

RiEcoLab



Manufacturing



Co-funded by the
European Union

RESPONSIBLE INNOVATION- LED ENTREPRENEURIAL UNIVERSITY (Ecosystem Integration Labs)

The overall joint vision of RiEcoLab for 2030 is to develop a novel way of performing research and development in universities to ensure immediate commercialisation (spin-offs) and involvement of a large number of internal stakeholders.

PROJECT DESCRIPTION

The EILs and the IVAP will build on capacity developed around the following toolkits:

- Toolkit 1: participatory engagement strategy for facilitating the entrepreneurial discovery process;
- Toolkit 2: setting up, institutionalising and operationalising the EILs;
- Toolkit 3: embedding responsible research and innovation in the innovation spin-off strategy of HEIs;

PARTICIPATING PARTNERS



- Toolkit 4: bridging public and private impact investors to support spin-offs;
- Toolkit 5: implementing an inclusive performance measurement system (operationally, environmentally and socially) to monitor the impact of the spin-offs;
- Toolkit 6: effective collaboration, innovation, entrepreneurship, participatory engagement, and co-creation in a digital environment. (DigComp and EntreComp).



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Participatory Engagement Strategy for facilitating the Entrepreneurial Discovery Process

WP1 – IVAP Framework and Training Material Development

Task 1.1 – Integrated IVAP Toolkit Development

Authors: UCD, Yasar, ACEEU

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Lead Author	Elizabeth Nolan Marian O'Dea	Organisation	UCD
Other authors	Yasar, ACEEU		

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1. User Guidelines

This is Toolkit 1 of a set of six Toolkits developed by RiEcoLab. RiEcoLab aims to develop new ways of performing research and development in universities to improve the process and speed of commercialisation (spin-offs). The project also aims to include a larger number of internal stakeholders (academic and non-academic staff, as well as students) in the research and commercialisation processes. To deliver on its aims, the RiEcoLab project will develop Ecosystem Integration Labs (EILs), which will be adapted and implemented by each participating university, by building on existing infrastructures, such as research support and technology transfer offices.

This toolkit is a foundation level toolkit that introduces the concepts of engaged / participatory research and stakeholder engagement. Participatory research takes some principles from the design thinking philosophy which espouses the belief that all different types of stakeholders should participate in the definition of problems and their solutions for the purposes of achieving better and quicker outcomes.

This toolkit features an Engaged Research Framework designed and supported by the Irish Universities Association and further resources are available on their website www.campusengage.ie. The Framework is ideological and serves to support universities in their progression towards an engaged research approach.

An Impact Canvas designed by University College Dublin is included here as a tool to support researchers at any stage of their research journey. Design thinking principles are applied to its completion and several sections of the canvas are used to produce a stakeholder engagement strategy to facilitated engaged research.

1.1 Potential audience

This toolkit can be used by:

- Students and researchers who are developing their research plan or who are interested in setting up a new commercial venture or exploiting the commercial impact of research
- Administrators who support researchers on their research and innovation journey

1.2 Learning outcomes

After reading this toolkit or attending the training attendees should be able to:

- Understand why engaging stakeholders at all stages of the research and innovation journey is important
- Assess the status of a research project on a research journey
- Identify and map stakeholders appropriate to the stage of the journey
- Develop and execute a stakeholder engagement plan
- Complete an impact canvas



1.3 Toolkit Impact

This toolkit will create a common understanding of the participatory research journey and the importance of stakeholder engagement. It should therefore contribute to improved internal processes in the university by encouraging university administration to facilitate and support stakeholder engagement. New tools and frameworks may be developed that localise some of the frameworks and tools included in this toolkit so that the university administration is better equipped to support the researcher on their journey.

2. Glossary of Terms

Design Thinking	Design thinking asserts that a hands-on, user-centric approach to problem solving can lead to innovation, and innovation can lead to differentiation and a competitive advantage.
Entrepreneurial Discovery Process	Entrepreneurial Discovery Process (EDP) is the method used to: • Identify suitable sectors of regional expertise for innovation • Support the implementation of innovation strategies by involving stakeholders
Impact	Impact is the “demonstrable contribution that excellent research makes to society and the economy”. <i>Science Foundation Ireland and Economic and Social Research Council (ESRC, UK)</i>
Quadruple Helix	The research and innovation stakeholders that represent key local actors from • Government • Research and scientific institutions • Industry • Citizens which engage in bottom-up collaborative processes in innovation policy and challenge the traditional top-down policymaking process.
Stakeholders	People, groups or organisations that are affected by your project or who can affect the outcome of your project.
Stakeholder Engagement	<i>A continuous and systematic process by which an organisation establishes a constructive dialogue and a fruitful communication with its key stakeholders.</i> Interreg Central Europe

3. Key Concepts

3.1 Entrepreneurial discovery process

The term Entrepreneurial Discovery Process (EDP) has a specific meaning in the context of the EU Smart Specialisation Strategy as the method used to :

- *Identify suitable sectors of regional expertise for innovation*
- *Support the implementation of innovation strategies by involving stakeholders*

Stakeholder involvement within EDP is at the very centre of the smart specialisation concept. The goal of EDP is to focus limited financial and human resources on certain domains in order to develop distinctive and original areas of specialisation in a region. (Perianez-Forte and Wilson, 2021)

For the purposes of this training toolkit and to support the RiEcoLab mission of improving commercialisation processes and engaging a large number of stakeholders, we are looking at the second part of the definition “Support the implementation of innovation strategies by involving stakeholders”

A research and innovation journey is usually constrained by limited financial and human resources so using this toolkit will help to train researchers and entrepreneurs on how to meaningfully engage stakeholders in their research with the aim of getting faster and better outcomes that meet society’s expectations.

3.2 Stakeholders

Stakeholders is a broad term used to reference people, groups or organisations that are affected by your project or who can affect the outcome of your project.

Stakeholders will differ for every project and indeed within the lifecycle of a project stakeholders may change and their interest in or affect on your project may change too.

Here is an example of stakeholders of the Volkswagen motor group:

THE VOLKSWAGEN GROUP'S STAKEHOLDERS



Figure 3.2 Volkswagen Group's stakeholders

3.3 Quadruple Helix

The Quadruple Helix is a term used to describe the research and innovation stakeholders that represent key local actors from

- Government
- Research and scientific institutions
- Industry
- Citizens



Figure 3.3 Volkswagen Group's quadruple helix of stakeholders



These groups engage in bottom-up collaborative processes in innovation policy and challenge the traditional top-down policymaking process.

3.4 Stakeholder Engagement

Association of European Border Regions (AEBR) definition: *“Stakeholder Engagement is a continuous and systematic process by which an organization establishes a constructive dialogue and a fruitful communication with its key stakeholders”* (AEBR, 2019)

Engagement moves beyond the tradition view of ‘managing stakeholders’ towards a scenario of where stakeholders are actually involved, in varying degrees, in a project with the aim of achieving better outcomes. Campus Engage note the following: *“Good research is good for society. To avoid misalignment of expectations regarding the kind of research outputs that society expects, and the nature of the research outputs that researchers deliver, better engagement between researchers and the community of stakeholders is essential.”* (Campus Engage, 2017)

3.5 Design Thinking

Design thinking is an approach which asserts that a hands-on, user-centric approach to problem solving can lead to innovation, and innovation can lead to differentiation and a competitive advantage.

