WP7 Parallel Session

ET-PP Annual Meeting

17 June ´24

Grant agreement: Nº 101079696

Horizon Europe: Coordination and Support Actions

Topics for discussion today

- presence at the ET-PP booth at BSBF (WP1, WP5-6-8-9-10,…) [Mauro]
- report on options for implementing a balanced return policy in ET (mainly: WP1,WP2, WP3, …) [Mauro]
- experience and proposal for industry engagement in ET-PP (mainly: WP1-WP5-WP6-WP8-WP9, …) [Rob]
- proposed approach to provide TT services for R&D activities being carried out during the execution of the ET-PP project (mainly: WP1-WP6, …, ETO) [Isaac]
- TT policy and proposal for implementation of TT services in the future ETO, including required resources (mainly: WP1-WP2-WP3-WP6, …, ETO) [Isaac]
-

DAY 0
1st October 2024

Time	Plenary Sessions	B2B	Exhibition	B2B	Social Programme
09.00 – 10.50	BSBF2024 Registration	Satellite meetings	Build up exhibition booths		
11.10 – 13.00					
14.00 – 15.50					
16.10 – 18.00					
18.00 – 19.00			Exhibition opening	Poster session	Welcome cocktail
20.30 – 21.30					

DAY 1
2nd October 2024

Time	Plenary Sessions	Parallel Sessions	Exhibition	B2B	Social Programme
09.00 – 10.50	Opening		Exhibition open		Accompanying individual programme
11.10 – 13.00	BSBF partners round tables				
14.00 – 15.50		**A Parallel Sessions** A1 Opportunities for Big Science in Central Europe A2 Robotics and remote handling systems A3 Diagnostics, detectors, sensors, optics and instruments A4 Affiliated Big Science Organizations (ABSOs call) I		B2B open	
16.10 – 18.00		**B Parallel Sessions** B1 Industrial experiences towards BSCM – Big Science Common Market B2 Superconductivity and superconducting magnets B3 Complex buildings, construction and safety related systems B4 SME involvement (SMEs Track call) and key aspects for Procurement			
18.00 – 19.00				Poster session	
19.30 – 22.30					CEMAN Orchestra Concert

DAY 2
3rd October 2024

Time	Plenary Sessions	Parallel Sessions	Exhibition	B2B	Social Programme
09.00 – 10.50	Big Science Market		Exhibition open		Accompanying individual programme
11.10 – 13.00		**C Parallel Sessions** C1 Electrical, power electronics, electromechanical and RF systems C2 High precision, small and large mechanical components C3 Instrumentation and control systems C4 Innovative & green procurement and public/private partnerships		B2B open	
14.00 – 15.50		**D Parallel Sessions** D1 ICT challenges: Information and Communication Technologies D2 Vacuum, cryogenic and leak detection technologies D3 Basic material technologies and advanced manufacturing techniques D4 Affiliated Big Science Organizations (ABSOs call) II			
16.10 – 18.00	Closing BSBF				
18.00 – 19.00				Poster session	
20.00					Conference Dinner

DAY 3
4th October 2024

Time	Plenary Sessions	Parallel Sessions	Exhibition	B2B	Social Programme
09.00 – 10.50	Career opportunities	Visit to Research Infrastructures (in Italy and Slovenia)	Exhibition Open	B2B Open	
11.10 – 13.00	Women in Big Science				
14.00 – 15.50					BSBF2024 Closed
16.10 – 18.00					
18.00 – 19.00					
20.30 – 21.30					

Technical areas at BSBF

A2 Robotics and remote handling systems

Coordinator:

A3 Diagnostics, detectors, sensors, optics and instruments

B2 Superconductivity and superconducting magnets

Coordinator:

B3 Complex buildings, construction and its safety related systems

C1 Electrical, power electronics, electromechanical and RF systems

C2 High precision, small and large mechanical components

Coordinator:

C3 Instrumentation and control systems

Coordinator:

C4 Innovative & green procurement and public/private partnership

Coordinator:

D1 ICT challenges: Information and Communication Technologies

D2 Vacuum, cryogenic and leak detection technologies

Coordinator:

D3 Basic material technologies and advanced manufacturing techniques

Coordinator:

Balanced Industrial return

- We have collected information from several Research Organizations in Europe:
  - CERN, CTAO, ESO, F4E
- A document summarizing our findings is in preparation
- However we would like to share with you the preliminary conclusions and collect a feedback on how to proceed from here
- In our work plan the next deliverable is "Model for pursuing in ET a balanced industrial return"

The goal

- Achieving a balanced industrial return is desirable for all organizations, since each Government contributing to the budget of the organization, either in cash or in-kind, would like to see, in a given time frame, an adequate return in terms of contracts assigned to companies of its country.
- This can be expressed in quantitative terms by defining, as e.g. CERN does, an industrial return coefficient IRC_j for each country as the double ratio:

$$IRC_j = (P_j \,/\, P_T) \,/\, (C_j \,/\, C_T)$$

  computed every year, where:
  - the first is the ratio of payments to suppliers of a given country, summed over the last 4 year, w.r.t. to the total payments
  - the second is the corresponding ratio of contributions to the budget
- in an ideal world all IRC should be close to 1
- the concept is clear, but the implementation may become quite elaborated, especially if one wants to associate the supplies to their country of origin, rather then to the country of the suppliers

