting measure supporting a mutual interest in developing new technologies.

Block 4 – Services for users

- Users report a smooth access process but limitations may be found in the access fees or when the facility is not fully integrated in the RI and may have limited ability to mobilise their own (public) resources for commercial users.
- The practices of confidentiality and IPR management are critical for industry users, at all TRL levels, whereas the formalised standardisation of laboratory practices is only relevant for commercial products and informal quality procedures are acceptable at the lower TRL scale.
- Industry users are also typically understanding of the RI needs to publish, with the recommendation that the publication is about the process and not the industry product being developed.

Block 5 - Industry and RIs working together

- The suppliers appear rather interested in investing in co-designing technologies with the RIs, out of which they may have a commercial benefit; the users appear to be a lot less motivated in this activity and more interested in fast solutions to their problems.
- Both users and suppliers see the advantage of public incentives to reciprocal engagement, even if the incentives were small.

In conclusion, the channels of engagement between RIs and industries appear quite well established in this sample population, and especially based on personal contacts, established through brokerage events. However, most of the companies interviewed in this exercise had an established relation with the reference RI; this sample was indeed chosen to get an understanding of the drivers and barriers in developing the existing relations. The need remains for RIs to initiate a broader engagement campaign with industry, where ILOs and ICOs could be instrumental drivers. This would, on the other hand, require a strong political support by the stakeholders and adequate incentives to the development of these professional figures and of an Industry-RI network capacity, such as ENRIITC.

1. Introduction and methodology

1.1 Background and context

Research infrastructures (RIs) play an increasingly important role in the EU innovation ecosystem. Pan-EU initiatives, such as the Innovation Union policy and New Innovation Agenda or the European Strategy Forum on Research Infrastructures (ESFRI), play a crucial role in enabling industry to become a full partner of RIs, whether it is as a supplier, a user, or a co-developer. In order to boost RI-industry partnerships, the engagement of key intermediaries, i.e. Industry Liaison Officers (ILO) and Industry Contact Officers (ICO), needs to be enhanced. Building upon their different yet related mandates, ICOs and ILOs can help to increase awareness among industry representatives, enhance the use of RI services and facilities, and encourage the uptake of research technologies, thus co-creating value.

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In order to better understand the barriers and drivers for industrial companies to engage with RIs, ENRIITC conducted an interview-based survey at the start of 2022. The interviews, conducted on a 1:1 basis by phone, zoom or in person, were developed around two overarching topics: "Industry as an RI supplier" and "Industry as an RI user".

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1.2 Methodology: approach and implementation

In consultation with the ENRIITC consortium, the ENRIITC partners for this task T2.4 prepared one combined questionnaire (Annex 1) for both industry-as-user and industry-as-a-supplier. Some questions were common to both tracks (blocks 1, 2, 5), with separate blocks of questions more appropriate for each target group (block 2 for industry as suppliers; block 3 for industry as users):

- Block 1 – About you (the respondent and company)
- Block 2 - Getting to know RIs
- Block 3 - for suppliers - RI tenders
- Block 4 - for users - RI services
- Block 5 – Working Together

The content of the survey, its structure and questions were approved by the ENRIITC Steering Board. All partners of the ENRIITC consortium had the opportunity to review the survey and comment.

Interviews by phone/Zoom/in person were chosen in contrast to a simple survey by email in order to harvest a more insightful perspective which can be gained when discussing live with a representative from industry. This carries a higher effort and therefore fewer responses than a standard survey. The interviews were carried out from January to April 2022.

Interviewees were identified by each ENRIITC consortium partner providing proposals from their industry network. This naturally varied according to the partner, the nature of their work and their maturity in engaging with industry.

Due to the nature of the process with interviews done on a 1:1 basis, responses were noted or transcribed and then distilled to provide anonymous aggregated feedback with some specific comments or points extracted, but not attributed in this report. Interviews were done by representatives of the ENRIITC consortium which had proposed the interviewee. This ensured a proper understanding in the context of the interviewee, also providing more depth to the responses.

The surveys were collated together for analysis.

This deliverable is the end result of the interviews with the interview analysis and key findings.

2. Interviewee cross-section

The company sample is distributed across Europe and beyond, with a total 19 companies being interviewed of which 7 were industry as a user and 12 were supplier industry (Table 1).

