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Ireland Deep Demonstration: Workshop 3 Summary

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1. Introduction

This report provides a summary of the main outputs and insights developed from the third deep demonstration workshop. The report presents the ‘Attribution of Value’ framework which was tested on 2 pre-filled project outlines. The groups were also tasked with developing project outlines for possible projects they identified as relevant. We then facilitated a ‘World Café’ exercise with the teams rotating to present and receive feedback on their ideas.

Overall, there were 25 different organisations represented from across the sector (full list [Appendix 1](#)) and 35 individuals in attendance.

2. The Challenges we face

This third workshop was focussed on expanding on our insights around the projects and interventions to include in the Portfolio. Over the last few months many potential areas have emerged but additionally many gaps have also emerged. Many of the gaps are linked to what we believe are particularly challenging topics, which are critical to achieving the desired long-term outcomes. The good news is that Ireland is not alone in struggling to grapple with these issues. However, given the stark evaluation made by the European Environmental Agency, Ireland needs to take up the call to arms and be bolder.

The EEA report¹ on the progress of the agriculture sector in the EU towards achieving the decarbonisation goals highlights the need for much bolder action.

“While total greenhouse gas (GHG) emissions in the EU have fallen by a third since 1990, reducing emissions in the agriculture sector has been a slower process and has stagnated since 2005. Based on EU countries’ current policies and measures, this trend is projected to continue, with only a 1.5% decrease expected between 2020 and 2040.”

The report makes it clear that continuing along the path we are currently on will not be sufficient to achieve climate neutrality by 2050 and that Member States (MS) will need to increase their efforts to facilitate the transition in order to achieve the goals set.

The report highlights the five key focus areas and measures most often cited in the different MS submissions, table 1. Of particular interest would be the gaps identified across the various MS reports highlighted in bold.

¹ [Progress and prospects for decarbonisation in the agriculture sector and beyond — European Environment Agency \(europa.eu\)](https://europea.eu)



Table 1². Overview of existing agricultural measures and gaps in agricultural policies and measures

Focus area	Most frequently reported measures	'Gaps' in reported measures
<p>Livestock</p>	<p>Optimising livestock diets, breeding, health and disease management; improving manure management systems; and promoting anaerobic digestion 'biogas'.</p>	<p>Reducing livestock numbers is still uncommon. Supporting targeted breeding and using feed additives to reduce enteric methane emissions are rare, and these measures are mostly yet to be implemented.</p>
<p>Reduction in crop and soil N₂O</p>	<p>Reducing the quantity of nitrogen applied to soils, using low emission-spreading equipment, supporting organic farming and introducing organic fertilisers.</p>	<p>Support for nitrification or urease inhibitors is rare, despite their potential efficacy. Precision farming allowing more effective use of inputs (e.g. variable-rate nitrogen technology, pesticide application and precision irrigation) is also lacking.</p>
<p>Carbon storage/sequestration</p>	<p>Maintaining or enhancing woody biomass on farmland (e.g. through agroforestry), implementing grassland management to enhance soil carbon stocks, using cover crops and conserving organic soils.</p>	<p>Explicit support for permanent conversion of arable land to grassland or wetland, including ponds where appropriate, is lacking. This would limit drainage and restore carbon-rich ecosystems and incentivise sustainable soil management.</p>
<p>Energy mitigation</p>	<p>Improving on-farm energy efficiency, excluding measures relating to biogas (this is covered as a manure management measure).</p>	<p>Carbon-auditing tools are not frequently mentioned, despite their high mitigation potential.</p>
<p>Wider food system</p>	<p>Awareness-raising and education among consumers, food labelling and repealing the waste status of by-products to allow use/reuse as a resource were measures proposed to encourage dietary shifts and reductions in food waste. Some Member States included plans to reduce reliance on imports by increasing domestic food and animal feed production.</p>	<p>Relatively few countries reported measures to encourage dietary change, shortening supply chains or reductions in food waste (e.g. through improvements in food redistribution systems, financial mechanisms supporting reductions in food waste, registration and monitoring of procedures).</p>

Note: Information on the most frequently reported measures is based on the information reported to the EEA under the governance regulation (Regulation (EU) 2018/1999) on GHG policies and measures.