The problem

- in practice achieving an overall good balanced return is impossible
  - and it's a big mistake for an Organization to set for itself impossible goals
- there are obvious and less obvious reasons why this is the case :
  - a significant fraction of the industrial contracts are de facto assigned only to companies of the host state(s):
    - utilities including electricity, due to practical and regulatory constraints,
    - supplies and services requiring the deployment of significant manpower on site (e.g. civil engineering)
    - supplies from multinational companies that are present in every country and usually sell through the branch in the host country
    - day-by-day purchase where technical personnel prefers to interact with local companies
  - not all countries have the same manufacturing capabilities
    - e.g.: it's relatively straightforward to find mechanical workshops everywhere
    - but high field superconducting magnets (or even conventional magnets) for accelerators are produced only by a few companies in Europe
  - depending on the industrial sectors, competitiveness may be quite different, from country to country
  - there are cases where the Organization is forced to buy equipment or services always from the same company (for technical compatibility or uniqueness of the firm capable or providing certain services, like maintenance)
  - the Organization may not be able to interact with the potential suppliers of some countries, especially if new members of the Organization

The answers

- neutral actions:
  - exclude from the computation of the industrial return metrics supplies where only companies from host state(s) can bid
    - e.g. CERN excludes utilities, in particular the cost of electricity, but civil engineering works are included although it's very difficult for companies not close to Geneva to participate in tenders below some tens of millions
  - introduce different targets for the various IRCs
    - e.g.: CERN has a target for supplies (IRC_j = 1) and another for long term on-site service contracts (IRC_j = 0.4)
  - support initiatives to enlarge the base of potential bidders in countries with low return (LRC)
    - ILOs involvement, industrial meetings, etc.
- actions with side effects
  - favor participation of companies from LRC in closed tendering
    - at CERN procurement officers always try to have a reasonable geographical balance at the moment of the invitations to tender
  - favor adjudication of tenders to companies from LRC
    - companies from LRC can be invited to align their offer to the lowest compliant bid and get the tender adjudicated if they agree
  - use limited tendering restricted to companies of LRC
  - the drawbacks:
    - reduced competition -> higher costs for the organization
    - companies excluded from the possibility to tender may loose interest in being suppliers of the organization
      - this would cause significant damage if it happens in high-tech or niche sectors that are specific to a given research field

The CERN example

- CERN subdivides industrial contracts in several categories for evaluating the IRC(s)
  - utilities (not used)
    - 78 MCHF of payments in 2023
  - supplies from companies in member states (IRC with target 1)
    - 236 MCHF in 2023
  - long term on site services (IRC with target 0.4)
    - 135 MCHF in 2023
  - overall IRC, (no target)
    - 462 MCHF in 2023
- emphasis on balanced return is only related to the supplies IRC
  - countries are classified as:
    - well balanced (WB): IRC >= 1
    - poorly balanced (PB): 0.4 < IRC < 1
    - very poorly balanced (VPB): IRC <= 0.4
  - limited tendering can be applied for companies of VPB states

Implementation in BSO located in Europe

- Organizations that follow the European procurement regulatory framework do not have as a fundamental goal to achieve a balanced return
  - they are lacking the most powerful tool, i.e. limited tendering
  - they also use open tendering instead of closed tendering
  - nevertheless they usually report to the stake holders metrics about the industrial return
  - F4E, ESS, CTAO
- International organizations may have such a goal defined in their Rules
  - CERN does, ESO doesn't
  - tendering is done only by invitation
  - limited tendering is possible
  - with great power comes great responsibility ...
    - not achieving a balanced return may become a problem for the organization

Construction investment

- In the construction phase, Governments prefer to participate in funding the Organization with in-kind contributions
- In this case there are two possibilities:
  - procurement is **directly managed by the National Institutions**
    - in Europe limited tendering is in general not an option so it may be difficult to guarantee that the investment produces the desired industrial return
  - money is transferred to the **Organization which then manages the procurement**
    - if the Organization is an international organization, then limited tendering restricted to the companies of the countries providing the money is always possible.
      - this is the model followed by SKA, but also CERN rules includes this possibility when money is not coming from the CERN member states' contributions
    - If it is an European organization, there can be some derogation from the European procurement rules, but the European principles must be respected
- The SKA approach seems to make everybody happy:
  - for infrastructure contracts they have also introduced a weighting factor of 50% for contracts adjudicated to companies in the host countries (Australia and South Africa)
  - reducing the competition has the side effect of **increasing the total costs**
    - may not be a big issue for the Organization, if possible extra-costs are in charge of the National Institutes
    - SKA is now opening some tenders to avoid excessive costs
  - it is not aligned to the basic EU concept of an open European market
  - w.r.t. the first option, it makes it possible to have a **more effective central control on the in-kind contracts**, more **agile procurement procedures**, simpler **arbitration procedures**, etc.