Country	Number of respondents "industry as users"
Canada	1
Ireland	1
Sweden	3
United Kingdom	1
Germany	1

Country	Number of respondent "industry as suppliers"
Canada	1
France	1
Germany	1
Netherlands	4
Spain	4
United Kingdom	1

Table 1: Geographical distribution of respondents

3. Interview summary

3.1. User side interview analysis

3.1.1 Interview section on "About you"

There were seven respondents to the interview survey to user companies, mostly European-based companies (Ireland: 1; UK: 1, Germany: 1, Sweden: 3) and one company from Canada.

The representatives of the companies with whom interviews were conducted were high-level ranging from CEO/general manager (5) to business manager (1) and technology specialist positions (1 interview).

The company sizes were mainly SMEs (6) and one large enterprise (1), of which 5 considered themselves to be expert in engaging and working with research infrastructures, 1 intermediate and 1 novice.

3.1.2 Interview section on "Getting to know research infrastructures"

Q: Is your company active in European or national funding? Could this help in working with RIs?

Yes: 5
No: 2
Maybe: 0

70% of the respondent companies are active in public funding. Public funding is regarded as crucial to start the collaboration with a research infrastructure and to advance knowledge, even if the end result may sometimes differ from the initial quest. Collaborative projects are reported to "*lower the entry level into the commercial phase*" and provide "*unique opportunities to interact with expert researchers and obtain real development*". Also, it was reported that "*combining company questions with good research can bring real novelty*". The companies that cannot report involvement in public funding declare that they are trying, but have not yet been successful.

Q: Do you have enough information about RIs? Their supply needs? How would you seek this information? Have you found it useful in the past to participate in RI brokerage event or other kinds of events tailored to strengthen the collaboration with EU infrastructure?

Yes: 1
No: 1
Maybe: 0

Most companies feel that they have sufficient information on RIs either through personal contact or through EU databases. The need to hear of examples and case studies from fellow industry representatives was highlighted as one that could serve as an inspiration and

motivational drive. The few companies that are mainly receiving information through databases also highlight the need for further engagement services.

"Identifying contacts is facilitated somewhat by EU data bases but more could be done to increase awareness of and access to the wider RI community".

Q: What would you find most useful for your company to initiate working with an RI? A personalised visit? Meeting someone at a brokerage? General marketing (Linkedin etc)? Are you missing these opportunities to meet RIs?

This question brought to light a great interest by the respondents to be exposed to examples from other companies, and to hear about different use-cases, expressed in simple terms: *"Share examples. It sounds simple, but this would be of great interest. For a company, I think it's better that its oversimplified rather than in academia where you want to show your work in detail and use a language that is maybe not so accessible. For me, I need to kind of grasp what the experiment was about, what was the resolution if there is something imaging wise, what was the timing? Tangible things that like for me to understand if this is applicable to my similar need."*

A similar comment also pointed to the need for a simple expression of what the RI can offer and to the interest of inspiring through use-cases: *"Simplify what the RI offers in terms of solutions, rather than what the facilities can do in a technical sense, what kind of measurement technique they offer, etc. When engaging with companies, you need to stay in a space; you cannot be in a facility space of techniques and methods. You need to showcase your portfolio of cases."*

One example in which an intermediary agency reported their experience of coaching companies on how to talk with RI scientists and learning how to avoid going too deep into detail was highlighted.

Finally, as reported in other parts of the survey, "personal contacts" have been reported as an important aspect of the engagement with RIs.

Q: Are there any trust issues in collaborating with publicly funded RIs?

Yes: 0
No: 3
Maybe: 4

Most of the interviewees felt that there were no trust issues in engaging with RIs or could not elaborate on this point. One of the interviewed users recommends that the RIs "*need to project that they're sincerely interested in helping the company and that they have the users' interest at heart*". In other words, a sense of real bonding between the RI and the company is seen as a key ingredient from the industry perspective for a successful collaboration.

3.1.3   Research infrastructure services

Q: If you are a user, how do you access RIs services: Directly, through a portal, through an Intermediary; through the University? Is it paramount for starting to work with an RI to have a clear offer of services to industry, in the RI's on-line Catalogue of Services?

