Invention and Innovation in H2020
Preparing Proposals & Managing Projects

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Get your ticket to innovation.

Dr. Eugene Sweeney

- Technical and Commercial Background
- 36 years experience of commercialising IP/research and new technology
  - 1970’s As a researcher in Engineering/CFD (first spin-out in 1978)
  - 1980’s In computer industry (bringing new technologies to market)
  - 1990’s Early stage technology/IP investment and commercialisation
  - 2000 - Consultant in IPR and research commercialisation
- 22 years experience with EC as proposal evaluator, rapporteur, project reviewer and consultant
- Member of International (ISO) and European (CEN) Standards Committees on Innovation Management
- Member of Licensing Executive Society
Horizon 2020

"The European Union Commissioner for Research, Science and Innovation, Máire Geoghegan-Quinn, emphasised Europe's determination to link science and research and innovation to market."

Brussels, 18th February 2010

Horizon 2020

- An **impact orientated** approach
- **Delivering** strategic technologies that can drive competitiveness and growth
- Impact and Innovation must be **addressed in all sections** of a proposal, not just the impact section
- Impact and Innovation must be **managed in all stages** of a project, not just during exploitation
Roadmap

- Vocabulary/Definitions
- Addressing IPR and innovation when preparing H2020 proposals and managing H2020 projects
Vocabulary/Definitions

- **Intellectual Property (IP) & Intellectual Property Rights (IPR)**
- Innovation
  - Innovation Potential
  - Innovation Capacity
  - Innovation Management
- Impact
- Exploitation
- Dissemination
- Communication

**Intellectual Property (IP)**

- Products of the mind
- Products of research & experimentation
- Products of creativity

- Intellectual Property, like Physical Property can be a **valuable asset**.

- Like physical property, intellectual property is an **asset which can be traded** (sold, bought, leased, used as collateral, or given away!)
Intellectual Property Rights (IPR)

The law provides legal “rights” to protect your Intellectual Property, known as Intellectual Property Rights (IPRs)

- Patents (technical inventions)
- Copyright (Software, Written works, Engineering drawings, Semiconductor Topologies, etc)
- Design Rights (appearance)
- Database Rights (creation and arrangement of data)
- Trade marks
- Plant Breeders Rights
- Utility Models/petty patents
- etc

• NOT ONLY PATENTS
  - Confidentiality Agreements (Know-how)
  - Secrets (Trade Secrets)
  - National rights
  - Regional variations in law
  - Time limited rights

Intellectual Property Rights (IPR)

- WHY?
  - To promote innovation by encouraging invention and creativity, and thereby benefitting society

- HOW?
  - The state grants a limited monopoly in return for publishing the invention

- WHO BENEFITS?
  - The state benefits by avoiding secrecy, thus stimulating further innovation, and thus enriching society
  - The creator benefits by preventing unauthorised use by others, unless they come to an agreement
Why is IP important today?

- Pre-19th Century: economies were mainly “land based” and “agricultural”
- 20th Century: the primary economic commodities of the were physical - iron, steel, coal, oil, etc.
- 21st Century: the primary economic commodity is Intellectual property

What does this mean in practice?

- Today, physical and electronic communications mean I can now
  - source raw materials anywhere in the world
  - ship them to wherever is cheapest to manufacturer
  - market, sell and collect money worldwide
  - ship products directly to users or distributors worldwide
- It is not the owner of the raw materials, or the manufacturing capability, or the marketing channels who rules.
- It is the owner of the knowledge who is king!
- From “made in ...” to “created in ...”
## Knowledge Based Economies

- Building a Knowledge Based Economy is now a **key policy objective** for governments worldwide.
- Intellectual Property is the **core component**.

## IP and IPR are valuable assets

- Like physical property, intellectual property (IP), and the legal rights in them (IPR), is **an asset which can be traded**. It can be:
  - Sold
  - Bought
  - Leased
  - used as collateral
  - given away
Invention IS NOT Innovation

Invention

The successful exploitation of new creations, which when used produce tangible benefits, satisfying needs and wants.

Impact

The extent of the benefits derived from the innovation

Innovation Potential

- How much benefit (innovation) can the project results potentially deliver?

Innovation Capacity

- Do the project results have the capacity to stimulate further innovations, and/or increase the amount of benefits delivered?
- Does it have the potential to be used in other areas (beyond the project objectives)?
Exploitation and Dissemination

- Exploitation (or use) can be **commercial** or **research**
- Dissemination (or publishing) stimulates further research and development (the rationale for IPR), and exploitation

Communication?