Thomas Edison once said:

I find out what the world needs. Then I go ahead and try to invent it.

He is famous for inventing the lightbulb but actually he thought the lightbulb would only be useful with a system of electric power generation and transmission – so he designed those too! When we look at his work now we can see that it is an early example of the design thinking approach. Edison focused on how people would want to use what he invented and he directed his designs and inventions towards that need.

Some of the world’s leading brands, such as Apple, Google, Samsung and GE, have adopted the design thinking approach. Design thinking encourages researchers to do the right kind of research, challenge existing assumptions and to prototype and test products and services so as to uncover new ways of improving the product, service or design.

By prototyping and testing earlier in the research and innovation journey we can ‘fail faster’ thereby discarding solutions that don’t solve the problem early on and focusing scarce resources on solutions that are better matched with the user’s challenge or problem.

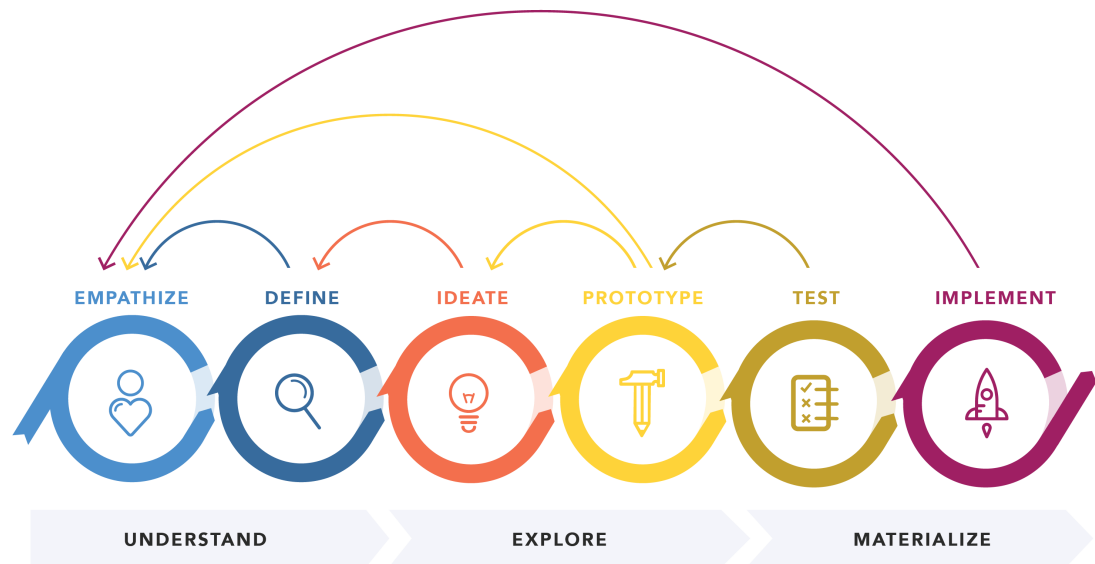
Design thinking also encourages the integration of a large number of stakeholders in the process at all stages as the approach maintains it leads to better ideation and solutions. People sometimes refer to design thinking as “thinking outside the box” – i.e. coming up with solutions that challenge existing assumptions and constraints.

The design thinking process has 6 phases. However, it is important to note these phases are not steps – they may not always occur in a linear fashion and tend to have iterative loops.



Projects may revert back to earlier stages as ideas are refined e.g., you might *Test* a prototype and realise that it doesn't work as well as you thought and that you need to revert back to *Define*.

Figure 3.5 Design Thinking (Nielson Norman Group, n.d.)



DESIGN THINKING 101 NNGROUP.COM

<https://www.nngroup.com/articles/design-thinking/>

Let's look at each phase:

- *Empathise* - research your users' needs. Conduct research to develop knowledge about what your users do, say, think, and feel. Try to understand what motivates the user, what challenges they experience and what drives their behaviour. Put yourself in the user's shoes to fully experience the problem.
- *Define* – state your users' needs and problems. Combine all your learnings and observations to fully understand the challenge and start to see opportunities. (This may link back to the *Empathise* stage as we can better feel what the user feels and therefore have a better set of questions to ask).
- *Ideate* - challenge assumptions and create ideas. Having completed the *Empathise* and *Define* stages some unmet needs should be evident. Here we start to think creatively and outside of the box to find ways to respond to those unmet needs.
- *Prototype* - start to create solutions. Creating an early prototype allows us to test our ideas and see if a viable product or solution exists to the unmet need identified. This is not like traditional prototyping at the end of the research stage – we are prototyping early and prototyping on far from finalized ideas. We can use the prototype to better *Define* the problem and the task of creating the prototype may give rise to new ideas (loop back to the *Ideate* stage). If there were several solutions developed in the *Ideate* phase the *Prototype* stage may be carried out multiple times.



- *Test* - try your solutions out as real-life experiments. Taking the prototype back to the users and stakeholders will generate feedback that may bring us back to the any of the previous stages of *Empathise*, *Define*, *Ideate* and *Prototype* as we use tests to further deepen our understanding and refine our solution. Evaluate the prototype by asking real users to use it, observe their interactions and gather their feedback.
- *Implement* – put the vision into effect. Having successfully tested and refined the prototype we should be closer to having a successful outcome or output that meets the unmet needs of our users.

The benefits of applying design thinking:

When we apply a design thinking approach to the research and innovation journey it encourages the involvement of many stakeholders throughout the process. It encourages researchers to start with the users' requirements and to really understand their end user.

Testing research and potential outcomes with the end users early in the process helps to shorten the research and innovation journey. It can avoid costly rework if a near market solution is tested towards the end of the process and is found to be lacking.

Design thinking should result in an output with a commercial value (spin-out) or something that someone may pay to acquire (licence).



4. Campus Engage – a participatory engagement framework

The Campus Engage initiative, led by the Irish Universities Association with participation from all Irish universities, supports a broad range of enhanced engagement practices between higher education institutions and society. They produced a report that offers a transdisciplinary Framework for Engaged¹ Research from start to finish: from initial ideation, design and planning, through data collection, analysis and access, and culminating in knowledge exchange and translation activities, including project review and impact assessment.

“To avoid misalignment of expectations regarding the kind of research outputs that society expects, and the nature of the research outputs that researchers deliver, better engagement between researchers and the community of stakeholders is essential.”



Figure 4 Campus Engage – Engaged Research Framework, Original design by Sarah Bowman, Trinity College Dublin

The Engaged Research Framework was created to move the dialogue and understanding of research from a linear, defined process with steps for stakeholder engagement at the beginning or the end to being something more fluid and iterative with the opportunity for engagement at every stage from idea to close out and beyond.

¹ Campus Engage note there are many phrases to describe engaged research including ‘participatory’ but they chose engaged research as their preferred umbrella term.



5. Impact canvas – a tool for contextualising engagement

Applying design thinking concepts to research and innovation requires the researcher to consider stakeholders up-front and throughout the research process in order to generate better research outcomes and contribute to greater impact.

To support researchers in this process UCD, with partners, developed The Impact Planning Canvas. Based on the Business Model Canvas this canvas can be used at any stage of the research and innovation process to help develop a stakeholder engagement plan that is appropriate to the stage of the project. (University College Dublin 2021).