The respondents users mentioned different access pathways, either through a portal, where although they feel it is only possible if you have a clear idea of what you look for and the offer is as well defined; or through direct access, as a preferred option (three out of seven respondents); or through an intermediary, a broker, a matchmaker - in this latter instance, the trust relationship appears a very important value, where trust entails that the match-maker. Is *"Someone that I can explain my problem to and they really understand it. And then of course someone that I believe has a neutral relationship to the facilities so they are not selling one facility to me if that is not the one best suited to fix my issue - I don't want to speak to a sales person"*.

Q: Can your company exploit RI resources (e.g. raw data, biological samples or instruments) or would it need support to be able to use those resources?

YES: 4
NO: 0
MAYBE/cannot respond: 3

Most of the experienced interviewees reported the possibility to directly use/exploit the RI resources. One of them reports that the ability to directly use the RI resources is "*a key element of the industry strategy and can sometimes be critical for success*".

Q: Have you ever encountered limitations in obtaining access to RI-based resources (such as sample libraries, data, software, instruments, etc) because the licence or access conditions only permitted non-commercial use?

YES: 2
NO: 4
MAYBE/cannot respond: 1

The majority of the respondents were clear that access to the RI-based resources was smooth. In two instances, though, the respondents reported some issues: "*Fees for access are in some cases prohibitive. Limits on the use of data may also present a problem on occasions*". Also, another user reports limits in the industry exploitability of the RI resources, because attached to the academic institute integrated in the RI rather than the RI itself: *"at one facility, we could not use compute resources as GPUs had been bought under academic licence then had to set-up a specific node for industry"*.

Q: What is the priority of relevant standards which RIs must/should/could/do not need to respect? e.g. ethical, data security, ISO, K/ISO14K, Good Laboratory Practice (GLP) standard?

YES: 5	
NO: 1	
MAYBE/cannot respond: 1	

The large majority of representatives report that good practices in handling the industry needs are relevant to their ability to use the RI facility. Whilst certification of quality standards may be a necessity in experimental settings for commercial products, the practices of confidentiality and the reliability of the procedures are highly valued elements at the pre-commercial stage: "*Anything that impacts the IPR should be taken very seriously, so certainly in respects to confidence, data security/safety, NDAs, etc. The company needs to feel safe and secure in what they are going to get and how things are handled*".

Q: To respect publishing rules for free access, would you be ready to write a project proposal for external review to get to free access? Would you be ready to write a short summary of the work appearing as a "case study"? Is it OK for experiment data to be released after an (e.g.) three-year embargo?

YES: 2	
NO: 0	
MAYBE/cannot respond: 5	

All respondents were open to the possibility of allowing an open access publication from their RI experience, although most expressed different types of concerns and potential limitations to the publication process. A positive outlook may be associated with some benefits for industry, such as lower user fees or the perception that the RI team would be working with more enthusiasm if a publication could be an end result for them. This may be especially true for smaller/younger companies, strapped for cash and eager to use some discount options, especially when their products are *"so niche that they are not too afraid of IPR breach"*. On the other hand, when pressed for time and when budget is not a limiting factor, industries appear quite happy to just pay for the service without strings attached. All things considered, the impression is that industry is typically quite open to the possibility to support facilities in reporting on their case studies. A sensible recommendation was *"that the publication is more focused on what the facility can do rather than my specific experiment"*.

Q: What are three things that RIs could do to provide more attractive service provision for you? How can we get industry on-board?

Various aspects were highlighted as helpful measures in the industry access to RI services, such as *"user-friendly, accessible guides to the resources available in the RIs, and processes to save time in setting up contacts and getting to a deal"*. While it was noted that *"personalised contacts are the most important"*, a suggestion covered the possibility to lower the access

costs for industrial development needs that could be societally relevant. Improving the access procedures to reduce delays was also on the industry wish-list.

3.1.4   Interview section on "Working together"

Q: Would co-design/co-development of new services or technologies make RIs more attractive for your needs? Would you be prepared to invest? Would you expect European funding to support such initial developments?

