

Blue Economy Cluster Builder

Data Analysis

Version 1

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1 DATA ANALYSIS

1.1 INTRODUCTION

This document describes the results of the 1-2-1 engagement action process with Blue Economy (BE) Cluster members. This action aims to engage with Scottish SMEs on a 1-2-1 basis to explain the BE Cluster Builder Project and to gather information from the SMEs on their needs from the Cluster Builder programme in growing and diversifying their work within the Blue Economy.

This action was implemented in three core phases: 1) initial virtual engagement by email to explain the BECB project to Cluster members and invite them for the interviews; 2) semi-structured interviews conducted with Cluster members; 3) skill gaps and SWOT analysis.

1.2 RESEARCH DESIGN, 1-2-1 ENGAGEMENT AND DATA COLLECTION:

The purpose of research was to create 1-2-1 engagement with BE Cluster members and to conduct a study to explore opportunities for strategic Cluster interventions to spur a self-reinforcing cycle of economic growth and innovation prosperity for the Scottish Blue Economy. In order to design further strategic actions and expand debates about relevant topics that address shared needs from different groups of organisations and sectors operating in the Scottish BE while creating engagement with the Cluster members invited for the interviews, the project team chose to implement an exploratory qualitative inquiry as the most appropriate research design (Mayan, 2009). Given that the Cluster members must be at the core of the design principles and creating 1-2-1 engagement is also a relevant output from this process, semi-structured interviews conducted flexibly, in an interactive and informal manner was considered to be the most appropriate data collection method chosen for this study (Bauer & Gaskell, 2011). Although the semi-structured survey (ANNEX 1) was designed under the SWOT analysis framework¹, to expand the understanding about shared perceptions between Cluster members on the limitations and strengths for the Scottish Blue Economy growth, the interactive dynamics of the interviews resulted in a non-linear database that was analysed through content analysis under the thematic analysis framework (Attride-Stirling, 2001; Bauer & Gaskell, 2011).

The interviews were not recorded in order to focus on the engagement process while providing confidentiality and comfort for the interviewees to expose their perceptions. Instead, notes with key information were taken and transcribed in Word documents and in an Excel spreadsheet for data analysis purposes.

Qualitative inquiry through thematic analysis was considered to be the most appropriate method to analyse the data collected given that the analysis process demands an analytical tool that enables exploring connections between explicit and implicit statements provided by the interviewees about existing endogenous and exogenous strengths and weaknesses for the BE Cluster development in Scotland (Attride-Stirling, 2001). Thematic analysis is also an appropriate tool to interpret underlying messages and organise the message in an illustrative framework (Figure 2) (Attride-Stirling, 2001).

¹ "Strengths, weaknesses, opportunities and threats are organizational influences known collectively as "SWOTs." At its best, SWOT analysis is a process by which a group of stakeholders (a) identify internal and external inhibitors and enhancers of performance, (b) analyse those factors based on estimates of their contributions to net value and approximations of their controllability, and (c) decide what future action to take with regard to those factors" (International Society for Performance Improvement., 2010).

A sample of 142 Cluster members from all the sectors across Blue Economy, including representatives from SMEs, large industries, academia and NGOs were invited for the interview. Oil and gas and offshore renewable energy were the major operational sectors among the interviewees. 35 members accepted the invitation, 3 interviews were cancelled, and 32 interviews were concluded. The small size of the sample allowed us to extract high-level qualitative information from the interviews as we could increase the level of engagement with the interviewees. 34.5 hours were spent in the process of planning, scheduling, interviewing, and transcribing the notes, which means that each interviewee had an average of more than 1 hour of dedication each.