Experience with in-kind at ESS

- ESS is a typical example of a large size / world class scientific facility built in a green field as and relying extensively on competences in technological institutions throughout Europe
- interesting report by R. Garoby of the experience gained there with in-kind contributions
  - https://indico.uu.se/event/445/contributions/698/attachments/707/908/ESS_at_AMICI_Garoby_21Feb2018.pptx
- main lessons learned:
  - managing in-kind contributions is much more difficult and complex than managing contracts with private companies in several aspects
    - it is essential that, since the start of the in-kind negotiations, the central organization can count on sufficient and experienced management, as well as technical and administrative personnel
  - partners are not interested in “low tech” work packages which then remains on the central organization's plate; in addition there are tasks that are better performed by a central organization than by partners
    - so, it's important, to set-up an adequate common fund subsidized in cash by partners (which can also provide a contingency to address at least small scale unexpected problems that require more money to be addressed)
  - in-kind contributions make it possible to exploit competences provided by partners but may become for the central organization "unnecessarily cumbersome"
    - make the right balance!

Conclusion

- Obtaining a balanced industrial return doesn't come as a free lunch and is tightly coupled to the legal model of the future ETO
- It's critical whether achieving balanced return is set or not as a goal in the financial/procurement regulations
  - if you do, make sure you have the tools to implement it
    - limited tendering is a must, other tools may non be so effective in most cases
    - International organization becomes a must
  - you have to pay a price in terms of higher costs
  - you have to sacrifice to some extent the principle of open competition which is an essential component for efficient markets
- in-kind contributions can be a good way to implement a "juste return" scheme in the construction phase, but you need a strong organization to manage it
- how can we move further on this ? in WP7 the next deliverable **"Model for pursuing in ET a balanced industrial return"** (May '25 --> Dec. '24). Is this going to be useful ? How can this be synergic with the WP2/3 work plan ?

Horizon Europe: Coordination and Support Actions

Grant agreement: Nº 101079696

Project: 101079696 — ET-PP — HORIZON-INFRA-2021-DEV-02

ET-PP
Industry engagement

Rob van der Meer

17 June 2024, Barcelona

Grant agreement: Nº 101079696

Horizon Europe: Coordination and Support Actions

Industry Engagement Plan (Milestone 10)

Industry Engagement Plan (Milestone 10) was ready in 2023.
Content:

- Analysis on ILO engagement with industries
- Gap analysis on ET challenges in various technical fields
- Action plan

Actions from action plan:

- Talk with ISB leaders and organize webinars
- So far only 1 done

We like to extend and speed up

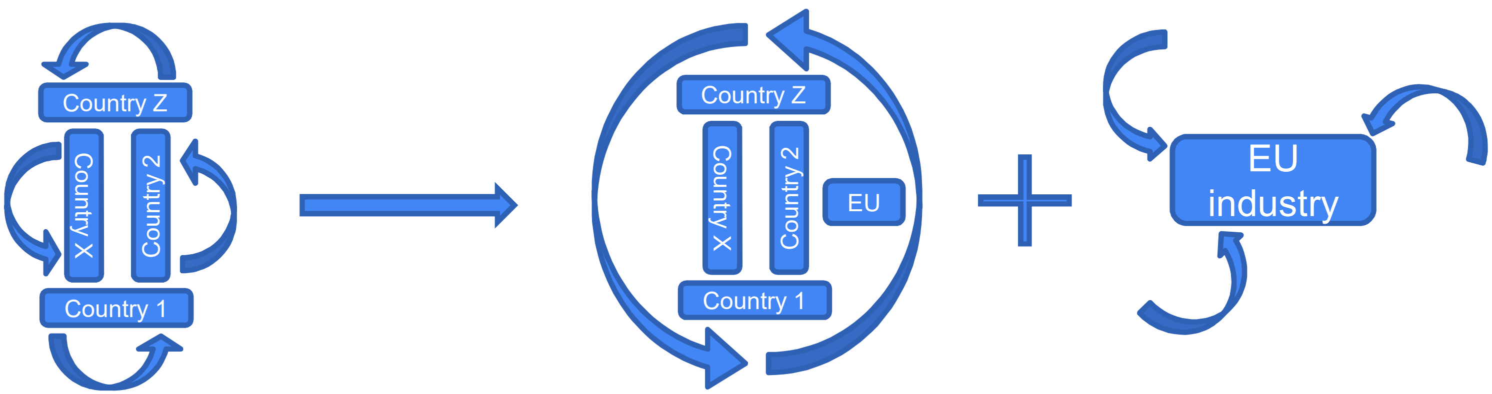
Intend for this meeting:

- ask your input and help.

ET-PP is a project supported by the European Commission Framework Programme Horizon Europe Coordination and Support action under grant agreement 101079696 (https://etpp.ifae.es/)

Industry Engagement Plan – Why?