YES: 1
No: 3
Maybe: 3

The co-development interests of the users were not very high, only one company was particularly keen on this potential collaborative avenue, the other were either not interested or, in the majority of cases, presenting the difficulty of taking this route: "*Co-development is complicated commercially, unless there are clear distinctions with regard to IP ownership*". *Besides the difficulty of distinguishing IP, investment in the process also appeared a limitation factor, which could be possibly surmounted if public funding were available.*

Q: Do you think that RIs could play a role in training/consultancy? Would you be interested in collaborating with RIs on traineeships, PhD students, pdocs or junior scientists? How would you see the framework and contributions? Are you ready to cofund? Are you aware of company/national/EU scheme to incentivise studentships?

YES: 1
No: 1
Maybe:5

The topic of engaging with RIs in education programmes appeared to be a low priority to most of the interviewees, at the same time the majority of them appeared open to the perspective, although mildly. One of the respondents was on the other hand quite keen on this perspective and could see the advantages of postdocs working in between the RI and the commercial enterprise.

Q: Would a European approach to incentivised exploitation of RI facilities, knowledge or technology be helpful or of no interest?

YES: 4
NO: 1
MAYBE/CANNOT ANSWER: 2

The vast majority of companies interviewed would find a European-wide approach to support exploitation of RI knowledge and technology to be helpful, especially for smaller companies.

Some of the interviewees felt that the vouchers are too small a thing and their interest would be higher for being involved in large EU project, however other interviewees, who had made use of voucher schemes, found the measure to be helpful.

3.2. Supplier side interview analysis

3.2.1 Interview section on "About you"

There were twelve respondents to the interview survey to supplier companies, mostly European-based companies (UK: 1, Germany: 1, France: 1, Netherlands: 4, Spain: 4) and one company from Canada.

The representatives of the companies with whom interviews were conducted were high-level ranging from business developer or business manager positions (6 interviews), CEO/general manager (3), sales manager (1), company owner (1) and consultant (1).

The company sizes were either SME (7) or ETI (5), of which eight considered themselves to be expert in engaging and working with research infrastructures, two intermediate and two novice.

The remainder of this section is structured on a "per interview question" basis with statistics presented for each question where relevant (charts show responses, non-responses are not shown), and a summary of the overall replies from the interviewees.

3.2.2 Interview section on "Getting to know research infrastructures"

Q: Is your company active in European or national funding? Could this help in working with RIs?

YES: 8
NO: 4
MAYBE/CANNOT ANSWER: 0

Two-thirds of the companies involved are active in public funding. Of those not active only one respondent was particularly negative, commenting: *"Too much effort in admin and building projects; success rate is low and funding is low; low level of interest."* However, this is not reflective of the overall feedback which is generally very positive to being active in European and/or nationally funded projects: *"Yes, it could help a lot. More joint projects between RIs and companies should be promoted."*

Q: Do you have enough information about RIs? Their supply needs? How would you seek this information? Have you found it useful in the past to participate in RI brokerage event or other kinds of events tailored to strengthen the collaboration with EU infrastructure?

YES: 7
NO: 4
MAYBE/CANNOT ANSWER: 1

Most companies feel that they have sufficient information on RIs and, for example, maintain one-to-one contacts with the relevant supply and/or technical staff at the RIs as being the most efficient method of harvesting information. However, in particular for SMEs, this takes a lot of effort and time, and therefore costs to maintain, especially with a varied approach to procurement from the various RIs. Brokerage events are seen as being potentially of value to maintain overall contact and generate new contacts, meeting RI staff, but not very helpful for specific short-term needs or specific tenders.

"As a SME we are limited into these discussions. We are happy, that institutes and organisations are working more closer compared 20 years ago."
"Most interesting events are sci or tech conferences as they allow contacts and being informed informally of projects. Limited possibility to join events (cost and time)."
"We maintain 1:1 contact with the responsible people and use brokerage events to have efficient contact possibilities"
"In my opinion you never have sufficient information about RIs. To gather all this information costs a lot of effort and time to search on the web, talk to other people and spends a lot of time in visits."
"Every RI has different ways to communicate and different procurement rules. It is very time consuming to get to know their needs with sufficient time in advance to be able to tender. I would say that brokerage events are useful for novice companies but not so much for the rest. At least in the way they are performed. At brokerage events you get very general information."

Q: What would you find most useful for your company to initiate working with an RI? A personalised visit? Meeting someone at a brokerage? General marketing (Linkedin, etc.)? Are you missing these opportunities to meet RIs?