Sources: Gaps in reported measures were identified based on Perez-Dominguez et al. (2016), Ricardo-AEA (2016) and ECA (2021).

² [Progress and prospects for decarbonisation in the agriculture sector and beyond — European Environment Agency \(europa.eu\)](https://www.eea.europa.eu/en/progress-and-prospects-for-decarbonisation-in-the-agriculture-sector-and-beyond)



The EEA report highlights the potential of Circular Economy approaches across four lifecycle stages; design, production, use and end of life. In the figure below presents the possible reductions in emissions either through prevention or sequestration types of activities.

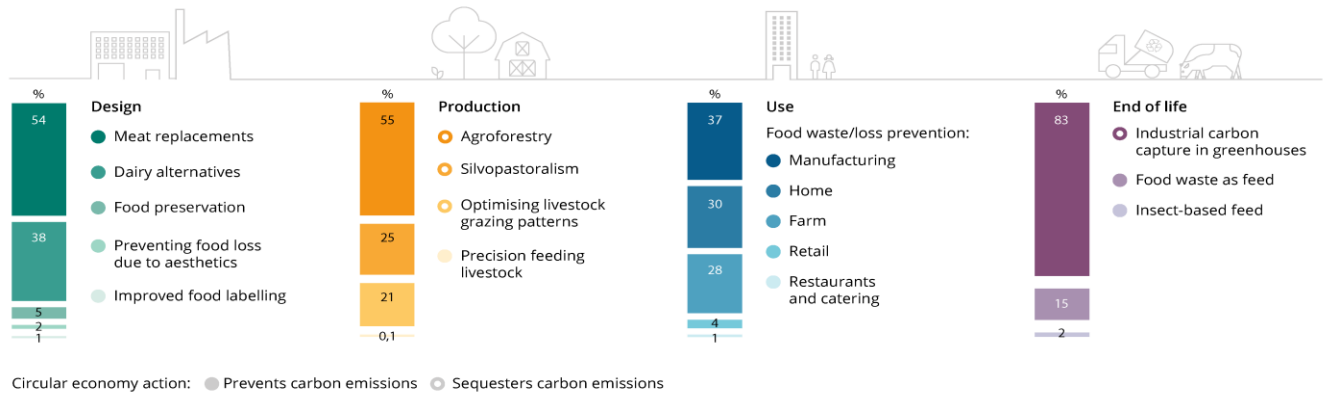


Figure 1³. Reduction potentials across the lifecycle stage.

In a related report⁴ the concept of circular economy as it relates to biological / agrifood sector needed to be broadened to include three layers that need to be considered. If we constrain ourselves to the more traditional definition of circular economy as applied to the agrifood sector, then we would limit our thinking to the lifespan of products and closing material and product cycles. This typically manifests as a focus on material flows such as (waste) biomass, human and animal waste, and packaging materials, as well as reducing food waste. These types of activities would be covered in the 1st layer.

The 2nd layer incorporates the reality that while we might consider biological systems to be renewable and unlimited, depending on the rate of use or extraction if it is faster than the regeneration rate then in fact those systems also have limits and boundaries that need to be considered.

The 3rd layer looks at molecular circularity in the production systems. Unlike the technological cycles that deal in metals and minerals, the building blocks of a biological systems are carbon, nitrogen, and phosphorus. From a circularity standpoint closing nutrient cycles and fixing imbalances of these key nutrients is a pressing environmental problem.

Reviewing these reports highlights many of the challenges that all the MS are grappling with which is reassuring as it is clear that Ireland is not alone in the 'struggle'. They also offer insights into some areas for improvement relevant to Ireland, that could be incorporated into the Portfolio. The EEA emphasises the need to be braver and to tackle the more difficult issues if we are serious about achieving climate neutrality by 2050.