Figure 5.1 UCD's Impact Canvas

5.1 Using the Canvas

The canvas tool is best used covering the 9 sections in the following order: Challenge; Response; Beneficiaries; Unique Value Proposition; Engagement; Potential Impact; Evidence of Impact; Resources and Team; Funding. It is suggested that post-it notes are used to work around the canvas which enables flexibility and encourages creativity.

Applying the design thinking approach to completing the canvas will encourage researchers to start at the first section but as the research team move through later sections they may revisit previous sections as the process can be iterative.



1. Challenge

This section is one of the most important parts of the canvas as the remainder of the canvas will emanate from a sufficient understanding of the key challenges / needs that the research addresses / should address.



- Discuss the major factors driving the research challenge identified (e.g. industry trends, socio-economics trends, demographic trends, government regulation etc.) This is an excellent opportunity to examine the smart specialisation strategy of the region and how the research could support that strategy.



2. Response

With the research challenge identified the next section sets out how the research responds to it.

- Think about people, organisations or societies that have the challenges/needs and how it impacts them.
- What are the key elements of the research plan than respond to the challenges identified.

Canvas sections 3, 4 and 5 (beneficiaries, unique value proposition and engagement) are key inputs to the stakeholder engagement plan and are fundamentally important to the validity of the research and innovation journey. See Section 6 Stakeholder Engagement Plan for further details.



3. Beneficiaries

This section provides an overview of the potential beneficiaries of the research. The beneficiaries of the research are central to the development of the plan.

Beneficiaries are those whose quality of life, practices or activities will be influenced by the research. The research may impact upon one or many beneficiaries such as:

- Individuals or groups of individuals (including the general public)
- Communities or organisations (such as charities and NGOs)
- Private sector organisations such as individual companies or groups of companies
- Public sector groups or organisations
- Policymakers or regulators

Beneficiaries can be direct or indirect. Direct beneficiaries are those who gain from direct involvement in any activities. Indirect beneficiaries are those who do not participate in any given activities but gain as a result of the involvement of a direct beneficiary.

The project team should work together to list individuals or groups who will be affected by the project.



- Brainstorm
- Reflect on previous projects
- Work through the four elements of the quadruple helix



4. Unique Value Proposition

The previous section looked at who will benefit as a result of the research output. This section now addresses how they will benefit. Consider how the beneficiary is overcoming their challenge at the moment and how the research will improve on the current situation.

- What benefits will the research provide to beneficiaries over existing research responses? i.e., what is the unique value proposition?
- Detail the unique value proposition to the various beneficiaries as it will need to be tailored to their specific challenge. Include verifiable evidence of literature, patent searches, competitors', industry trends, policy and any other information that helps define the unique value proposition to each beneficiary.



5. Engagement

Consider who are the beneficiaries and how they will be engaged during the research programme. Optimised engagement with beneficiaries can be central to the development of impact from the research.

- What avenues have been identified in order to engage with the potential beneficiaries of the research during the course of the research programme?
- It is important to consider the most appropriate channels to reach the potential beneficiaries of the research, for example: through workshops; regular user groups; the establishment of an advisory group; or attendance at or hosting of conferences. Ideally a variety of approaches will be used to engage with the beneficiaries.



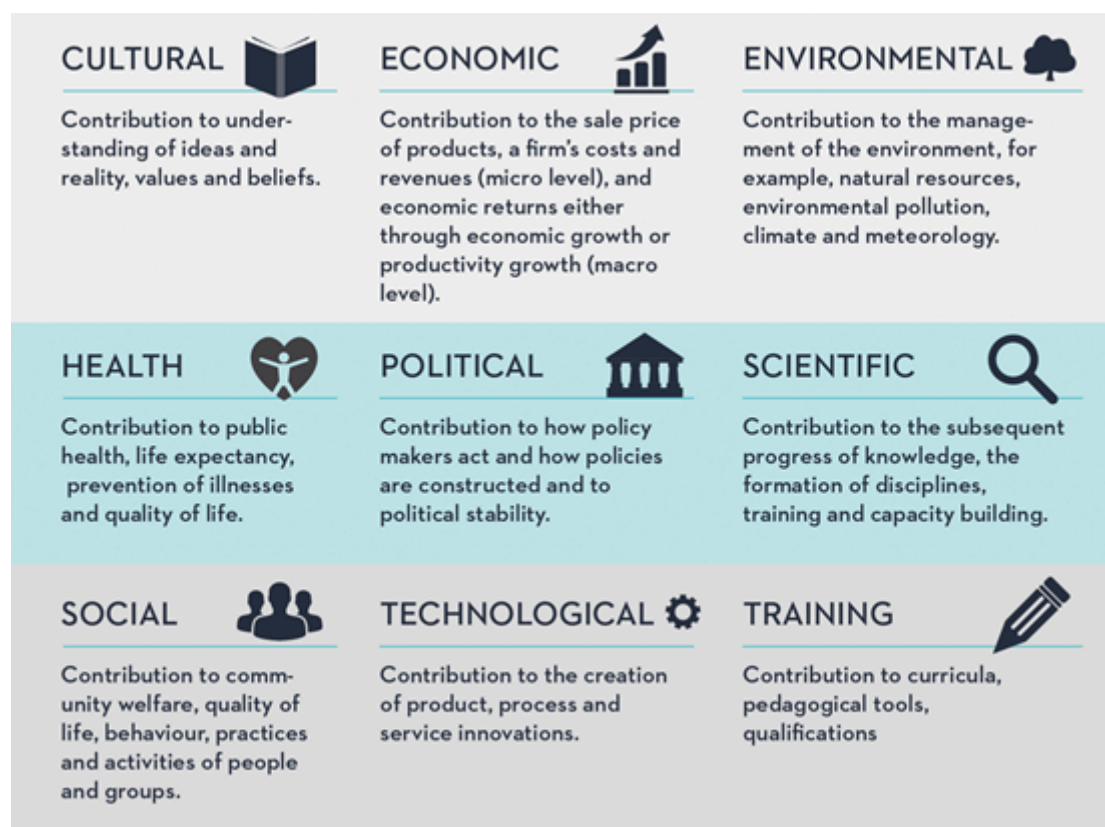
6. Potential Impact

Based on the identification of the potential beneficiaries of the research and an understanding of the value proposition to these beneficiaries the potential impact of the research can be explored.

The European Science Foundation (ESF) classifies impact of research activity in terms of cultural, economic, environmental, health, political, scientific, social, technological and training impacts.



Figure 5.2 European Science Foundation Impact Classifications



7. Evidence of Impact

When detailing information regarding impact potential consider what evidence can be gathered. The information required here will link back to engagement with the beneficiaries. Research collaborators may also enable impact.

- Considering impact early in the research programme will ensure that suitable types and amounts of data are collected.
- Think about how to collect evidence to document the potential impacts. It is important to note that a combination of metrics or measurements is often used in the assessment of impact.
- State specific and appropriate deliverables and milestones associated with the potential impact in the short-term, medium-term or longer-term.



8. Resources and Project Team

This section should include information on the resources, project team and collaborators which are relevant to the successful completion of the project.



- What resources will be required to deliver this project in terms of people, materials, equipment, travel expenses, etc.
- Will any collaborators/partners be required to deliver the project? For example: academic partners; industry partners; other organisations.



9. Funding

The purpose of this section is to indicate what funding will be obtained in the longer-term to support the resource requirements for the research project.