Personal or personalised visits to the RIs were the overwhelming top response (8/12 replies) to this question, followed by brokerage events.

Q: Are there any trust issues in collaborating with publicly funded RIs?

YES: 3
NO: 8
MAYBE/CANNOT ANSWER: 1

Most of the interviewees felt that there were no trust issues in engaging with RIs. One positive reply was more in the sense of there generally being trust issues in any commercial engagement. The other positive reply described particular issues in a tender which were felt to be unfair as well as the wide range of guarantees demanded by RIs in tender responses. This work and effort (tender preparation, pre-design, travelling costs and staff time) are very significant for SMEs and can strongly limit their engagement in tendering activities: *"We decided not to tender in the past, just because of the procurement rules, which were irresponsible to accept for an SME."*

3.2.3 Research infrastructure tenders

Q: Do you feel that there is a "level playing field" in tendering? Are RI tendering processes simple enough? Do they favour local suppliers? Would standardisation in offering tenders and issuing contracts help (e.g. language, response forms, etc)?

YES: 3
NO: 8
MAYBE/CANNOT ANSWER: 0

The unifying feedback from this question, beyond the feeling of a lack of a level playing field, is that standardisation, even limited, would greatly help tendering procedures. Standardisation meaning – language requirements, presentation of the basic tenderer (company) information, response forms for example with the aim of limiting duplication of effort for every tender response. Tendering procedures are seen as being overly complex, with a feeling of being *"too politically and nationally driven"*.

A further common theme which emerged was that *"prior contact is important to set the scene before a formal tender response"* or even before tenders are published so that tender specifications can be sensible: *"[tenders are sometimes] written in pure theoretical way i.e. lack common sense /knowledge of production technology/ knowledge of the suppliers perspective."*

"The general (commercial) purchasing conditions can be simplified (and fitted to SME, especially the payment terms) and standardised all over EU. That would help a lot!"

"It must be mandatory for RI to maintain a meeting with every supplier that was not selected. This will help companies to learn and be better for the next tender."

"Sometimes RIs are not brave enough to award tenders to new suppliers and step outside of their usual suppliers."

"Standardisation would help. In general, they (the RIs) favour preferred suppliers and they find ways to contract with them. We need cleanliness in the process, we need information on why we lost a tender. It must be mandatory for RI to maintain a meeting with every supplier that was not selected. This will help companies to learn and be better for the next tender. Georeturn makes things even more difficult."

Q: Do you think it is fair to insist on lowest price vs best value for money?

YES: 2
NO: 9
MAYBE/CANNOT ANSWER: 1

Most interviewees felt that tendering should move beyond simply lowest price, considered by the majority as a poor metric for considering the overall "value" of a tender proposal and incorporate further reflection, particularly in the case of complex instrumentation. A common

theme in tendering procedures in this question and in other responses is that the cost (cash, staff time) to companies, particularly SMEs, for responding to tenders can be prohibitive.

"They contract the lowest compliant bidder (Do they hire the lowest salary compliant physicist?)."

"It is expensive to tender it takes a lot of time and has a huge opportunity cost."

"Once the company is qualified for the project by the technical responsible, the best value for money makes sense as the main criteria for the selection. This is how the competitive market is normally ruled. However, it could be considered the track record (demonstrated experience) as another valid and important criteria to weigh the final decision."

"We very much favour best value for money and coupling proto-typing with series production."

Q: Do you use or would use a national support structure/ecosystem (loans, pre-finance risk mitigation, legal support, tender support, etc.)? Can pre-financing help in a supply contract? (this can be large barrier for small companies). Do you have sufficient resources available to respond to potentially complex tenders?

YES: 9
NO: 2
MAYBE/CANNOT ANSWER: 1

Though this question received a more mixed response, a majority already use or would use a national support system in supporting procurement procedures. One would do so only for *"large contracts"*.