³ [Progress and prospects for decarbonisation in the agriculture sector and beyond — European Environment Agency \(europa.eu\)](https://europeanenvironmentagency.europa.eu)

⁴ [Circular Agrifood - Metabolic](#)



3. Attribution of Value Framework

In advance of the workshop a framework that could be used to assess projects across a range of criteria was developed. This would be used to score the projects in the portfolio which would allow for a more objective ranking of the various projects under consideration.

The first section looks to assess a project on impact and complexity, which would map the projects onto the 2x2 matrix here. The details for the ranking on each of the two scales are:

Project impact

1. Low level of impact on 1-2 key outcomes⁵
2. Low level of impact on many of the key outcomes
3. Medium level of impact on 1-2 key outcomes
4. Medium level of impact on many key outcomes
5. High level of impact on 1-2 key outcome, and medium impact across at least 1 other key outcome
6. High level of impact across a range of key outcomes

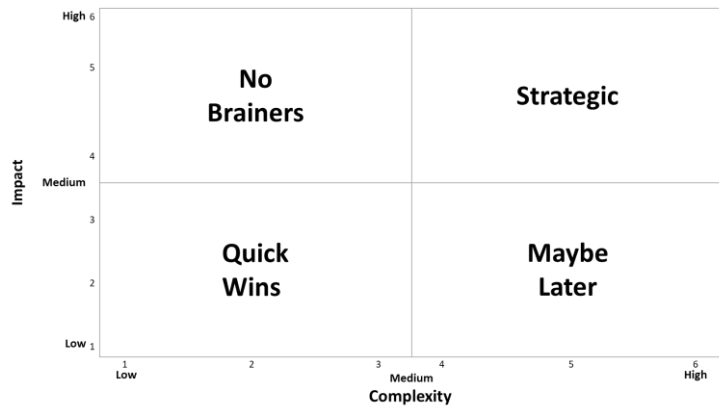


Figure 2. Impact vs. Complexity matrix

Project complexity

1. 1 main stakeholder, based on existing knowledge and capabilities in use in Ireland
2. Multiple stakeholders from across the value chain, based on existing knowledge and capabilities in use in Ireland
3. Many stakeholders involved including public and private, knowledge and capabilities already in use elsewhere being applied
4. Many stakeholders involved including public and private, knowledge and capabilities already in use elsewhere being applied, requires changes in policy and regulations
5. Many stakeholders involved including public and private, knowledge and capabilities already in use elsewhere being applied, also requires development of new technologies and solutions, requires changes in policy and regulations
6. Many stakeholders involved including public and private, knowledge and capabilities already in use elsewhere being applied, also requires development of new technologies and solutions, requires changes in policy and regulations, new business models will emerge

The remaining criteria identified as important dimensions of every project that needs to be considered are presented in Table 2.

⁵ Outcomes here relates to the Sustainable System Outcomes listed on the axes of the Ireland DD Innovation space



Table 2. Additional attribution of value criteria

Time scale	Short-Term <5 years	Medium-Term 6-15 years	Long-Term >15 years		
Project span	Narrow - Project stakeholders all belong to the same stage of the value chain	Medium - Project stakeholders are from 2-3 different stages of the value chain	Broad - Project stakeholders are from more than 3 different stages of the value chain and includes public organisations		
Project geography	Local / community implementation	Regional implementation	National implementation		
Scaling size requirements	Less than 100 stakeholders involved	Several 100s of stakeholders involved	Several 1000s of stakeholders involved	Several 10,000s of stakeholders involved	
Funding / Financing	Low investment required, 1-off, low risk	Low - medium investment, spread over a number of years, low risk	Medium investment, medium risk	High investment, medium risk	High investment over a number of years, high risk (success depends on new technologies /solutions still to be developed)



The participants at the workshop were provided with outlines of two projects and asked to score the projects using the attribution of value framework. The two projects focussed on:

- Sustainable seaweed harvesting
- Anaerobic Digestion growth

The scores for the AD project were quite consistent across the groups whereas the Seaweed project resulted in more of a spread across the groups. In all the groups the framework elicited excellent discussions around the two topics. The spread of scores for the seaweed project highlighted the importance of having individuals with experience and knowhow to assess the appropriate projects.