- What sources of funding will be targeted as part of the research funding road map?
 - National Funding Agencies and their individual programmes
 - International Funding Agencies and their individual programmes
 - Industry or commercial funding



6. Preparing a Stakeholder Engagement Plan

To prepare your stakeholder engagement plan you will need to identify your stakeholders, analyse them and then determine what methods you will use to engage and communicate with them. This information is all put together into a stakeholder engagement plan.

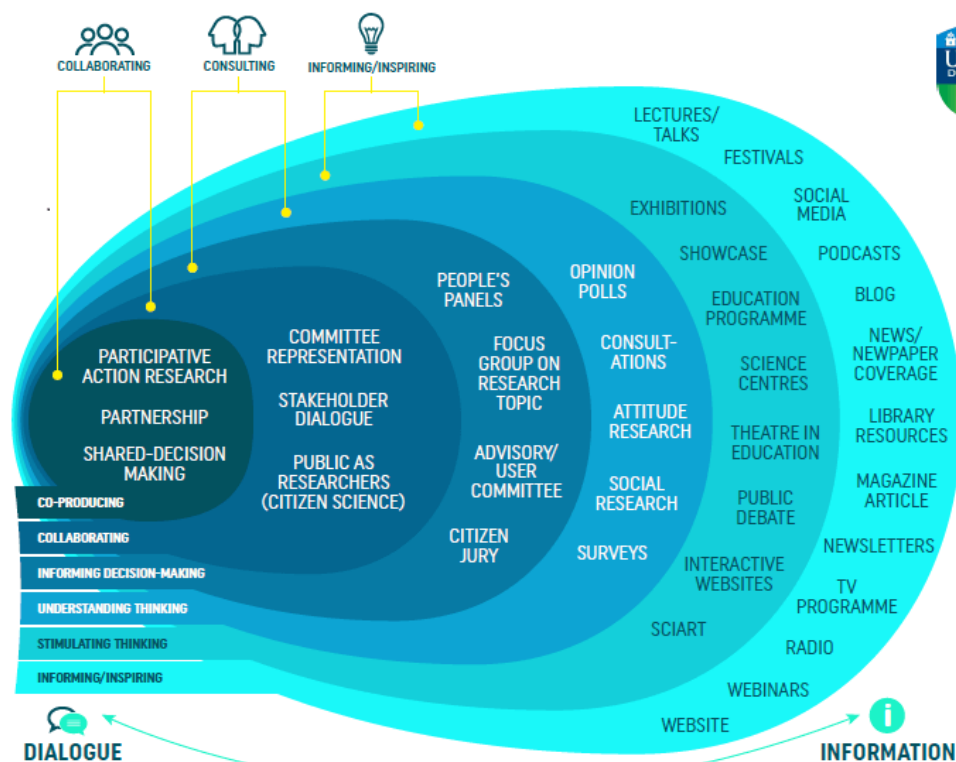


Figure 6. UCD Public Engagement Avocado

6.1 Stakeholder Identification

A stakeholder is anybody who can affect or is affected by an organization, strategy or project.

The first step in stakeholder mapping is to identify your stakeholders. We have done this under the Beneficiaries step of the Canvas.

6.2 Stakeholder Analysis

Stakeholder Analysis is a systematic way to analyse stakeholders and this step will drive your stakeholder engagement strategy. Different methodologies suggest different ways of analysing stakeholders some complex and some very simple. Here we review two methods – the simple influence v interest matrix and the more complex stakeholder salience approach.

6.2.1 Influence v interest matrix

This simple matrix plots interest and influence giving four categories of stakeholder. Once you have mapped the interests of your stakeholders you need to prioritise them



in order of importance. This helps to determine the best methods for engagement that balance the scarce resources of time and money against stakeholder expectations. High power, high interest stakeholders are Key Players. Low power and low interest stakeholders are least important.

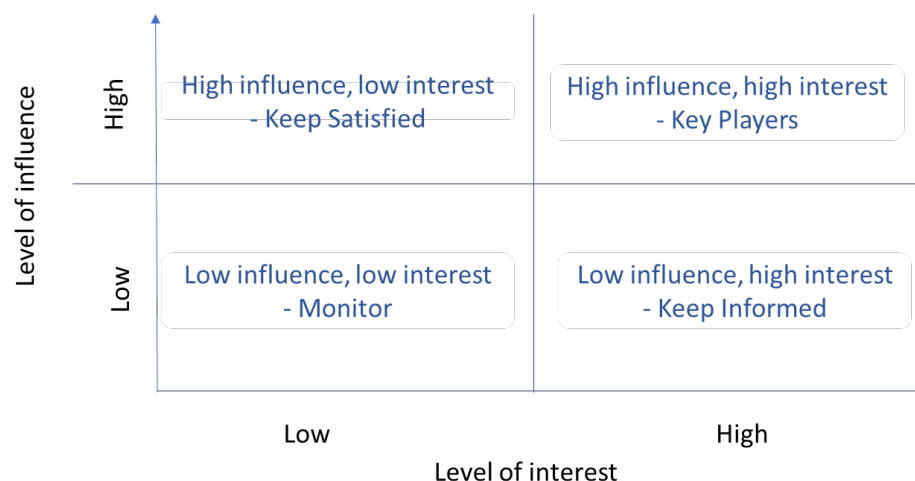


Figure 6.2.1 Influence v interest matrix

Plotting stakeholders on this simple matrix results in four categories of stakeholder and gives a suggested approach on how to engage with these stakeholders. It is important to strike the balance between managing stakeholder expectations and directing the most efficient use of scarce project resources. Also, remember that stakeholders may move quadrant depending on the stage of your project so it is important to keep all stakeholders satisfied.

6.2.2 Stakeholder salience method

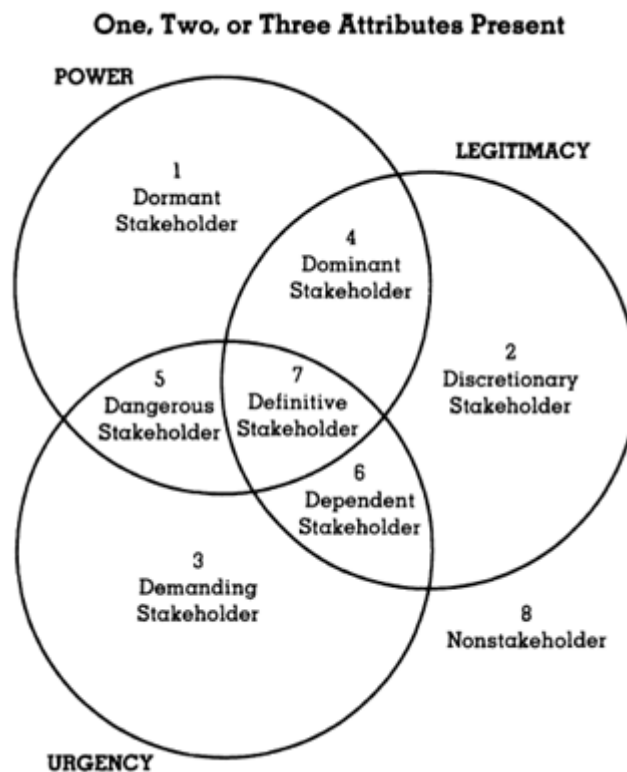
Stakeholder salience expands the idea of 'influence' and proposes that stakeholders can be classified and prioritised as having one or more attributes of power, legitimacy and urgency:

- **Power** to influence the project
- **Legitimacy** of their relationships with the project
- **Urgency** of their claim on the project