"A national support structure would be very useful. Especially on the guarantees. Pre-financing is something to read in conjunction with the required guarantees. It's unbelievable that big public funded RIs are forcing SME to finance entire projects and delay payments even after the guarantee period. The excuse is always that they are dealing with public money. They don't accept design and engineering as a delivery, although a large part of hours spent are in this phase of the project. A much better solution for the SME is a progress payment schedule. Then no pre-financing is required and the SME is not financing the project but is paid on monthly or weekly progress. We have sufficient resources for tenders, but they are prepared all for free. So the costs for tenders are integrated in the general price level. This is from an economical point of view a stupid idea. When more than 10 companies are invited for a tender only one wins the project; the rest will accommodate the tender costs in the next budget……"

"One of the main limitations for SME companies in large contracts with RI is the need for a bank guarantee. This problem is enlarged when a consortium with shared liability is constituted. A national support in legal and financial issues could be very positive. The pre-financing is usually helpful to anticipate provisions."

"Pre-funding can be very useful. We do have resource for complex tenders but one must carefully gauge the probabilities as the tenders involve heavy manpower."

Q: Do you have easy access to the right RI representatives for tendering questions (administrative and/or technical)?

YES: 9
NO: 2
MAYBE/CANNOT ANSWER: 1

All interviewees can generally get in touch with the right research infrastructure representatives, though several replies mitigated this be adding that this depends on the facility concerned with some facilities being easier to access the most appropriate person.

Q: Do you participate in pre-competitive procurement (PCP) activities? Are you aware of PCP?

YES: 1
NO: 10
MAYBE/CANNOT ANSWER: 1

Overwhelmingly the supplier companies interviewed neither participate in PCP and are not aware of PCP and the opportunities it can present in developing new technologies. One interviewee had 1 no answer, 1 sometimes, 10 no/no

"the PCP mechanism could be a solution to solve the problem of not knowing project needs of an RI when it is on a pre-competitive phase."

3.2.4   Interview section on "Working together"

Q: Would co-design/co-development of new services or technologies make RIs more attractive for your needs? Would you be prepared to invest? Would you expect European funding to support such initial developments?

YES: 10
NO: 1
MAYBE/CANNOT ANSWER: 1

There appears to be a strong and (as yet largely) untapped potential for a closer collaboration between industry suppliers and research infrastructures. The interviewees expressed a strong desire for co-development/co-design of technologies. Such an approach is being piloted in various guises via the INFRA-INNOV projects recently started – LEAPS Innovation, AIDA and iFAST and undoubtedly other similar activities are underway elsewhere. The thirst though for more engagement in this collaborative mode is a clear area for future development.

"R&D is not appropriate for tender but where cooking a really novel (risky) proposal then this fills more R&D zone than a pure call for tender. Co-design/development would be prepared to put something on the table – e.g. skills/knowledge perhaps more than cash; depends on possible outcome and future market. Keen on all types of funding if admin barriers are not silly, success rates and funding not so high (meaning funding rate)."

"Simply yes; would save them often much money. Investment from our side is in principle not a problem, as long as these are overseeable / within our possibilities and potential revenues clear. Funding would be helpful for technologies with no immediate market potential and /or capital-intensive developments."

"IP ownership is always an issue. The IP management is not well defined generally and every RI has its own rules but is far to be homogeneous between them. Defining the percentage of ownership of co developments is not obvious."

"Yes, in fact developing this kind of approach linked to RIs is within our strategic plan. We have already gone through it successfully for other sectors and we are very enthusiastic on the possibility to transfer the experience and lessons-learnt to the Big Science market."

Q: Do you think that RIs could play a role in training/consultancy? Would you be interested in collaborating with RIs on traineeships, PhD students, pdocs or junior scientists? How would you see the framework and contributions? Are you ready to cofund? Are you aware of company/national/EU scheme to incentivise studentships?

YES: 8
NO: 1
MAYBE/CANNOT ANSWER: 3

Most companies interviewed would be interested in a deeper relationship with research infrastructures, be it via training (in both directions), support via consultancy (in both directions), Phd studentships etc. No company felt that such approaches would not be of interest, though for four companies it would depend on the approaches to be taken.

Q: Would a European approach to incentivise exploitation of RI facilities, knowledge or technology be helpful or of no interest?

YES: 9
NO: 1
MAYBE/CANNOT ANSWER: 2

The vast majority of companies interviewed would find a European-wide approach to support exploitation of RI knowledge and technology to be helpful.

"Could be interesting for some specific work using the RI skills in; going beyond the beamlines – labs and instruments, where e.g. CAPEX (Capital Expenditure) limits what the company can afford."