There was broad agreement on the criteria set out in the Attribution of Value Matrix. One area that was highlighted for further consideration/clarification, was 'scaling'. This might mean different things in different projects. For example, in a project that focuses on actions at primary producer level, numbers of stakeholders involved might be relevant. On the other hand, if the intervention is focused on policy changes, the number of stakeholders involved might be smaller, yet scale could be larger.

This framework would be used by the Consultative Group to assess and compare the potential value and scope of the different projects in the Portfolio. Whilst not comprehensive it provides a broad range of attributes to consider which underpins a more holistic approach to underpin the decision process.

4. Project Outline Template

A template to capture the high level summary of a project was also developed. This will be a key tool to capture the essence of the various projects that will be in the portfolio. It is based on the concept of a project charter but includes additional information not typically included in a project charter which it was felt was important to include given the interactions and complexity of the overall Irish Land-Agri-Food system.

The top few sections of the template provide the title and key objectives of the project but also require the completion of the **impact x complexity** scores and require that the team completing the project overview rank the top 3 areas across the axes of the Ireland DD innovation space (Sustainable system outcomes, Impact Areas & Levers of Change), see [Appendix 2](#) for details.



Project Title		Project Objectives	
Project Potential Impact (1 – 6)		Complexity of Project Implementation (1 – 6)	

Sustainable System Outcomes	Rank	Impact Areas	Rank	Levers of Change	Rank
Reduced Emissions, Carbon Removals & Storage		Farm/Forest Inputs Production		Policy & Regulations (including direction & target setting)	
Improved Soil, Air & Water Quality		Primary Production (includes all types of farms, forests, and marine production)		Governance, Networking, Collaboration & Partnerships	
Enhanced Biodiversity/Natural Capital/ Ecosystem services on Land and in Water		Primary Processing		Funding & Finance	
Increased Afforestation Levels		Finished Goods Manufacturing		Knowledge Management & Innovation	
Increase Welfare of Primary Producers (Social & Economic)		Transport, Storage & Distribution		Technology & Big Data	
Increased numbers of young farmers/fishers/ foresters and new talent across the system		Food Retail & Food Service, Biobased products		Behaviour Change & Social Norms	
Improved Health Outcomes		Consumers, Citizens		Skills, Capabilities & Competencies	

The remainder of the template covers many of the traditional criteria in a project charter with a few additions.

<u>Things/Activities that we need to include</u>	<u>Things/Activities that we need to STOP doing</u>
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<u>Key Project Stakeholders</u>	<u>Key Resources/Capabilities Needed</u>
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<u>Critical Success Factors</u>	<u>Key Metrics/Measures of Success</u>
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<u>Funding/Financing Sources to consider</u>	<u>Impact Realisation Timeline</u>		
	<u>Short-Term</u> <5 years	<u>Medium-Term</u> 6-15 years	<u>Long-Term</u> >15 years



In the discussions over the last few months and at the workshops there has often been a lack of consideration of the fact that as we transition towards net zero there will be some activities that we will need to stop doing. This has been included in the template so that teams had to explicitly think about those aspects as well. This links with the change model presented in workshop 2. Figure 3.