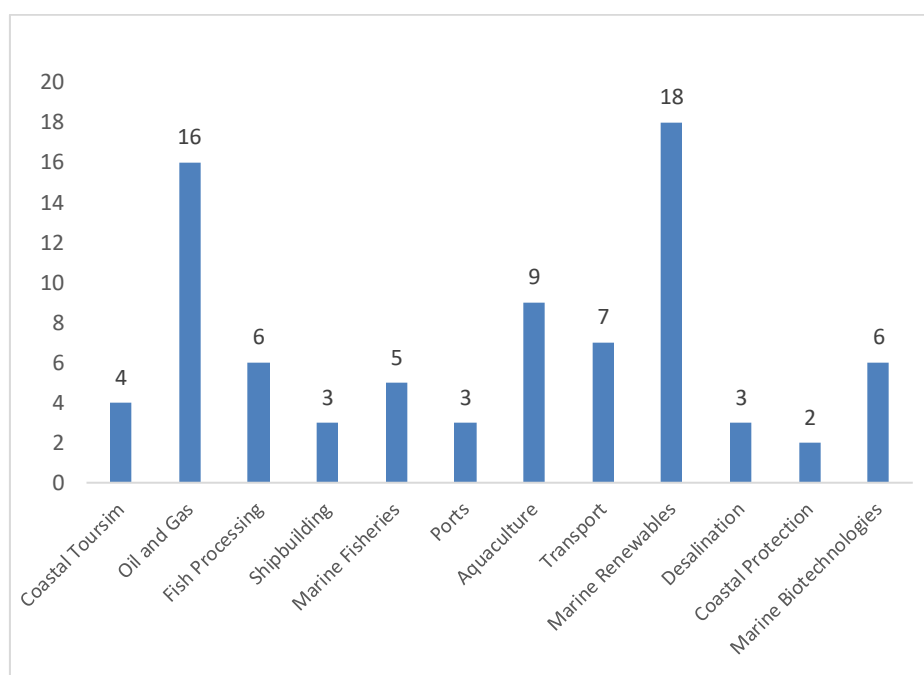


Figure 1 – Operational sectors of the interviewed Cluster members (Note that a number of the interviewees work in more than one sector in the Scottish BE)

1.3 DATA ANALYSIS

The scope of the thematic analysis was organised under the SWOT analysis, in order to find skills gaps, endogenous strengths and barriers for the economic performance of the Scottish Blue Economy Cluster and exogenous influences that might hinder or leverage the Cluster growth (International Society for Performance Improvement., 2010).

The SWOT analysis represented in the Finally, it was almost a consensus among the interviewees **that climate change and the global demand for innovative solutions to decarbonise the operation of several sectors in BE (particularly the oil and gas sector) is the current most important drive for innovation of BE in Scotland**, which is benefiting the Scottish BE given the capacity of Scotland to create collaboration and innovation in low-carbon solutions (Box D). (Box A) illustrates that the most relevant perception about the core exogenous force that hinders the development of the Blue Economy Cluster in Scotland is the **lack of effective public policies that incentivise investments, collaboration and the creation of market niches for the new and innovative products and services designed and developed in Scotland.**

This perception is well represented by two impactful statements provided by one of the interviewees:



“Traditional regulation does not foster innovation. There is a lack of investment in mitigation rather than adaptation - too much money going to coastal defense, less money going to avoid the disaster to happen”.

“Government bodies need a behavioural change to design new regulation structures to deal with climate change.”.

Regarding the strengths that Cluster members see in the Scottish BE (Box B), the interviewees have indicated that the Scottish Blue Economy is very strong particularly in:

- 1) Technical background and accumulated knowledge in different thematic areas in BE:
“Our core strength is our capacity to “think out of the box” in designing new technologies.”

“We have a broad background and knowledge in our body of staff. (...) We have (...) different specialities to cover a wide range of topics and business.”
- 2) The regional capacity to innovate through collaboration between universities and industries:
“We have a solid network with the whole ecosystem of organisations that operate in Blue Economy. It provides us a consistent overview about what is needed to decarbonise the sector from a holistic and integrated perspective.”
- 3) Existing shared facilities across different BE sectors:
“We have an integrated marine and maritime culture and location (heart of oil and gas infrastructure) that could possibly transport hydrogen. We already have the port facilities.”

In terms of the perceived hurdles for the growth of the BE Cluster (Box C), the interviewees indicated four main barriers:

- 1) Lack of access to capital for innovative products and services:
“One of the main barriers for the development of our business is the lack of funding opportunities for early stages of the innovation process. The majority of the available investments goes for technologies that are at the development stage.”
- 2) Lack of market for the innovative products and services:
“The majority of the technologies we develop are not proven yet, and nobody wants to be the early adopter. There is no market for circular-economy products.”
- 3) Gaps in reliable information and supportive networks to share knowledge about market demands:
“We need more alignment with industry. (...) We don’t have a strategic overview of the whole industry.”

“To expand our business, we need to understand about where the opportunities for new markets are.”

“The networks are more sprawling, and the supply chain and procurement networks are more complicated and not as well established.”
- 4) Burdensome and complex bureaucracies to access grants:



“Funding opportunities always want to see consortia (...) but actually there were hurdles such as membership fees for larger companies. There is money around, but it is about trying to work out who can work within the conditions of those opportunities.”

Finally, it was almost a consensus among the interviewees **that climate change and the global demand for innovative solutions to decarbonise the operation of several sectors in BE (particularly the oil and gas sector) is the current most important drive for innovation of BE in Scotland**, which is benefiting the Scottish BE given the capacity of Scotland to create collaboration and innovation in low-carbon solutions (Box D).