"Yes, think so, although till today we have had no need for neither external knowledge nor technology; as we select the tenders in which we participate on the basis of our technology."
"This type of initiatives could be helpful to incentivise the access of companies to RI services."

4. Key findings and conclusions

This section provides a summary of the key findings from the interviews across both the user and supplier side.

4.1 Block 1 and 2 - About you and getting to know RIs

The majority of respondents from both the users and supplier side are involved in public funding. From the user side, the collaborative projects with the RIs bring real novelty and the right expertise, and lower the entry level into the commercial phase. From the supplier side and from various respondents who are not yet involved in this kind of activities, the interest is high to become engaged in such funded activities.

The information that industry actors have about the RIs appears to be sufficient in both cases, either drawn from personal contacts, brokerage events or portals. The personal contacts are reported in both instances as a key ingredient to start the collaboration. For industry users, the provision of use cases could be particularly effective in demonstrating the RI potential to deliver, especially when a simple language is utilised.

The parties do not report trust issues as a limiting factor, however the expression that the relationship between RI and users should be meaningful beyond the commercial value was reported by industry users, who would value a sincere interest of the RI in their industrial needs.

4.2 Block 3 - for suppliers - RI tenders

The suppliers expressed a clear feeling that the playing field is not level for the various suppliers; the need for the RIs to receive the supplier basic information appears overcomplicated and implies a lot of labour which smaller companies cannot afford to use and may therefore end up not responding. Tendering could be issued after a pre-qualification/expression of interest round, so that only prequalified competitors use resources to respond in full. Also, the main criterion being best value for money (rather than lowest cost) could be integrated in this first pre-qualification round.

A national support structure would be useful, mainly to SMEs, e.g. providing guarantees and advancing money. It was however noted that a contact person is typically in place at least to find some basic references into the tender.

Pre-competitive procurement (PCP) is a tool that the respondent suppliers do not know about and do not yet use. But it could be an interesting approach when combined with mutual interest in developing new technologies.

4.3 Block 4 - for users - RI services

The users access RI services in various ways (brokerage, direct access, portal, promotions, intermediaries, etc) and they all appear to be functional. Users report a smooth access process but limitations may be found in the access fees or when the facility is not fully integrated in the RI and may have limited ability to mobilise their own (public) resources for commercial users. The practices of confidentiality and IPR management are critical for industry users, at all TRL levels, whereas formalised standardisation of laboratory practices are only relevant for commercial products and informal quality procedures are acceptable at the lower TRL scale.

Industry users are also typically understanding of the RI needs to publish, with the recommendation that the publication is about the process and not the industry product being developed.

4.4 Block 5 – Working Together

The suppliers appear rather interested in investing in co-designing technologies with the RIs, out of which they may have a commercial benefit; the users appear to be a lot less motivated in this activity and more interested in solutions to their problems.

Similarly, the suppliers may be interested in building long term relationships with the RIs through consultancy and students, whereas for users there is potential for this route only for low priority issues, because for the top issues they'd need faster solution routes.

Both users and suppliers see the advantage of public incentives to reciprocal engagement, even if the incentives were small.

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In conclusion, the channels of engagement between RIs and industries appear quite well established in this sample population, and especially based on personal contacts, gained mainly during brokerage events. However, most of the companies interviewed in this exercise had an established relation with the reference RI; this sample was indeed chosen to get an understanding of the drivers and barriers in developing the existing relations. The need remains for RIs to initiate a broader engagement campaign with industry, where ILOs and ICOs could be instrumental drivers. This would, on the other hand, require a strong political support by the stakeholders and adequate incentives to the development of these professional figures and of an Industry-RI network capacity, such as ENRIITC.

The overall recommendations from ENRIITC in building a more effective engagement with industry through ICO and ILO networks will be presented in the pertinent deliverables of WP3 and, most importantly, WP1 ("D1.5 - Policy Paper on the sustainability of the ENRIITC Network"), bringing together the various threads of the research, studies and pilot activities, in ENRIITC.

ANNEX 1- SURVEY QUESTIONNAIRE

T2.5 Survey questionnaire and reporting template

BLOCK 1: "ABOUT YOU"

- Can you tell us a little about who you are? (position, tasks, your company size)

- Does your company know of/work with/exploit/supply RIs? Is it "expert", "intermediate" or "novice"?