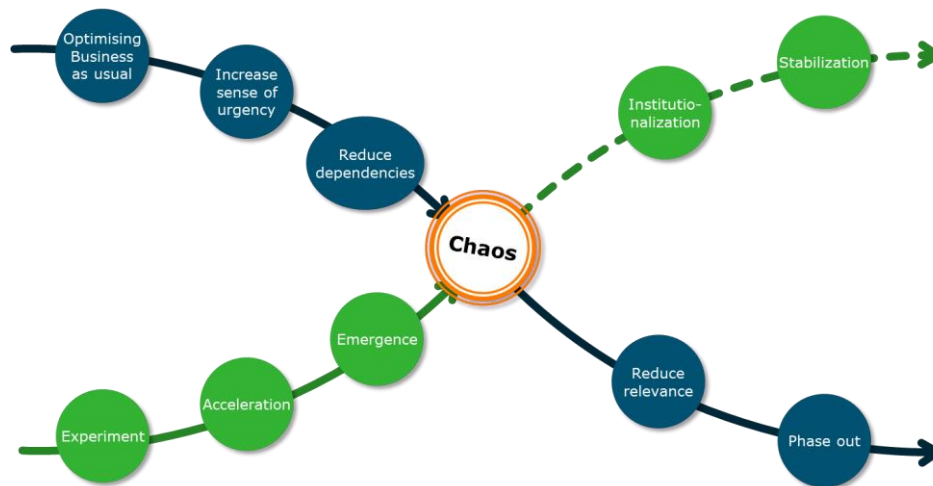


Figure 3. Transition Processes & Management (Visser et al 2019)

5. Project Mapping Exercise

The groups were asked to identify key projects based on their experience and opinions, that they feel would be important to achieving the net zero target for the sector. In addition, every group was given a specific topic that had been identified as being particularly difficult to address without the sector recognising the underlying ‘elephants in the room’. The list of ‘thorny’ topics were:

- Reducing methane in Dairy and Meat production
- Create a fair and transparent value chain
- Diversification of primary production systems
- Ensure sustainable export development for Ireland
- Improve overall mental health of individuals across the sector

The groups were tasked with using the templates provided to create an overview of the projects. Once completed, we ran a ‘World Café⁶’ exercise, which allowed the teams to rotate around to share their ideas with each other, receive feedback and respond to questions. Once complete then the groups reformed and reviewed the feedback and insights and updated their overview as necessary.

⁶ <https://theworldcafe.com/about-us/>



Overall, the groups discussed 14 projects:

1. Ensure Sustainable Export Development for Ireland
2. Shared Sustainability Metrics
3. Bridging the research-practice gap / Knowledge Transfer Hub
4. Regional biorefineries
5. Reduce Methane Production from the Beef and Dairy Sectors
6. Carbon Farming Structures and Payments
7. Increasing Carbon Sequestration
8. Fossil-fuel free farm
9. Whole catchment approach /land classification
10. Multi-product Tillage Sector
11. Fair & Transparent VC for beef and lamb
12. Improve overall mental health of individuals across the sector
13. Reduce + repurpose food waste
14. Supporting Sustainable Consumer Choices (grocery shop)

We mapped the projects onto the innovation space using the Sustainable System Outcomes and the Impacted areas. This was based on the ranking of the project across the three axes in the project overview outline (see Figure 4). Separately we also collated the levers of change identified across the projects (see Figure 5).