The involved countries want/like their investment to return to their own economy.
A bit wider – The involved EU countries like the ET investment to return to the EU.



How can we help the funding authorities and in the mean time our scientist/technicians?

- Make sure that there is enough EU interest and knowledge to develop and produce the things we need.

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European Commission

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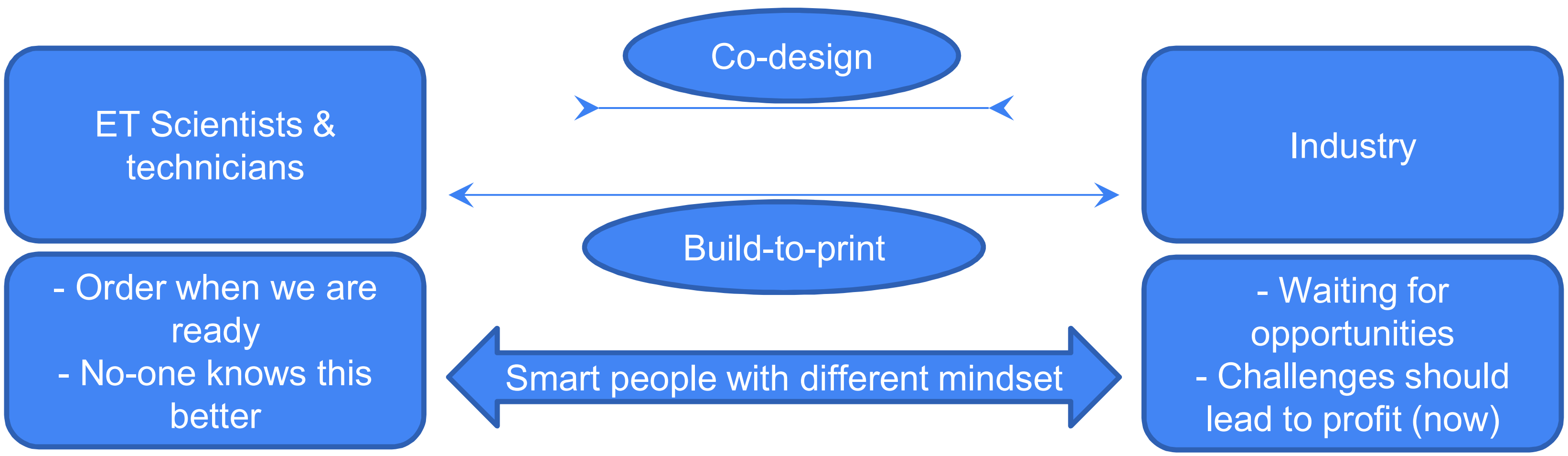

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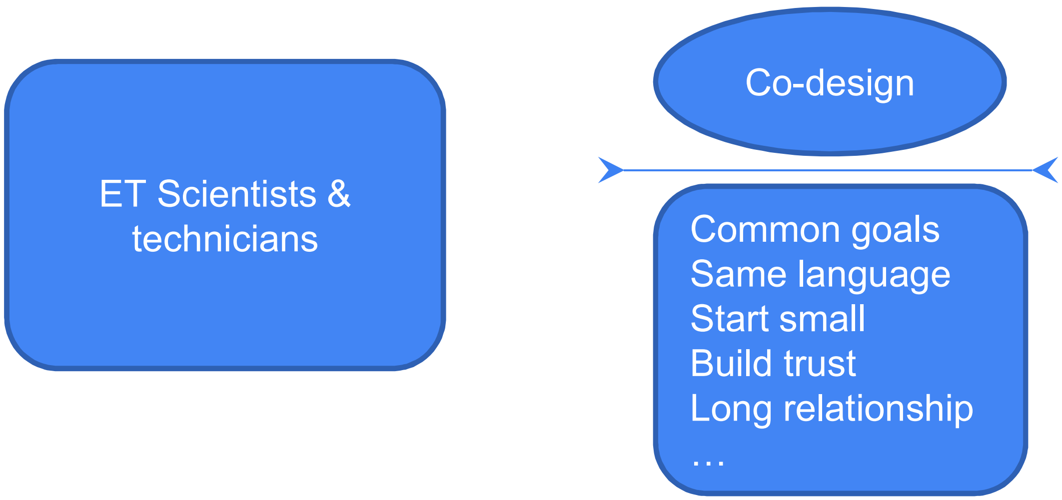
Industry Engagement Plan – How?

How can co-design work?



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Industry Engagement Plan – with whom?

How can we start making co-design work?