Among the participants that answered the question about further topics they would like to explore, collaborate and discover further opportunities, **funding opportunities, climate change, movement to net zero and the future of BE in Scotland were indicated as the most relevant topics** (Box D).

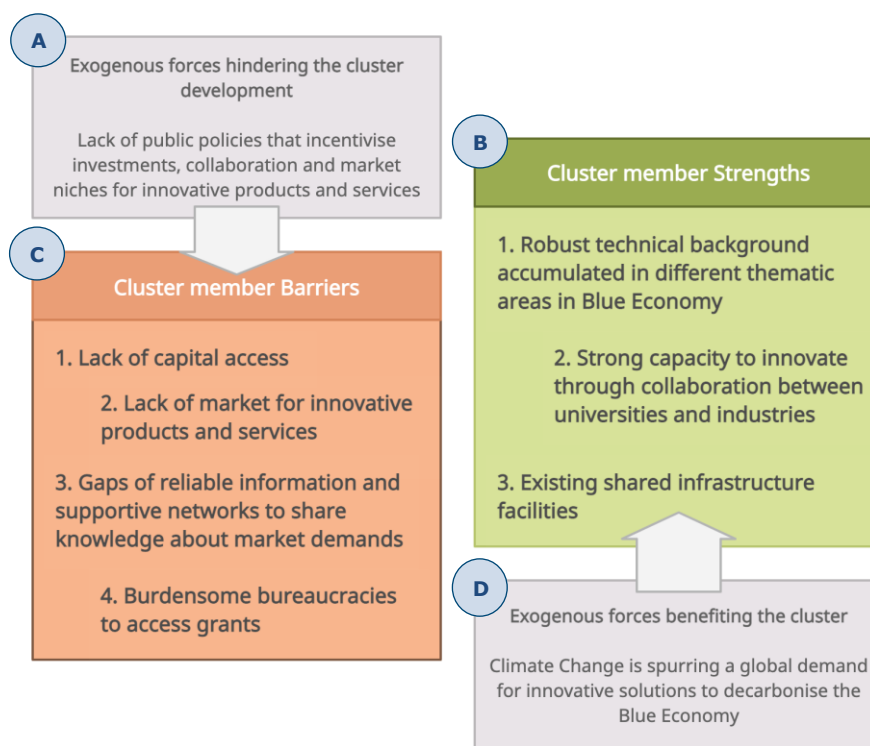


Figure 2 - Thematic Analysis SWOT

1.4 RECOMMENDATIONS

Based on the SWOT analysis, the recommendations must target the barriers indicated by the interviewed members for the development of the BE Cluster.

- Increase the level of engagement of policymakers with cluster members, in order to facilitate the elaboration of public policies that incentivise investments, collaboration and market niches for innovative BE products and services.

- Facilitate processes for innovation in investment mechanisms, aiming to increase capital access that incentivises early adopters of new technologies.
- Explore deeper the necessity indicated by cluster members for “reliable information and supportive network”, to identify and prioritise specific information constrains and design the strategic approach.
- Engage with organisations, such as Transparency and Accountability Initiative² that engage grant-makers with transparency and accountability measures in order to proximate the grant-making process with the needs of innovators and SMEs.

Moreover, the next steps must leverage the strengths of the BE Cluster, by supporting BE SMEs to export their technologies given the high innovative capacity of Scottish SMEs to attend the climate demand, by:

- Supporting bilateral partnerships between Scotland and other countries.
- Incentivising Scottish SMEs to attend international business conferences and events to facilitate export.
- Investing in market research to generate and analyse data of external markets for products and services developed by BE Scottish SMEs.

All these recommendations will be constantly assessed and prioritised in the Blue Economy Cluster Building project to design the next actions and phases.

1.5 REFERENCES

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² <https://www.transparency-initiative.org/>



2 ANNEX 1

Interview questions

2.1 SURVEY PURPOSE

The purpose of this round of 1-2-1 interviews is to collect information from SMEs to build an overview about their perspectives of the present and the future of Blue Economy in Scotland. The collected information will support the design of strategies to engage the stakeholders and to plan the further development of the sector in Scotland.

2.2 EXPECTED OUTPUTS

The expected outputs of this round of interviews through the survey are:

1. Describe certain technical and economic aspects or characteristics of SMEs relevant to Scottish Blue Economy **to inform detailed database**
2. Get an overview of the roles, significance, and nature of relationships between identified SMEs; and between those SMEs and other organisational sectors within Scottish Blue Economy **to inform SWOT analysis and gap analysis**
3. Test hypotheses about the optimum Scottish Blue Economy Cluster configuration and its effectiveness in responding to innovation and funding opportunities **to inform event planning and communication planning**

There are a number of methods available to approach stakeholders' engagement through surveys, including:

- Questionnaires
- Interviews
- Focus Group Discussions (FGDs)
- Workshops

2.3 SELECTED SURVEY METHOD

Semi-structured interviews have been chosen as one of the stakeholders' engagement method through surveys to be undertaken in the first instance.