- Internal Communication (e.g. collaboration platforms, etc)
- Communication of the project (e.g. web page)
- Communication of project results (e.g. dissemination)
- Communication measures (e.g. publications, events, etc)
Extract from proposal template

2.2 Measures to maximise impact
a) Dissemination and exploitation of results
b) Communication activities

"Describe the proposed communication measures for promoting the project and its findings during the period of the grant. Measures should be proportionate to the scale of the project, with clear objectives. They should be tailored to the needs of various audiences, including groups beyond the project’s own community. Where relevant, include measures for public/societal engagement on issues related to the project.”

Communication, Dissemination and Exploitation

- Exploitation of results
- Communication Measures
- Dissemination of results
- Review results and protect (if appropriate)

Project

- Internal communication

Start - First project outputs - End

Communication of project
Addressing IP, Impact and Innovation in H2020 proposals

Proposals for all Actions (RIA, IA, CSA, SME, FTI, etc)

- Demonstrate an understanding of the technology and market environment, to select and justify the project objectives
- Presenting a credible and viable methodology to achieve the project objectives...
- ...and to deliver innovations with impact.
- Demonstrate the ability and capability to deliver, including work plan, governance, policies, systems, structures, operational processes and risk management.

Excellence – Impact - Implementation
**Innovation, SME Actions, FTI**

- Focus on the **business opportunity**
- Include the **concept for commercialisation**
- Ensure good level of **innovation**, i.e. develop something new
- Analyse **competing solutions** and explain ***why you will succeed*** and not your competitor

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**Understand the (Potential) Impact**

- Innovation is about satisfying **needs** & delivering **benefits**
- What needs will be addressed (relevant to the **call topic**)?
- What benefits delivered?
  - to whom?
  - and how much benefit (contribution to the expected **impact of the call**)?
- Select the **project objectives** to **maximise impact** (the extent of the innovation) expected by the **call topic**.
The Work Programme
Clearly describes the challenges and expected impacts
e.g. ICT9–2014: Tools and Methods for Software Development

Specific Challenge: The quality levels required for complex and critical systems for example in terms of reliability, resilience and automatic adaptation, still represent a major challenge

Scope: Proposals are expected to cover one or both of the themes identified below.
- Software tools and methods for large, complex
- Software architectures and tools for highly distributed

Expected impacts:
- A significant and substantiated productivity increase in
- Availability and market take-up of innovative tools for
- At macro level, evidence of potential for productivity gains

Understand the landscape
Strategic Intelligence – to plan a route

WP and Call Challenges, Objectives & Topics

Research Competitions
Standards
Related Research
Industry Competitors

Technology
Regulations

Market Factors
SOTA
IP & IPR
Strategic Intelligence to Action Plans

1. **Gather information** to understand the landscape (market, technical, IPR, SOTA, Competitors, etc)

2. **Analyse** the information to obtain **strategic intelligence**... to allow you to

3. **Justify** the project objectives considering consortium expertise, capabilities and proposed resources .. and to

4. **Plan to deliver** – developing strategies and plans to maximise impact and exploitation:
   - R&D strategy and delivery plan
   - Draft research result dissemination strategy and plan
   - Draft exploitation (use) strategy and plan

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Data > Intelligence > Plans

- **State of the Art**
  (how will you go beyond it – what new IP will be produced?)
  - Academic papers
  - Patents and other registered IP

- **Market**: size, segmentation, distribution, growth, “needs and wants”
  (what will you target, and how will you be positioned?)
  - Market reports/Industry partners
  - Patents and other registered IP
Data > Intelligence > Plans

- **Competitor Intelligence**: market share, technologies, current and future plans *(Where will you be positioned; what will your key differentiators/USP’s be?)*
  - Company websites, annual reports (incl. financial)
  - Market reports
  - Patents and other registered IP

- **Technologies**: other technical solutions which can address the objectives; their status, strengths and weaknesses *(Why will your technical solution be better, and in which areas?)*
  - Technical reports
  - Patents and other registered IP

Strategic Intelligence from Patents

- State of the Art
- Freedom to use
- Potential new technology areas
- Key players – now and who is looking for the future!
- Market Intelligence
- Competitor Intelligence
- Technology Intelligence
- Finding research and/or commercialisation partners

More later....
Pulling it all together to prepare the proposal

Excellence

Extract from proposal template

- **Objectives** should be consistent with the expected exploitation and impact of the project
- Describe the **positioning** of the project
- Describe **research and innovation activities** which will be linked with the project
- Describe the advance your proposal would provide **beyond the state-of-the-art**
- Describe the **innovation potential**
- Refer to the results of any **patent search** carried out.
Impact

Extract from proposal template (1 of 2)

- Describe how your project will contribute to:
  - the expected impacts set out in the work programme, under the relevant topic;
  - improving innovation capacity
  - strengthening the competitiveness and growth of companies

- Describe any barriers/obstacles that may determine whether and to what extent the expected impacts will be achieved.

