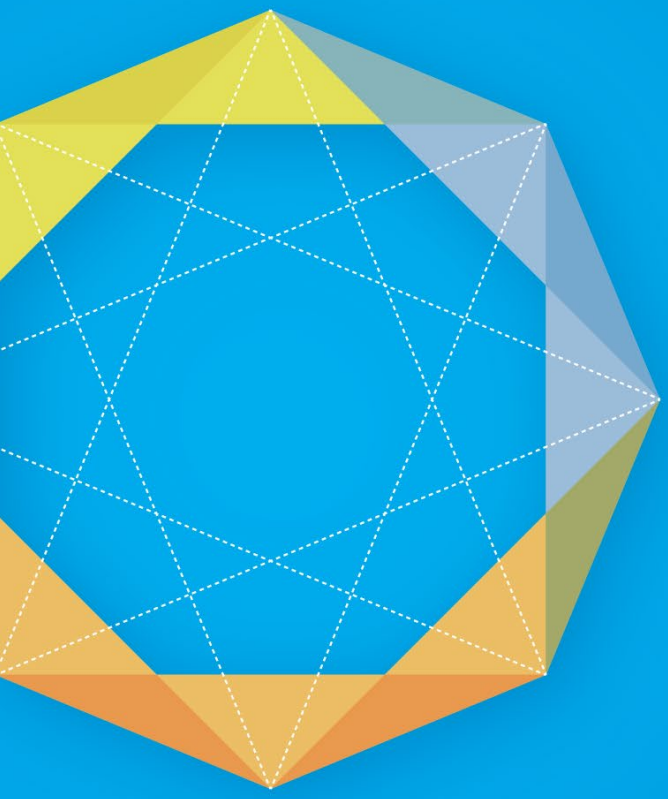
European Commission

Recommendations and Conclusions of the 13th ETIP SNET Regional Workshop 2021



ETIP SNET

European Technology and Innovation Platform
Smart Networks for Energy Transition

Recommendations and Conclusions – 13th ETIP SNET Regional Workshop

(9th November 2021)

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1. INTRODUCTION

On 9th November 2021, ETIP SNET organised its 13th ETIP SNET Regional Workshop. Due to the sanitary crisis, the workshop was organised virtually. While in the past workshops were organised physically with a focus on a specific region, in June 2021 projects from all over Europe were invited to attend the workshop according to 4 themes:

- Theme 1: Decarbonising EU Islands
- Theme 2: Operation of Integrated Energy Systems with High-RES Penetration
- Theme 3: Digitalisation: Monitoring and Control; Semantic Interoperability
- Theme 4: Consumer and Data to discuss the relation of products, privacy and policy

The 4 themes have been selected based on the research areas of the ETIP SNET Working Groups and the BRIDGE initiative, as well as with a view to contributing to the ETIP SNET Implementation Plans and Road Map.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 CONCLUSIONS AND RECOMMENDATIONS FROM THE PARALLEL SESSIONS

The following key conclusions have been drafted by the Parallel sessions' moderators as key outcomes of the discussions. They are reported in the next paragraphs divided per parallel sessions.

4.1.1 PARALLEL SESSION 1: Decarbonising EU Islands

The following issues were noted during the first session regarding "Decarbonising EU Islands":

- **Different technologies** from different vendors to be integrated in one system can be challenging
- **Simplification of regulatory system** will make easier implementation of projects for decarbonization of Islands
- **Regulatory framework**: sometimes in **islands** is **more complicated than** in **mainland**.
- An especially relevant barrier is the **uncertainty** on **energies communities' regulatory frameworks** not consistent across Europe
- **Modelling** of the system and making the model robust and secure to run the system is challenging. Construction of **virtual power plants** thorough **digital twins** and **AI** is key to have a live mathematical and 3D representation of the system, but also extracting knowledge and extrapolating to take decisions automatically.
- **Forecasting** is also **challenging** (e.g., for load and RES production)
- **Involvement** of **local communities** is important: common decisions and engagement with local administration and local citizens.
- **Synergies** with water (desalination), transportation and **local economic activities** is key