Common goals
Same language
Start small
Build trust
Long relationship
…

How do we find common goals / challenges ?
How do we learn to understand each others language ?
Can we start with something small and learn ?
Results and discussion lead to trust
How do we create long term relationships ?
…

Interpreters | Visionaries | Pioneers | Ambassadors | Quarter makers | Risk takers

"It can be done" | Columbus | King

"It should be done" | "It will be done"

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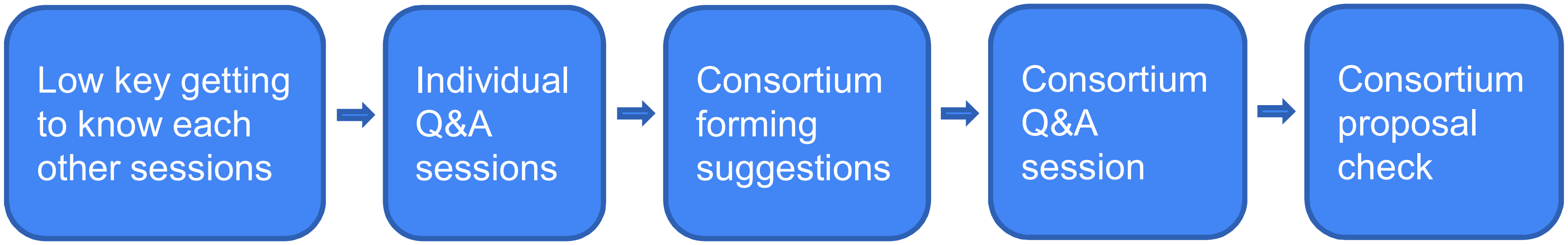
Industry Engagement Plan – with whom?

NL R&D calls [5]



- During the first meeting, industry always asks for requirements.
- If we want to do co-design, there are no requirements, there are only challenges that will lead to construction requirements.

- Industry also thinks we ask them for a new development.
- Then it takes some time to explain we are working and investigating in this field for over 20 years, so they should not think they can solve this easily with just one bright idea. There is a history that should be taken into account.

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Industry Engagement Plan – new options?

How can we start making something work?

Requirements alone do not work.

Usual interaction with industry does not work

→

Consultancy we think is the solution

What keeps us from doing this?
Why would you consult a colleague for free and not pay for another professional?

- Fear of losing control, fear of losing money
- Not seeing the possibility of gaining time and money back
- Not seeing the possibility to receive confirmation or warnings.
- There is no money with possible allocation to consultancy. Who has the power to change this?

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Industry Engagement Plan – new challenges?

What problems do we see to implement this?

- No money available
- Companies that provide consultancy might not be allowed to tender for the final product/service.
- Need monitoring system to see advantages of consultancy: investment v.s. result.

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Industry Engagement Plan – new chapter?

What are we going to do next?

- Talk again with ISB workgroup leads;
- Talk with research groups to find small pilot projects;
- Talk with institute directors and funding authorities to allocate funds for consultancy;
- Overcome counterproductive rulings;
- Find conditions in which consultancy could work;

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Engagement with Industry options

From the analysis of ILO activities:

Activity	Who do we want to talk to
ILO to company interviews	Need company list
ILO visits to companies	Need company list
Industrial surveys	
Workshops	Which topic can we organize one? Which existing workshop can we participate in and how do we find them in all countries
Visits to RIs	Where can we go?
Webinars	We need to organize in all fields
National Industry portals	Are there portals that you know of or use?
Funding instruments	Are there upcoming funding instruments that we should use. Where were you successful in the (recent) past?
Other events	What events do you know that we can connect to in all countries?

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Engagement with Industry options

From here:

- Who should we talk to in ET?
- Who can assign or free up people?
- How can we find (extra) funding for this? Or is this an investment that will come back easily with high gain?
- What can we ask in the next year and what can we expect as answer?
- What can we ask in the year after and what can we expect as answer?
- What do you want to hear back from us and how?

This should result in an updated plan and better/easier execution with marvelous results.

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Project: 101079696 — ET-PP — HORIZON-INFRA-2021-DEV-02

Horizon Europe: Coordination and Support Actions

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ET-PP

Grant agreement: Nº 101079696

Proposal for implementation of TT services for R&D activities within the ET-PP project and the future ETO

ET-PP WP7.3.2

I. Esparbé
IFAE

June 2024

Proposed approach to provide TT services for R&D activities being carried out during the execution of the ET-PP project

Institut de Física d'Altes Energies

Istituto Nazionale di Fisica Nucleare

Nikhef

UNIVERSITY OF WARSAW

Institut de Física d'Altes Energies

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TT services capacity of RI-KTOs to support ET Collaboration R&D

Institut de Física d'Altes Energies

Limited KTT HHRR to implement a deep analysis of all current ET-PP technologies in valorisation phase (in TRL increase phase)

>WP 7.3.3 – TT support for specific ET Technologies = 4 WP7 people part-time (2 IFAE,1 INFN, 1 UW)

Proposal to deal with the ET-PP WP 7.3 pending milestones

Reporting on the ET technologies in development phase at the RIs belonging to the WP7 and analysis of their innovation and market potential.

Proposal to increase innovation support to ET-PP R&D

Allocate small budget for acquiring DDBB licenses related to industry and market to support both procurement and market research activities, to facilitate the coordination of ktt activities at ETC RI-KTOs and to increase the innovation awareness among researchers, which in turn will conduct to more industrial return and impact in the society.