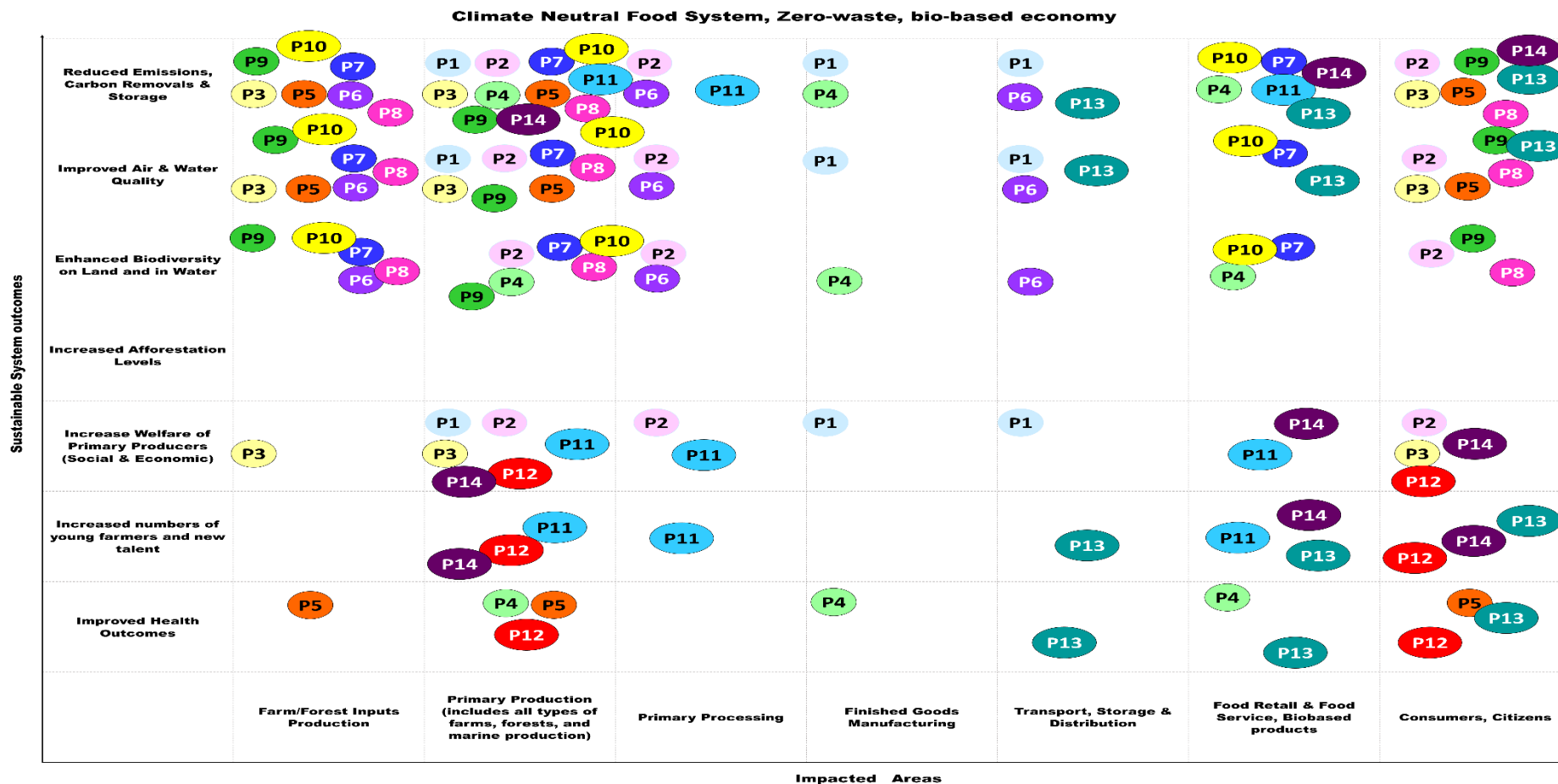


Figure 4. Project mapping on Innovation Space

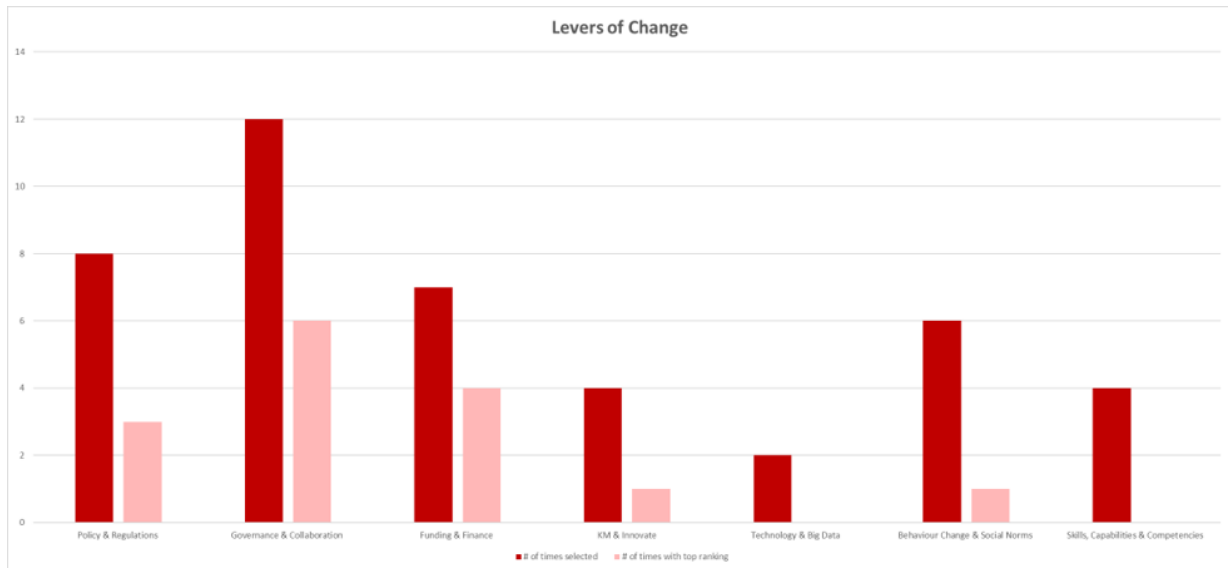


Figure 5. Levers for Change identified

While these are not in any way the definitive group of projects that will be included in the portfolio, the exercise gives many insights into where potential gaps might be and the importance of engaging with broader stakeholder groups from across the value chain to ensure a truly systems view of what needs to be undertaken to achieve the ultimate goal of climate neutrality for the Irish Land-Agri-Food sector.

6. Summary

This workshop built on the insights from the two preceding workshops, the participants were engaged in a series of exercises to make them think more tangibly about the activities that need to be undertaken to achieve the overarching intent of climate neutrality and to be recognised as a global leader in sustainable food systems. Additionally, the Attribution of Value framework and Project Overview templates were tested and there are some areas for improvement identified which will be incorporated into the templates.

This was the last in a series of three workshops which took us on a journey from understanding the current state of the sector – strengths and weaknesses, through visualising the potential future scenarios and what we might need to do to achieve those, to beginning to translate those ideas into tangible outputs – projects that would need to be resourced and managed to achieve our ambitions.