Mapping stakeholders against these three attributes results in 8 categories of stakeholders:



Figure 6.2.2 Stakeholder Salience (Mitchell, Agle, and Wood, 1998)



Toward a Theory of Stakeholder Identification and Salience: Defining the Principle of Who and What Really Counts Author(s): Ronald K. Mitchell, Bradley R. Agle and Donna J. Wood Source: The Academy of Management Review , Oct., 1997, Vol. 22, No. 4 (Oct., 1997), pp. 853-886:

1. *Dormant stakeholders*: The relevant attribute of a dormant stakeholder is power but their power remains unused.
2. *Discretionary stakeholders* have a legitimate interest but they have no power to influence the firm and no urgent claims.
3. *Demanding stakeholders* only have the attribute of urgency and can be demanding in their behaviour and expectations – with limited if any validity.
4. *Dominant stakeholders* are powerful and legitimate but may never exert their claim.
5. *Dangerous stakeholders* lack legitimacy but they do have urgency and power which can make them dangerous or even coercive.
6. *Dependent stakeholders* do have any power and rely on other groups for power but do have urgent, legitimate claims.
7. *Definitive stakeholder* is the stakeholder group that possess all three attributes.
8. *Non stakeholder* is the stakeholder group that possess none of these attributes



You will focus your initial engagement activities on dominant, dangerous, dependent and definite stakeholders. However, keep in mind that over the course of your project stakeholders may move from one group to another.

6.3 Communication

Based on the classification of your stakeholders in the above step you can now select the most appropriate type of communication to use during your engagement. At this stage it is helpful to consider the relationship between stakeholder influence/power and stakeholder engagement approaches, see the diagram below:

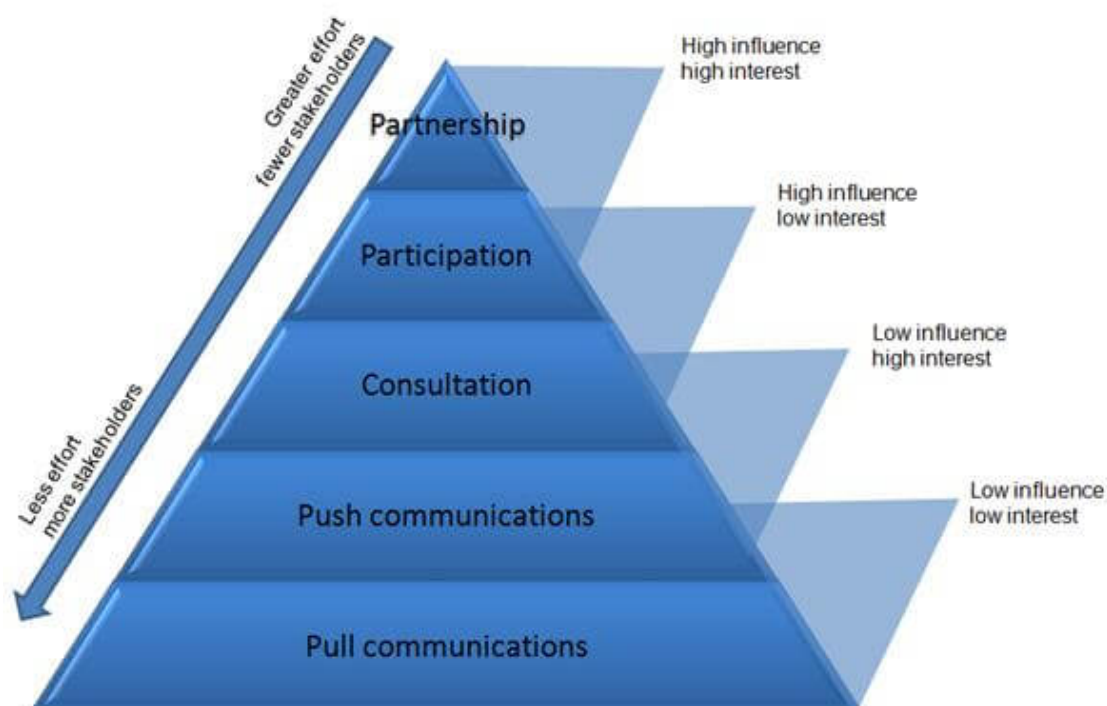


Figure 6.3 Communication mapping (<https://www.stakeholdermap.com/stakeholder-engagement.html>)

Each communication approach is a valid method of stakeholder engagement, but different methods are suited to different stakeholder types. Pull communications are one-way and depend on stakeholders deciding to access the information. At the top of the pyramid partnership engagement approaches give shared accountability, decision making, joint learning and actions. The table below describes each approach.

6.4 The Stakeholder Engagement Plan

In this final step you combine the steps above to ensure that you have a plan for engaging the right people, in the right way at this particular point of your journey. Remember, stakeholders influence and interest may vary during your project and so different communication

approaches will be appropriate at different stages. It is therefore important to get the method right and to keep communicating!

For example, push communications are appropriate for low interest/low influence stakeholders but attempts at partnership would be a waste of resources and time. Collaboration and partnership is only appropriate for key players, stakeholders with high influence and high interest who could bring considerable benefits to the project, but conversely - if not well managed - could bring considerable risk.

Engagement approach	Description	Communication
Partnership	Shared accountability and responsibility Two-way engagement joint learning, decision making and actions	Collaboration workshop Joint research Joint venture or partnership
Participation	Part of the team, engaged in delivering tasks or with responsibility for a particular area/activity Two-way engagement within limits of responsibility	Advisory board Focus groups Workshops World Cafe
Consultation	Involved, but not responsible and not necessarily having influence outside of consultation boundaries. Limited two-way engagement: organization asks questions, stakeholders answer.	Survey / questionnaire Interview Town hall meeting Focus groups World Cafe
Push communications	One-way engagement. organization may broadcast information to all stakeholders or target particular stakeholder groups using various channels	Mass emails Newsletters Videos Flyers Posters
Pull communications	One-way engagement. Information is made available, and stakeholders choose whether to engage with it	Webpages Social media Blogs Posters

See Appendix 7.1 for further ideas on communication methods and additional resources.

6.5 Implementing the plan

6.5.1 Preparing

The first thing to prepare is your invitation and key messages. Be succinct in your communication and you should tailor your request to each of your stakeholders. Volkswagen Group are likely to have different messages and invitations for employee groups than government.



Consider the logistics and secure a venue if required. If meetings are in person will catering be required? How will attendance be recorded?

If you have identified organisations as stakeholders consider the following:

- Who is the best person to contact, what role or title might they have?
- Do we have any personal connections to this person within the team? If not, how do we contact them?
- As part of the plan agree timelines for follow up emails and second approaches if the first invitation goes unanswered.
- Cultural nuances and acceptable methods of engagement.