Advanced TRL R&D results developed by ETC-RIs within the ETP-PP

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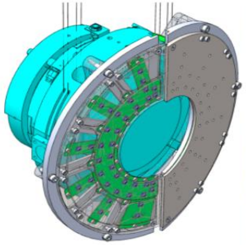
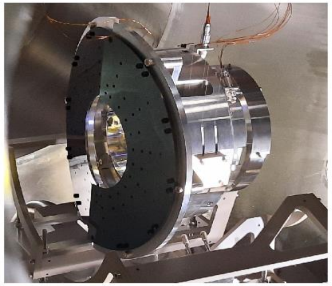
R&D results with highest commercial potential

The ET prototyping laboratories and R&D groups with scale-up capabilities at ETC are developing new technologies in a technology readiness level (TRL) ≥ 3, some of them novel and inventive vs the state-of-the art, which can be ready for licensing after validation and testing in relevant environment of a pre-prototype, namely the Proof of Concept (PoC), and/or once adapted to specific industrial requirements, by generating a pilot/minimum viable product. The RI-KTOs can suport the technology transfer process by analysing its innovation and market potential and managing technology licensing agreements with the industrial sector.

The case of the IFAE's instrumented baffle

This novel technology opens the possibility of active monitoring of the stray light inside the main optical cavities in the interferometers. The instrumented baffle technological developments will be ultimately translated into an improved sensitivity to GW signals. The KTT office at IFAE is looking into space and industrial machinery applications and IPR protection options.





Conceptual Design of the instrumented Baffle tested and validated at VIRGO IMC cavity (left)
Instrumented baffle as installed in Virgo in 2021 (right)

TT services from Research Institutes (RI) Knowledge Transfer Offices (KTOs) to support ET Collaboration R&D

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RI-KTOs support within the ET-PP

>Protection and exploitation strategy design for the ET project results developed at ET-PP to impact the society

>Patentability studies to identify patented state-of-the-art competitor technologies

>Evaluation of the commercialization opportunities for the ET R&D outputs

>Intellectual property (IP) analysis

>Insights on possible applications for the technology beyond science

>Hot innovation topics reflecting market challenges in specific industrial sectors

>IP global investment in the related technological fields compared to other consolidated IP markets

>Legal jurisdictions with more innovation activity in the field

>Main competitors based on their IP assets protected

Proposal for implementation of TT services in the future ETO including required resources

CONCLUSIONS OF THE INNOVATION MODELS BENCHMARKING

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1 GW based BSP (LIGO) vs 2 BSROs intensive in KTT (ESA and CERN)

Innovation model differences:

CERN - Maximizes the third parties use of research results in open source formats. Patenting activity linked to inventorship acknowledgement.

ESA - Promotes industrial applications of research output. Sponsorship of market oriented valorization projects. Royalty based tech licensing to non-EU companies.

LIGO - Drives the communication of disruptive results by publishing invention repositories and business case studies. The organization does not retain ownership on IPR.

Innovation model similarities:

1. Dissemination of research results.
2. Societal impact
3. Industry return.
4. Technology based entrepreneurship

ET Innovation Baseline Goals:

A) Dissemination of new ET Technologies
B) Promotion of employment and high qualified jobs in the R&D&I fields
C) Fostering GW industry and related sectors

STUDY OF A GWs BASED BIG SCIENCE PROJECT (LIGO)

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KTT OUTPUTS - DATA SCOUTING

- **Tech Transfer Case Studies identified:**

21 inventions produced in the LIGO collaboration since 1997 belonging to Stanford Univ., Florida Univ., Glasgow Univ., Birmingham Univ., Caltech and MIT.

- **LIGO Technology Transfer Items analysed:**

12 inventions protected by patent applications from R&D, construction and operation projects funded by NSF, DARPA, PIPSS, PPARC, etc.

- **ET-PP Innovation Plan EC evaluated**

Selection of D26 (WP7.1) innovation actions with capacity to address ktt challenges found in LIGO model.

- **LIGO had no innovation programs**

GWs research has an inherent innovation potential because it is technology intensive!

Technology Transfer Case Studies

Here we list a number of important examples of LIGO's contributions to technology related to lasers, optical components, ultra-high vacuum components, materials engineering, distributed computing, and sensors.

- Photo-thermal common-path interferometry
- Adaptive beam shaping
- High power modulator
- Pound-Drever-Hall locking
- Diode pumped laser
- Slab laser
- Vacuum cable clamp
- Interferometric displacement sensor
- Oxide bonding techniques
- Distributed identity management

LIGO

0.9 Disclosures of invention (DOIs) / year

(< DOI production in HEP RI)

0.5 DOIs protected by patent application / year

=

57% DOIs protected by patent application / year
(~ DOI protection ratio at ESA)

LIGO Technology Transfer Items

NSF Grant No: PHY1764464 (1 invention)

High-Reliability Ultra-Fast Mechanical Shutter
Serial Number: 16/900,615
Filed: June 12, 2020
Inventors: Richard Abbott; Peter Fritschel; Kavya Sreedhar
iEdison Invention Report No: 1073501-19-0042