Impact

Extract from proposal template (2 of 2)

- Provide a draft ‘plan for the dissemination and exploitation of the project’s results’
  - The approach to innovation should be as comprehensive as possible, and must be tailored to the specific technical, market and organisational issues to be addressed.

- Include a business plan where relevant.

- You will need a consortium agreement to manage the ownership and access to key knowledge (IPR, data etc.).

- Outline the strategy for knowledge management and protection.
Implementation

**Extract from proposal template**

- Give visibility in the work plan to ‘dissemination and exploitation’
- Describe how effective innovation management will be addressed in the management structure and work plan.
  - "Innovation management is a process which requires an understanding of both market and technical problems, with a goal of successfully implementing appropriate creative ideas.”
- Describe the industrial/commercial involvement in the project to ensure exploitation of the results

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**Implementation**

Management **structures and procedures** to:

1. **Create, capture and manage the research results (IP)**
   - The management framework (who is responsible)
   - The management procedures (how it will be done)
   - Establish good foundations and guiding principles/policies
   - IP management and protection strategies and procedures

2. **Disseminate and Exploit the research results (IP)**
   - Assess the opportunities
   - Exploitation strategies and plans
   - Exploit/Extract value from research outputs
   - Dissemination and communication of research outputs
Typical Management Structure

- Project Management Board (all partners)
- Executive Management Team (key team leaders)
- Strategic/User/Innovation Advisory Board

All have responsibilities related to IPR, Impact and Innovation

Evaluation Criteria - Implementation

- Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources
- Complementarity of the participants within the consortium (when relevant)
- Appropriateness of the management structures and procedures, including risk and innovation management
Innovation management

is not

IPR Management

is not

Exploitation Management

is not

Dissemination Management

is not

Communications Management
Innovation Management
(EC Definition)

Overall management of all activities related to understanding needs, with the objective of successfully identifying new ideas, and managing them, in order to develop new products and services which satisfy these needs.

Innovation management starts at the point of capturing the creative works and finishes when it a product or service is deployed.

The management framework

Someone must be responsible for managing all activities related to innovation, from market need through capturing the IP, to market deployment.
Management tasks and responsibilities

<table>
<thead>
<tr>
<th>Key Tasks</th>
<th>Responsibility</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Secure the foundations</td>
<td>Top level management (e.g. Project board, Project Manager)</td>
</tr>
<tr>
<td>2. Capture the project outputs</td>
<td>Research/Technical Management (e.g. Project Manager, WP Manager, Technical Managers)</td>
</tr>
<tr>
<td>3. Manage and protect the project outputs</td>
<td>IPR Management (e.g. IP Manager, Innovation Manager, Exploitation Manager)</td>
</tr>
<tr>
<td>4. Disseminate, exploit and communicate the project outputs</td>
<td>Innovation Manager, Dissemination Manager, Exploitation Manager, Communications Manager</td>
</tr>
</tbody>
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1. Secure the foundations

- Consortium agreement
- IP and exploitation policies
- Ensuring researchers can recognise and capture IP (IP awareness training for participants)
- Ensure good research practice (including record keeping)

Intellectual Property is an asset which has value.

Its creators (i.e. the researchers) must be able to:
- recognise it
- prevent its value being lost
- know where to go for help
2. Recognise and Capture the IP

- Proactive monitoring of research outputs - regular reviews
- Facilitating IP disclosure (to IPR Manager)/standard “disclosure forms”
- Initial Disclosure - **Key information needed**
  - Identify ALL relevant IP (software, papers, know-how, etc)
  - **Clarify ownership** – particularly if 3rd parties involved
  - **Check for “hidden traps”** (publications, posters, etc), which might affect patentability.
- Pre-publication reviews to avoid “value leakage” for technical inventions

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**Have you captured ALL the IP?**

- **Technical IP (Patentable)**
  - Process, Product, Manufacturing
  - Apparatus
- **IP protected by copyright**
  - Software
  - Reports
  - Engineering drawings
  - Manufacturing and user guides
- **Trademarks/brands**
- **Designs (design rights)**
  - Functional
  - Eye-appeal
- **Know how** (e.g. best way to implement)
- **Secrets** (e.g. secret formulas)
Ownership!