6.5.2 Informing

- Invite participants to the channel selected
- Define the purpose of the engagement and set the scope
- Outline the process and the timelines
- Define your requirements of the stakeholder
- Provide logistical information and a source for enquiries

6.5.3 Facilitating

- Share an agenda based on objectives and desired outcomes
- Manage and share expectations
- Agree rules of participation
- Allow for equal contribution – both online or in person
- Keep the discussion focused towards the objectives
- Be mindful of cultural dynamics
- Decide if the session is to be recorded
- Nominate a minute taker if required

6.5.4 Reviewing

- Review success or otherwise of the engagement
- Document outputs (decisions, actions, suggestions, advice)
- Thank participants for their involvement, share the outputs and identify next steps and timelines

See Appendix 7.5 for an example of a Stakeholder Engagement Plan



7. Appendices

7.1 Engagement methods

7.1.1 Engage202 Action Catalogue

The Engage2020 Action Catalogue <http://actioncatalogue.eu/> is an online decision support tool that is intended to enable researchers, policy-makers and others wanting to conduct inclusive research, to find the method that is best suited for their specific project needs. It is publicly available so that anyone can search the methods, read thorough descriptions of what the methods do, strengths and weaknesses of each, what societal challenges they can be used to address, and examples of what they have been used for previously and much more. The Action Catalogue is made easily searchable, so as to make finding the method best suited for a project, intuitive and fast.

The catalogue consists of 57 methods with the common denominator that their focus is research driven by involvement and inclusion. The tool allows the user to search the 57 different methods on 32 different criteria, with the possibility of weighing the importance of each criterion. The user will be presented with the results, either on a prioritized list of the methods that fits his search or in a visually intuitive overview with relevance of each method corresponding to its size.

The Engage2020 project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration.

7.1.2 European Food Safety Authority Engagement Toolkit

The European Food Safety Authority published an Engagement Toolkit here: <https://www.efsa.europa.eu/sites/default/files/documents/engagement-toolkit.pdf> and it is an excellent resource for ideas on communication methods with detailed descriptions of each method.

Here they created tables of methods that they consider suitable based on the purpose of the engagement. They use the WiFi symbol to indicate those methods suitable for online engagement and the symbol of a person to suggest those that should be used offline.



Purpose	Methods	
 Generate new ideas	Brainstorming 	Open space 
	Challenge prize 	Participatory workshop 
	Concept mapping  	Pestel analysis  
	Consensus conference 	Stakeholder forum  
	Design thinking, project in a day 	TOP 100 list 
	Discussion forum 	TOPSY TURVY 
	Envisioning the future 	Vision factory 
	Innovation jam 	
 Learn from and consult experts and stakeholders	Communicators Lab 	Online survey 
	Delphi method 	Peer assist  
	Discussion forum 	Public consultation 
	Discussion group  	Q-methodology stakeholder selection 
	Expert Interview with audience 	Reflexive interactive design 
	Expert knowledge elicitation 	Roundtable with NGOs and industry stakeholders  
	Focus group 	Scientific colloquium  
	Interview  	Scoping study  
	Knowledge fair 	User committee 
	Nominal group technique	Webinar 
	Online platform 	



Purpose	Methods	
 Gather Data	Call for data ☼	Interview 👤 ☼
	Crowdsourcing ☼	Online platform ☼
	Gamification ☼	Online survey ☼
	Expert knowledge elicitation ☼	Participatory sensing ☼
 Inform	Academic social networking sites ☼	Online platform ☼
	Gamification ☼	Participation at stakeholders' events 👤
	Information session 👤	Science café 👤 ☼
	Knowledge fair 👤	Science week 👤 ☼
 Learn and share lessons within groups	Academic social networking sites ☼	Nominal group technique 👤
	After Action Review 👤 ☼	Online platform ☼
	Communities of practice 👤	Open space 👤
	Discussion forum ☼	Participatory modelling 👤
	Focus group 👤	Participatory workshops 👤
	Knowledge fair 👤	Science shop 👤
 Co-design	Community based participatory research 👤	Participatory workshop 👤
	Crowdsourcing ☼	Science shop 👤
	Design thinking, project in a day 👤	Reflexive interactive design 👤
	Group interview with a co-design session 👤 ☼	Roundtable with NGOs and industry stakeholders 👤 ☼
	Participatory design ☼	Vision factory 👤
	Participatory modelling 👤	

7.2 Impact - European Science Foundation Impact Classifications

Cultural Impacts

These are impacts which contribute to the understanding of ideas and reality, values and beliefs. Your research may also have contributed to the design of cultural services (museums, galleries, libraries) through improving awareness or improving the design and accessibility of public facilities, thereby having a positive impact on the cultural life of a population and/or national identity.

Economic Impacts

Most impacts will ultimately have economic benefits but many of the funding agencies utilise the term economic impacts to describe impacts where the beneficiaries include companies (spin-outs, start-ups or existing businesses) or other organisations which undertake activity that creates jobs and revenue. The recipients of the impact may also include graduates, employees, trained scientists and the general public.

Environmental Impacts

These impacts make a contribution to the management of the environment, such as natural resources, environmental pollution, climate and meteorology. The key beneficiaries are the natural and built environment with its ecosystem services, together with societies, individuals or groups of individuals. Examples may include:

- Environmental policy decisions or planning decisions may be stimulated or informed by research and research outputs.
- The management of an environmental risk or the management of natural resources has been influenced or improved.
- New/improved technology or process or an improvement in the sustainable use of resources has led to direct environmental impacts.

Health Impacts

These are impacts which make a contribution to public health, life expectancy, prevention of illnesses and quality of life of individuals (including groups of individuals) whose health outcomes have been improved through the application of enhanced healthcare for individuals or public health activities.

- For example patient health outcomes may have improved through the development of a new drug, treatment or therapy, diagnostic or medical technology, or via improvements to patient care practices or clinical or healthcare guidelines. These impacts may also lead to a reduction in costs for treatment.
- Quality of life may have been improved by new products or processes through mitigation of risks to public health or public awareness of a health risk.

Political Impacts

These impacts contribute to how policy makers act and how policies are developed. Recipients of this impact may include government, non-governmental organisations (NGOs), charities and public sector organisations and society, either as a whole or groups of individuals in society.

- Impacts can influence national policy or in other areas which might lead to subsequent economic benefits (e.g. public health, environmental, enterprise/skills development, cultural development).
- Impacts can occur both from top down policy changes or from bottom up via changing practices at delivery level.
- Potential impacts may include policy or regulatory changes or decisions that have been informed by research evidence. These changes may improve efficiency, efficacy and responsiveness of public services and / or Government regulation.

Scientific Impact

These are impacts where contributions are made to progress knowledge, the formation of disciplines, training and capacity building. Beneficiaries cover the entire population, such as the general public, the workforce, health professionals, policy makers, businesses and lead to capacity building. Many of these impacts will be interlinked with others. Examples include:

- Research activity that has potential impact on the education and training of students, the career development of research team members and the infrastructure for further research and education, e.g. facilities and instrumentation. The production of these highly educated and relevant people may be in demand by industry and academia.
- Performance may have been improved, or new or changed technologies or processes may have been adopted, in companies or other organisations through the employment of highly skilled people having taken up specialist roles that draw on their research.

Social Impacts

These are impacts where the beneficiaries include individuals or groups of individuals; communities or organisations; whose quality of life, practices or activities have been influenced by your research. Public debate and the awareness, attitudes, education and understanding of the public have been enhanced by engaging them with research activities or informed by research. Research may have contributed to community development and regeneration.

Technological Impacts

These are impacts where contribution is via the creation of a product, process and service. Technological impacts are very much inter-related to economic impacts as discussed above.



Training Impacts

These impacts contribute to curricula, pedagogical tools and qualifications.