- **Local people** are more **concerned** about water, transportation, their **businesses** (e.g., tourism, agriculture) rather than energy/electricity concepts
- It is important to **have good historical data** in order to evaluate **business models**
- It is also important to ensure that the **investments** for **locals** and **business** models are **working together**
- **Electrical**, **heating**, **cooling** system shall also **be integrated**
- **Differences** between **North** Europe and **South** Europe **islands** reality are reflected in the needs of their citizens with respect to Energy system (e.g., North are smaller compared to South, North more interested in heating support for the electrical system)
- **Replicability** and **scalability** of projects: can be applicable between small and medium sized islands
- **Storage** is still **expensive** for islands. Allowing **ancillary** services and support to the **distribution** system could help, but it is, still, **not** generally **allowed** in the relevant regulation
- **Hydrogen storage** is an **interesting** option for islands, despite high cost. There is significant work on R&I to reduce the relevant penetration obstacles
- Concerning **battery technologies**, besides **Li-ion, flow batteries** could play an important role in the future

4.1.2 PARALLEL SESSION 2: Operation of Integrated Energy Systems with High-RES Penetration

The conclusions on parallel session 2 "Operation of Integrated Energy Systems with High-RES Penetration" can be summarised as follows:

- **Investments** must be located in the right places to allow the **integration** of intermittent **Renewable Energy Sources**. Very useful conclusions can be extracted from **pilots** and **regional demos** and be introduced in a pan-European scenario. Moreover, it is crucial to have a **roadmap** and identify **solutions to the barriers** indicated, in order to reach the relevant goals (the roadmap and the identification of the relevant solutions are still under development).
- **User's engagement** is crucial to reap the benefits of the increasing integration of renewables. In this sense, local **energy communities** have a key role in grasping the attention of users and **empowering** the citizens through **innovative business models**.
- **User consumption profiles** (from EV charging and thermal storage) can be used efficiently to alleviate excess of energy from renewables and provide **flexibility** to the network.
- Improved **forecasting** for **system operators** is achieved not only by having the right (commercial) tools but also by **exchanging data** and improving the models in order to extract the more precise and valuable information.
- **Investments** in **large-scale storage** (liquid, mechanical, thermal and H2) is urgently needed in order **to cope** with the **generation mix** of the **future**. **Digitalisation**, resources saving and more reliable and affordable energy for industry can also contribute to provide the necessary flexibility.

4.1.3 PARALLEL SESSION 3: Digitalisation: Monitoring and Control; Semantic Interoperability

The conclusions on parallel session 3 "Digitalisation: Monitoring and Control; Semantic Interoperability" can be summarised as follows:

- Challenges identified in **monitoring** and **control** are not only on access to devices but also on achieving **interoperability** and better communication (digital twins, dynamic modelling)
- Many different digital technologies are being developed. A number of projects are mitigating the fact that **smart meters** or smart censoring devices are not in place all across Europe, yet **software tools** and **advanced platforms** are being developed (data lakes, new big data analytic services, data crunching, new concepts such as grid forming)
- **Data collection and quality** still remains an issue and depends on the level of **automation** of the grids (machine learning)
- Solutions can next move from TSO / DSO R&I to other stakeholders and participants in the market (addressing the needs of final consumers, heavily dependent on the regulation and the speed of legislation across different European regions)
- **Sector coupling** shall also be considered as a next step
- The word cyber security was the one which was mentioned minimally in the relevant SLIDO question. It appears that **cyber security**, at least in session 3, was not represented enough and it was not a core focus.

4.1.4 PARALLEL SESSION 4: Consumer and Data – the relation of products, privacy and policy

The key conclusions on parallel session 4 regarding 'Consumer and Data – the relation of products, privacy and policy' can be summarised as follows:

Concerning how prepared people are to "pay with data" for receiving excellent services:

- It is ok, if they are informed upfront
- **Private** data concerns **personal** data (protected by GDPR) or **commercial** sensitive data (there is a question on how to protect them)
- It is a question of **trust**
- In case people do not know or cannot oversee the relevant situations, extreme position (no data given at all …) can be noted
- It appears that people do not understand '**data ownership'**
- People need to be educated on what are the relevant and sensitive data, where they are used and for what purpose.
- A practical question concerns data from participants and non-participants of a project: participants have signed a contract, others still may provide data …

Concerning the way to collect and use data to create benefits for the consumer and the system operator while not compromising privacy rules:

- Concerning the grid side, **aggregated** data is enough to manage a **stable grid** (data from single households makes things even more complicated)
- Research is required on what data is needed, on what resolution and on what is (really) needed for forecasting.
- In any case, no matter what the resolution is, privacy matters.
- Considering **quality** of data, resolution is less critical than when the data is available (considering real-time cases)

Concerning what social and political sciences know and think about investigating personal and other sensitive data to improve the overall system:

- Cultural and educational background counts
- It is a matter of trust to the **governmental system** in the country
- **Public** institutions are more trusted than the **private** sector
- Local solutions are better trusted than national or global ones (here energy communities have a pro)
- The customer can stay in control of their data with a combination of **legal** and **regulatory framework**, technical tools and economic incentives to use the tools and services
- Answers are divided 50:50 regarding the question 'Shall we force people into donating data for the excellence of the system?'