- Is your company active in European (Horizon Europe, EIC, Eurostars etc) or national funding? Could this help working with RIs?

T2.5 Survey questionnaire and reporting template

BLOCK 2: "GETTING TO KNOW RIs"

- Do you have enough information about Ris, their services, their supply needs? How would you seek this information? Have you found it useful in the past to participate in RI brokerage event or other kinds of events tailored to strengthen the collaboration with EU infrastructure?

- What would you find most useful for your company to initiate working with an RI? A personalised visit? Meeting someone at a brokerage? General marketing (linkedin etc)? Are you missing these opportunities to meet RIs?

- Are you aware of the RI access policies? Are there any issues with that?
- Are there any trust issues in collaborating with publicly funded RIs?

BLOCK 3: "RI TENDERS" *(for suppliers only, when technology supply is relevant)*

- Do you feel that there is a "level playing field" in tendering? Are RI tendering processes simple enough? Do they favour local suppliers? Would standardisation in offering tenders and issuing contracts help (e.g. language, response forms, etc)?

- Do you think it is fair to insist on lowest price vs best value for money?

- Do you use or would a national support structure/ecosystem by useful (loans, pre-finance risk mitigation, legal support, tender support, etc.)? Can pre-financing help in a supply contract? (this can be large barrier for small companies). Do you have sufficient resources available to respond to potentially complex tenders?

- Do you have easy access to the right RI representatives for tendering questions (admin/technical)?

- Do you participate in pre-competitive procurement (PCP) activities? Are you aware of PCP?

BLOCK 4: "RI SERVICES" (for users only, *to be done when the RI has industrial users or clients, or aspires to in the future and then please reach out to serveral companies which may be possible future users)*

- If you are a user, how do you access RIs services? Directly? Portal (e.g. wayforlight, esonet)? Intermediary (e.g. service company, Chambers of Commerce, European Enterprise Network)? Academic? Is it paramount for starting to work with an RI to have a clear offer of services to industry in the RI's Catalogue of Services on the website?

- Can your company exploit RI resources (e.g. raw data, biological samples or instruments) or would it need support to be able to use those resources?

- Have you ever encountered limitations in obtaining access to RI-based resources (such as sample libraries, data, software, instruments, etc) because the licence or access conditions only permitted non-commercial use?

- What is the priority of relevant standards which RIs must/should/could/do not need to respect? e.g. ethical, data security, ISO, K/ISO14K, Good Laboratory Practice (GLP) standard

BLOCK 4: "RI SERVICES" (<mark>for users only</mark>, *to be done when the RI has industrial users or clients, or aspires to in the future and then please reach out to serveral companies which may be possible future users*)

- Access can be free of charges, but then requires open data and "publication" of results. This question aims to explore the perception of industry towards "open science" and how far they can go in respecting this for different aspects of their R&D. o To respect publishing rules for free access, would you be ready to write a project proposal for external review to get to free access? Would you be ready to write a short summary of the work appearing as a "case study"? Is it OK for experiment data to be released after an (e.g.) three year embargo?

- Does your company publish in scientific journals? Is it a company expectation of its scientific staff?

- Would you rather pay an access fee or publish? When would you choose which route?

- Do you know/use the European trans-national access schemes for RIs? What do you think about them? Are they appropriate for you?

- What are three things that RIs could do to provide more attractive service provision for you? How can we get industry on-board?

BLOCK 5: "WORKING TOGETHER"

- Would co-design/co-development of new services or technologies make Ris more attractive for your needs? Would you be prepared to invest? Would you expect European funding to support such initial developments?

- Do you think that RIs could play a role in training/consultancy? Would you be interested in collaborating with RIs on traineeships, PhD students, pdocs or junior scientists? How would you see the framework and contributions? Are you ready to cofund? Are you aware of company/national/EU scheme to incentivise studentships?

- Would a European approach to incentivised exploitation of RI facilities, knowledge or technology be helpful or of no interest? e.g. innovation vouchers supporting simple access to more complex studies, or joint work on instrumentation (examples inlude the Vinnova Scheme1 and Enterprise Ireland2).