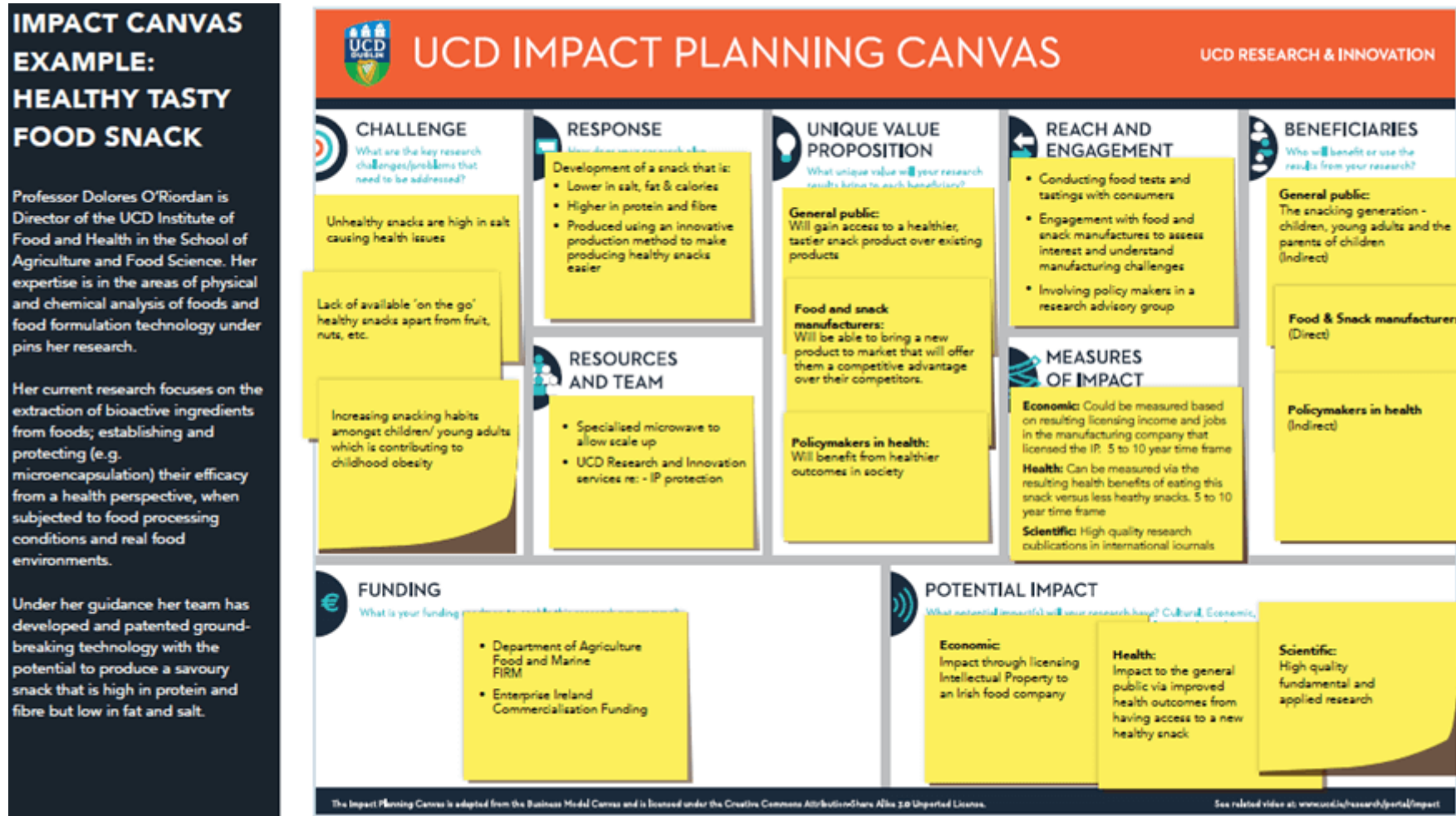
7.3 Campus Engage Principles of Engaged Research

PRINCIPLES OF ENGAGED RESEARCH

- The research question, which should be formulated in dialogue between the researcher and community partner(s), must be relevant to the community and address a societal challenge or issue of public concern.
- The research requires and acknowledges the expertise and resources of both researchers and community members.
- The design of the research ensures that community members and researchers are clear about the extent of their collaboration, their respective roles and responsibilities, what they can expect to gain from the research, and anticipated contributions. This includes clear roles and responsibilities in terms of programme governance and the allocation of resources.
- The research findings may be utilised by researchers and community members to address the societal challenge or issue of public concern.
- The planned outputs and outcomes of the research are agreed with stakeholders, alongside the longer-term impacts towards addressing the issue of public concern or societal challenge.