4.2. RECOMMENDATIONS FROM ETIP SNET WORKING GROUP 5 IN TERMS OF "INNOVATION, IMPLEMENTATION IN THE BUSINESS ENVIRONMENT"

The objective of ETIP SNET Working Group 5 (WG5) is to mobilise experts in support of R&I work in EU to reach the market. It works closely with all WGs of ETIP SNET to utilize projects' results in support of R&I needs for the years to come.

In order to reach this aim, it is essential to have a homogeneity of technology classification and a universal approach that allows to coherently structure and analyse all data coming from projects.

- Build homogeneity in the analysis of projects, work done, and lessons learned create a common platform
- Build a universal approach in the taxonomy of technologies that constitute the evolution of functionalities in building the smart networks of 2050 in support of the energy transition.
- Build a methodology to judge system needs in the energy transition capable of identifying tangible needs for building on progress made and give feedback to the other WGs for populating their R&I needs in the years ahead;

The results of projects are a valuable source for capturing the maturity of technology evolution contributing to the maturity of the integrated system!

The rolling process as built in the EIRIE platform that is planned to go live late 2021, aims to help the identification of R&I needs to populate the Ten-year Plan and subsequently the Vision of ETIP SNET.

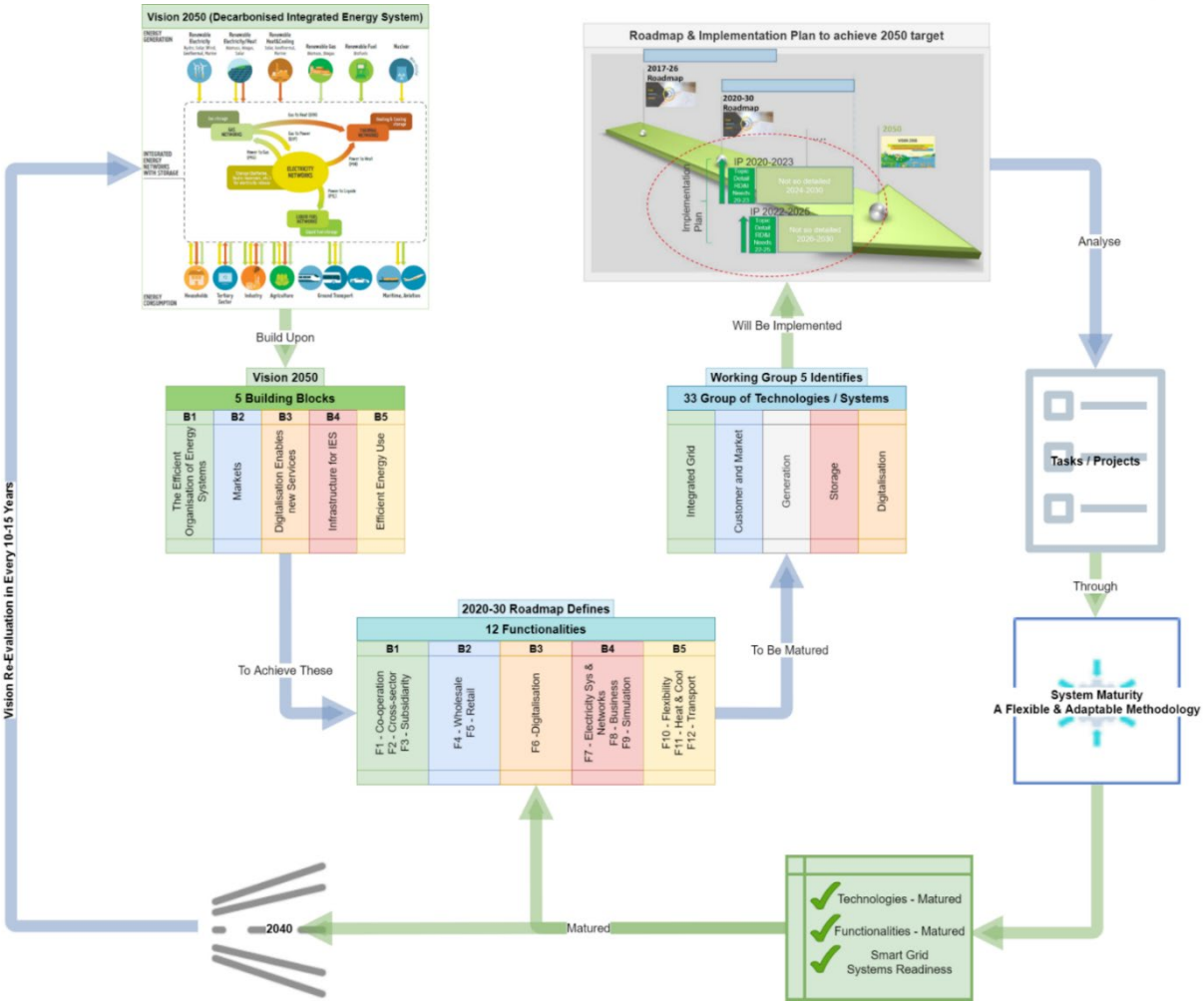


Figure 1: PANTERA RECAP process for capturing evolution of system.

- ***In line with the Innovation Radar assessment***
  - Promoting and showcasing emerging innovations resulting from H2020 projects
  - Bringing together innovative solutions owners and investors/ incubators for facilitating the "go-to-market route"