NSF Grant No: PHY1834382 (No inventions)

NSF Grant No: PHY0757058 (4 inventions)

Cable Clamp
Serial Number: 12/835,577
Filed: July 13, 2010
Patent Number: 8,727,289; issued May 20, 2014
Inventor: Richard Abbott
iEdison Invention Report No: 1073501-09-0027

Ultra-Fast Mechanical Shutter
Serial Number: 14/711,466
Filed: May 13, 2015
Patent Number: 10036885; issued July 31, 2018
Inventors: Richard Abbott; Peter Fritschel
iEdison Invention Report No: 1073501-14-0051

LIGO INNOVATION OUTCOMES & PROJECT FUNDING

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LIGO KTT outputs (1997-2023)

△	Patent applications count:	12
X	Licenses granted count*:	5
◌	Spin-offs incorporated count:	1
–X–	Projects conducting to DOIs count**:	10

* 3 licenses not plotted due to lack of public data
** 4 projects not plotted due to lack of public data

42% patents licensed (~ RI-KTO licensing ratio) 🙂

20% patent based spin-offs (<< RI-KTO spin-off creation) ☹

<1 patent app./ short term projects> (<< RI-KTO) 😐

<3 patent app. / mid & long term funding projects> 🙂

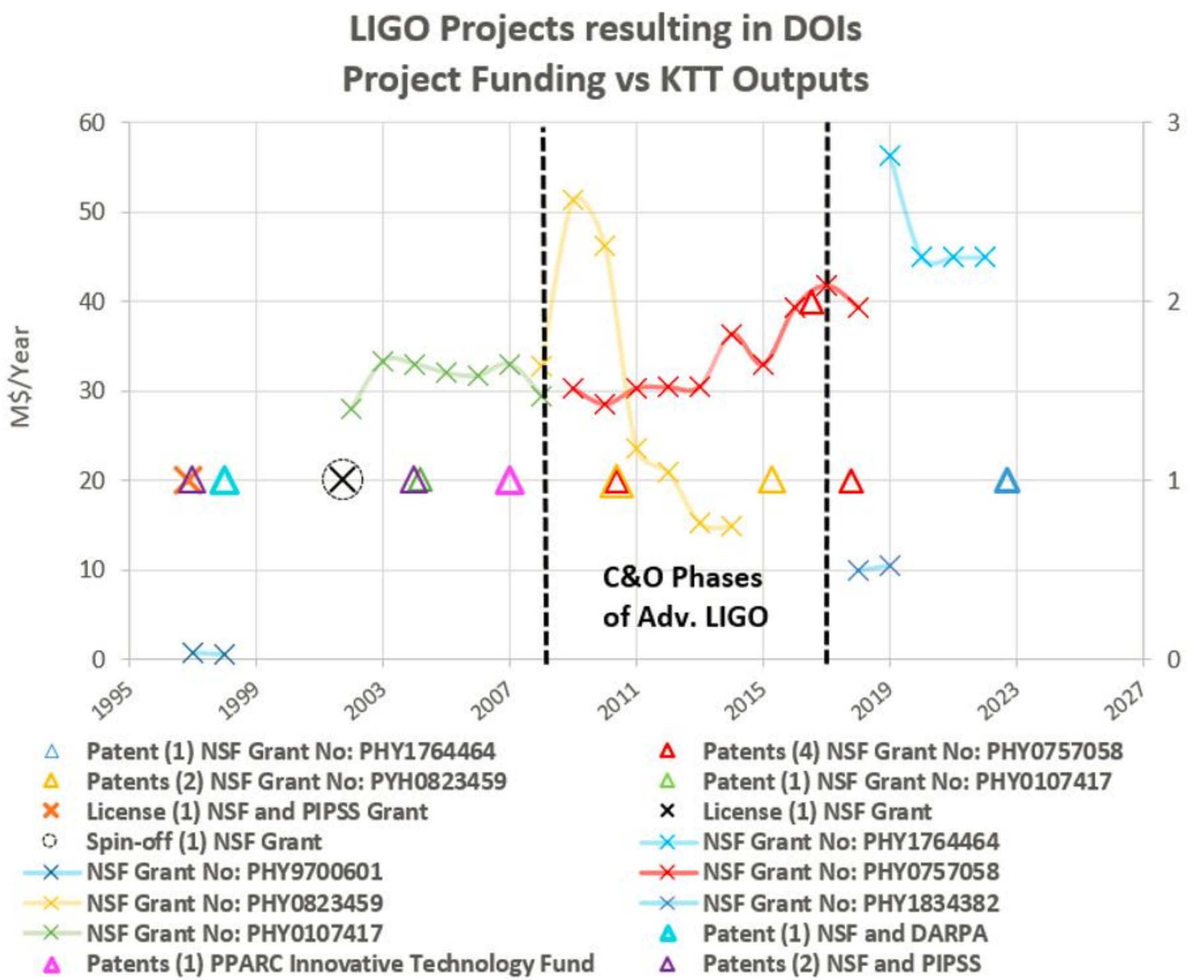
"DOI project" funding: <30M€/year> Duration: <5.4 years>

PROBLEMS: 😐 ☹

SOLUTIONS: PoC funding (x project results TRL increase)

+DOIs → +Patents → +Licenses

Entrepreneurship training → +Spin-offs → +Qualified jobs



KTT OUTPUTS: LIGO VS ET FORECAST

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From LIGO to ET expected ktt outputs:

50% investiment in LIGO R&D + C&O (~1B$) led to DOIs generation. Total ET budget > LIGO budget. Extrapolated to KTT outputs?