- Who owns what? ✔ (don’t just quote default rules)
- How will relative contributions to the invention be agreed
- Who will manage?
- Who will pay for protection?
- How will costs be shared?
- How will revenue be shared?

Does the Consortium Agreement address this?

Legal Ownership of EC Supported foreground IP is with the Institution – so **institution involvement is crucial** for issues such as IP ownership, access and use.

Visitors?

Ensure IP Policies are agreed to by “non-staff” who might become involved in the project.

- Taught research students
- Visiting academics
- Advisory board members
- etc
Hidden Traps
which can prevent patentability for technical inventions

- Novelty
- Inventiveness (not obvious)
- Industrially Applicable or Useful

Hidden Traps - Novelty

- Not previously described or publicly disclosed (anywhere or anyhow in the world)
Common inadvertent disclosures

Not only ..
- Publishing in the literature
- Posting information to the Internet

But also beware of ..
- Inclusion in a thesis deposited in a library
- Oral or written disclosure with a customer, at scientific meetings (including poster sessions), or in any circulated abstract
- Disclosing to visitors in a non-confidential manner, including posters and displays in corridors
- Leakage of information from experimental public trials or prototypes without taking precautions to avoid this
- Advertisement, sale, use or any form of commercial activity which is public (e.g. to try and “test the market”)

Inventiveness... Obviousness

-European Patent Office Guidelines

“The term 'OBVIOUS' means that which does not go beyond the normal progress of technology but merely follows plainly or logically from the prior art i.e. something which does not involve the exercise of any skill or ability beyond that to be expected of the person skilled in the art”
Published (or Public) Statements can Defeat Patents

- “Smith and Jones showed X. Therefore we decided to try Y”
- “Because of its structure, this virus seemed a likely choice as a vector of foreign epitopes”
- “We predicted it would happen and these results have confirmed our prediction”
- “Logic dictates that…”

Avoid statements that make it sound obvious to try and obvious that it will succeed – including after filing a patent.

Establish Good Practice

- Procedures for pre-publication review
- Procedures to manage other public disclosures such as in emails, posters, internal seminars
- Procedures for visitors and visiting researchers
- Encourage the recording of research activity and results (to secure proof of creation)
3. Managing the IP
Assessment and protection

➢ Assessment
   ▪ Is there an opportunity for the project output to deliver an impact (be exploited)?
   ▪ Does the IP/project output benefit from protection - in line with exploitation strategies?
➢ If so, invest in protecting and securing foreground IP as appropriate (an eligible cost in H2020)
   ▪ Patents, copyright, keep secret, etc
   ▪ Secure proof of creation
➢ IP protection is an investment NOT a cost!

Assessment, protection and exploitation must be considered together

4. Disseminate, Exploit, Communicate

➢ (Draft) dissemination and exploitation policies and strategies and plans, including the project results as a whole at proposal stage
➢ Preparation of more detailed strategies and plans during the project
➢ Coordination of dissemination and exploitation plans to avoid conflicts
➢ Appropriate communication measures
Know your targets, messages, and how to deliver them

- What is my objective, who should I convince (and why)?
  - Market analysis – where will I get the most/best impact?
  - Who are the key targets (prospects, users, AV developers, influencers, policy makers, etc)?
  - What are the key messages for each target group?

- How will I tell them?
  - How will I deliver the messages to the right people (scientific publications, industry events, conferences, press releases, etc)?
  - How will I make sure the message is being properly received?

Summary

I³ in H2020 proposals and projects

- IPR, Impact and Innovation must be addressed in all 3 sections (excellence, impact and implementation) of H2020 proposals

- Understand the landscape (market, technical, IPR, SOTA, Competitors, etc) to obtain strategic intelligence, to justify the project objectives, and to plan the best route to achieve maximum impact

- Ensure foundations, structures and procedures are sound; to create, capture, manage, protect and exploit the project results

- Ensure exploitation plans are consistent with needs of the markets.
Thank you. Questions?

For further questions and general IP advice, please contact our Helpline team:

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