7.4 Worked examples of the impact canvas



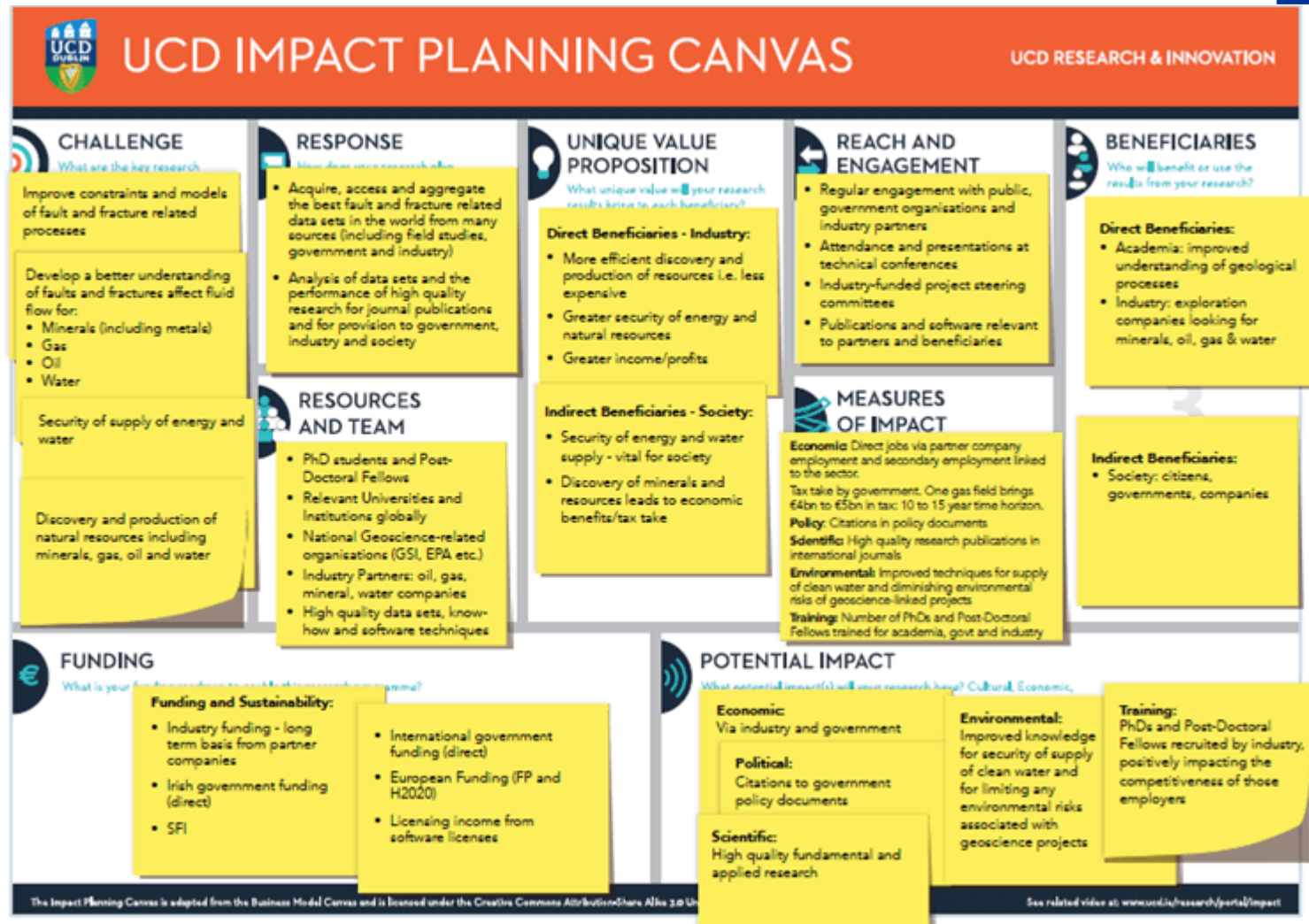


IMPACT CANVAS EXAMPLE: FAULT ANALYSIS GROUP

The Fault Analysis Group (FAG) is a semi-autonomous research group within the School of Earth Sciences at University College Dublin. The group was founded in 1985 within the Department of Earth Sciences at the University of Liverpool and relocated to Dublin in June 2000.

Faults and fractures within the Earth's crust are often important factors in controlling natural resources such as minerals, gas, oil and water. The research objective of FAG is to understand all aspects of faulting and fracturing, including their impact on fluid flow in the Earth's subsurface. Such research helps to develop improved technical knowledge and innovative techniques to increase the success rate of resource exploration and production.

The broader field of geology in Ireland has recently had a fresh impetus through the SFI funded Irish Centre for Research in Applied Geosciences, or iCRAG. UCD is the lead University in iCRAG and Professor John Walsh from the School of Earth Sciences is Director of iCRAG and Joint Director of FAG. For more see: <https://www.fault-analysis-group.ucd.ie/> and <http://icrag-centre.org/>





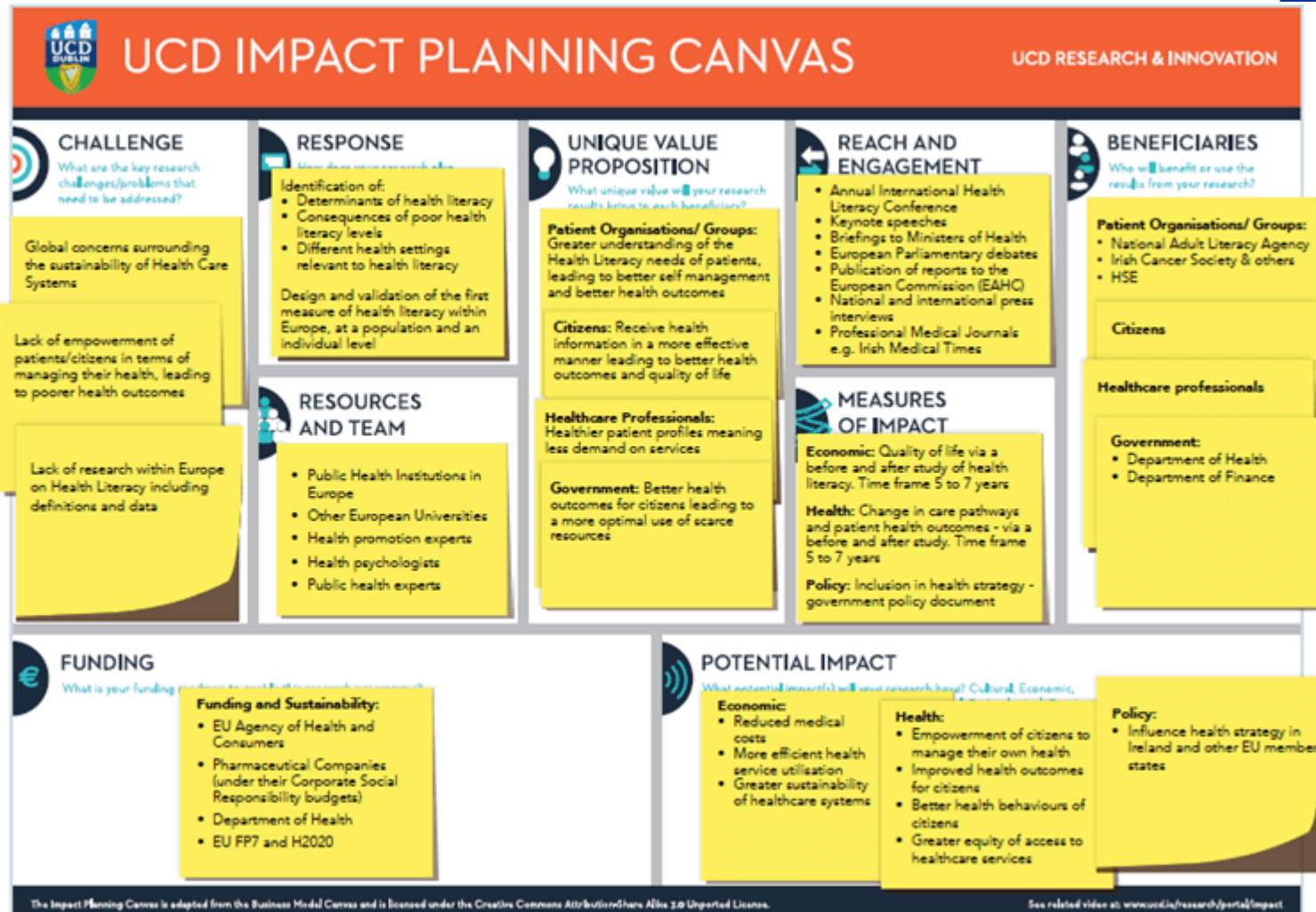
IMPACT CANVAS EXAMPLE: HEALTH LITERACY

Dr Gerardine Doyle is a Senior Lecturer in Accounting and Tax in the UCD College of Business.

Gerardine's research is interdisciplinary spanning the disciplines of accounting, taxation, economics, medicine, public health and sociology. Gerardine has been Principal Investigator in the conduct of large inter-disciplinary EU funded comparative research projects that have addressed key health policy and societal challenges.

Gerardine was the principal investigator for Ireland on a study of health literacy across eight European countries (HLS-EU) funded by the European Agency for Health and Consumers (2009-2012).

The European Health Literacy Survey is the first ever pan-European study of health literacy. The study aimed to extend our understanding of the concept of health literacy, moving beyond the clinical setting to include health literacy in the context of disease prevention and health promotion. The study sought to enhance our understanding of the consequences of low levels of health literacy for citizens and for the state. The study generated first time population data on health literacy in eight European countries – Austria, Bulgaria, Germany, Greece, Ireland, The Netherlands, Poland and Spain.



7.5 Example Stakeholder Engagement Plan

Name of institution	Type (HEI, industry, NGO, gov)	Interest in the Project (high or low)	Influence on the Project (high or low)	Stakeholder group	Contact person's details (name, role, email)	Method of engagement	Status	Responsible	Due Date
UCD	HEI	High	High	Key Player	elizabeth.nolan@ucd.ie Head of ConsultUCD	Ideation workshop	Issue email invite	Marian O'Dea	15/10/21

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