Many uncertainties due to project costs inflation, investment per project, number of projects, project duration, technologies, etc.

Main BSP **innovation challenges:**

1) BSP R&D projects limited funding for validation of new uses
2) Lack of venture building culture among BSP researchers
3) Absence of innovation coordination in BSP RI-KTOs.

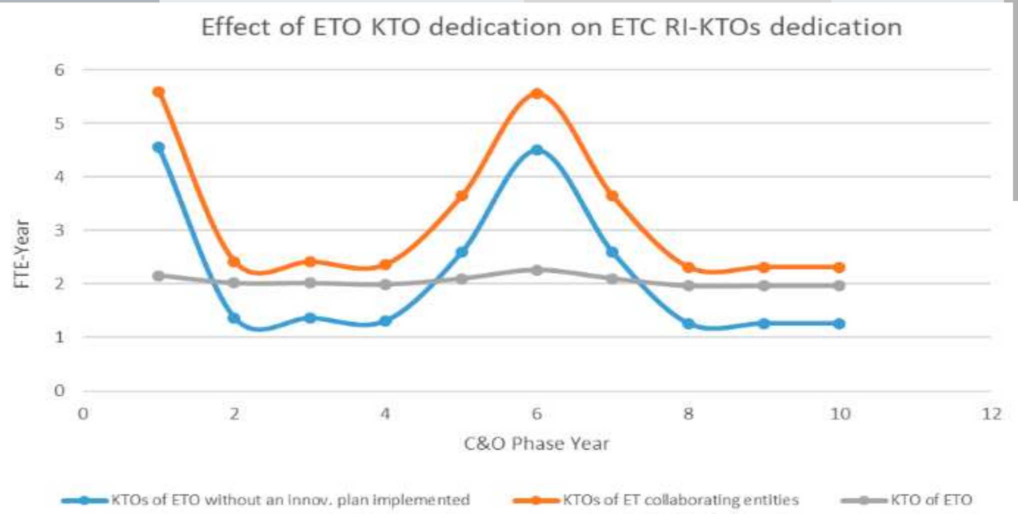
5 PoC projects funded + 5 entrepreneurship proposals advised x year can produce about 2 (+/-1) additional DOIs/year vs the basal DOI production.

The execution of both innovation programmes would require ETO to dedicate **2 FTEs/year** (grey line).

It would have a direct impact in **TT activity provided by the RI-KTOs**, increasing their expected ET dedication from **<2.3 FTE/year>** (blue line) forecasted without ETO-KTO up to **<3.3 FTE/year>** (orange line) when they are supported by an ETO-KTO, subsequently **increasing the ktt production.**

Proposal of **innovation actions** to address BSP challenges in ET:

1) Competitive valorisation fund (PoC) for post R&D phases
2) Innovation and Entrepreneurship training for GW researchers
3) Creation of ETO-KTO to implement 1&2 + coordination activities



INNOVATION PLAN IMPLEMENTATION: KTT ACTIVITIES AND COSTS

Institut de Física d'Altes Energies

Forecast of TT services for the next 10 years of the ET project (C&O phases)

ETC RI-KTOs

- DOIs analysis
- Inventions protection
- IPR Portfolio management
- O&E Agreements negotiation
- NDA, MoU and R&D agreements IP negotiation
- Tech valorisation support
- KTT public funded projects reporting
- Patent Licensing (TTA)
- Spin-offs incorporation & growth (SHA, ISHA, CA)

ETO KTO*

- Review Tendering Plan and annual results*
- Updating tendering procedures and tools*
- Organization Tendering process + meetings + Training*
- Review KTT outputs and annual results*
- Coordinated tech scouting meetings*
- PoC programme management and implementation*
- Entrepreneurship training*
- Technology repository update*
- Search for licensees interested in exploiting ET tech*

<u>*Forecast of ETO-KTO annual costs</u>

➢ 5 PoC projects funded / year = 5 applied R&D projects funded:	150k€
➢ ETO-KTO staff people = 1 KTO coordinator + 1 junior KT officer:	125k€
➢ 5 Entrepreneurship projects mentored / year = 20 researchers advised:	30k€
➢ 2 DDBB licenses (procurement & market research) + legal advice:	30K€
TOTAL	**335K€**

0,02% ET Construction budget for PoC (0,03% LHC)

+20 reseachers will be trained per year

5 research groups will get funded per year

5 x 30k€/project (12 x 130k€/project CERN)