Further work will be carried out to fully develop the portfolio and this will require engagement with key stakeholder groups across the value chain in smaller more focussed activities to ensure we close the gaps and capture a broad and comprehensive representation of projects from the Irish Land-Agri-Food system. This is just the first step on this journey of a thousand miles⁷.

⁷ [A journey of a thousand miles begins with a single step - Wikipedia](#)



7. Appendix 1 - List of Organisations Represented

Alltech	Irish Water
Bio Atlantis	IKC3-Ireland's Knowledge Centre for Carbon, Climate and Community Action
Biorbic	INHFA
College Group	Magrowtec
Cropteam Ltd	MTU
Dairy Processing Technology Centre	NESC
DAFM	Ornua
Farmeye	Silicate
EIT Climate KIC	Teagasc
EIT Food KIC	Tir Lan
IBEC	University College Dublin
ICOS	University College Cork
IFA	



8. Appendix 2 - Irish Innovation Space

Impacted Areas	Sustainable System	Levers of Change
Farm Inputs Production	Reduced Emissions, Carbon Removals & Storage	Policy & Regulations
Primary Production (includes all types of farms and Marine production)	Improved Air & Water Quality	Governance & Collaboration
Primary Processing	Enhanced Biodiversity on Land and in Water	Funding & Finance
Finished Goods Manufacturing	Increased Afforestation Levels	Knowledge Management & Innovation
Transport, Storage & Distribution	Increase Welfare of Primary Producers (Social & Economic)	Technology & Big Data
Food Retail & Food Service	Increased numbers of young farmers and new talent	Behaviour Change & Social Norms
Consumers	Improved Health Outcomes	Skills, Capabilities & Competencies