Personal interview surveys are used to probe the answers of the respondents and at the same time, to observe the behavior of the respondents, either individually or as a group.

A personal interview survey, also called as a face-to-face survey, is a survey method that is utilized when a specific target population is involved. The purpose of conducting a personal interview survey is to explore the responses of the people to gather more and deeper information.

2.4 ADVANTAGES OF METHOD

1. **Higher Response Rates** - One of the main reasons why researchers achieve good response rates through this method is the face-to-face nature of the personal interview survey. Unlike administering questionnaires, people are more likely to readily answer live questions about the subject.
2. **Tolerable Longer Interviews** - This approach is useful where there is a need to probe the answers from respondents further. Open-ended questions are often more tolerated through interviews due to the fact that the respondents would be more convenient at expressing their long answers orally than in writing.





- 3. Better Observation of Behaviour** - Market researchers can benefit from personal interview survey because it presents a greater opportunity to observe the attitude and behaviour of the respondents / consumers toward a product.

2.5 DISADVANTAGES OF METHOD

- 1. High Costs** - Face-to-face interview surveys are considerably more expensive than paper-and-pencil questionnaire surveys, [online surveys](#)³ and other [types of surveys](#)⁴.
- 2. Time-consuming** - Personal interview surveys are not usually time-bounded, so the gathering of data from the [respondents](#) can take a longer time⁵. Another thing that makes this method time-consuming is when there is a need to travel and meet the respondents at either single or different locations (Although this is not the case at the time of writing (March 2021) as all interviews will be conducted virtually for the foreseeable future). However, due to the time taken in scheduling and conducting the interviews, this should also be noted as a disadvantage of this method.

2.6 INTERVIEW QUESTIONS

2.6.1 Questions to inform detailed database

- How many employees do you have?
 - 1-10 people
 - 10-50 people
 - 50-100 people
 - More than 100 people
 - Less than 250 people?
- Do you have a presence in Scotland? If so, where and in what format (an office, staff based there working from home or active project work or partnerships?)
- What sectors with the Blue Economy are you active in currently?
- Are there other sectors that you have ambitions to become more active in?
- Have you had experience working with research and academia? What has this experience been like? Is this something that you would like to do more of in the future? Are there challenges and opportunities that you would highlight in working within research and academia?

2.6.2 Questions to inform SWOT analysis and gap analysis

- What would you see as your main strength in capturing opportunities in Blue Economy?
- What would you see as your main weaknesses in capturing opportunities in Blue Economy?
- What would you see as your main opportunities in Blue Economy?
- What would you see as your main threats in capturing opportunities in Blue Economy?

³ <https://explorable.com/online-surveys>

⁴ <https://explorable.com/types-of-survey>

⁵ <https://explorable.com/social-science-subjects>



2.6.3 Questions to inform event planning communications planning

- What kind of one-to-one support / plan would be most beneficial to you?
 - Consultation on specific issues you identify yourself
 - Advisory on more generic issues which other organisations also encounter
- How would you like to be contacted for relevant Blue Economy support?
 - Email
 - Text messages
 - Phone call
 - Other
- How often would you like to receive information and updates on Scottish Blue Economy in general?
 - Weekly, fortnightly, monthly, less often
- How would you like to receive information and updates on Scottish Blue Economy?
 - Website
 - Bulletin
 - Specific reports on key topics you have highlighted as being relevant to you
 - LinkedIn Feeds / Groups & Twitter
 - Others??

2.6.4 Questions to inform event planning

- Would you be interested in attending an event on Scottish Blue Economy?
- How would you like to engage with other companies or organisations on Scottish Blue Economy?
 - One-to-one meetings
 - Focus group discussions (FGD) / roundtables
 - Workshops
 - Seminars
- Which of the following Blue Economy topics you would like to explore, collaborate and discover opportunities in?
 - Brexit, funding opportunities, collaboration with academia and research, climate change (Movement to Net Zero), the future of the Blue Economy in Scotland, key cross sectoral collaborations (Aquaculture and renewable energy, oil and gas and the bioeconomy etc.)
- Which one of these topics would you prioritise?
 - Rank your preference from highest to lowest.
- Which organisation types would you see be valuable for you to collaborate with? (Rank your preference from highest to lowest)
 - Government institutions
 - Academic / research organisations
 - Other businesses
 - Community groups or other third sectors
- Which one of these organisation types would you prioritise?
 - Rank your preference from highest to lowest.