- ***....and beyond the Innovation Radar***
  - Further deep-diving to the innovation and go-to-market enablers of most prominent solutions
  - A variety of new parameters enabling more detailed (self-) assessment and revelation (self-understanding) of:
    - Strong "go-to-market" aspects and enablers
    - Aspects and enablers that need to be further improved and require further analysis and elaboration
  - Promote the creation of a business ecosystem, not only for business-ready solutions, but also for promising ones that underperform in certain enabling aspects.

  - ***What is on for BRIDGE and ETIP-SNET?***
    - A tool to collectively analyse and assess the level of business maturity of certain clusters of technologies

- Valuable input for fine-tuning Roadmaps, Implementation Plans and WGs/ TFs activities

Key features of the self-assessment questionnaire

- ***To whom and prerequisites***
  - R&I project managers/results owners
  - It requires about 30-40 min to go through a digital questionnaire dealing with a wide range of aspects of 'Innovation support to the market uptake'

- ***A multiple-choice questionnaire to assess the market uptake process of your project***

To meet the above objectives, a questionnaire has been shared with all the projects presented during this 13th Regional Workshop. It is based on three pillars: innovation management, innovation readiness and market potential. The aim is to provide practical advice to projects with a focus on go to market strategy. It will also help the formulation of the Roadmap and Implementation Plan.

The questionnaire consists of 36 questions organised into six main areas covering the innovation facilitation depicted below:

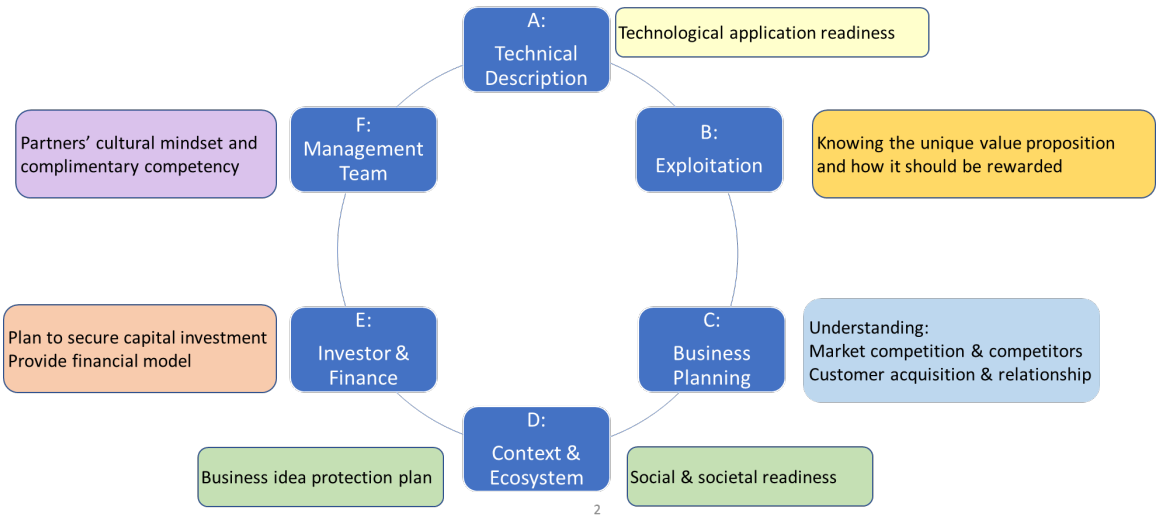


Figure 2: Self-Assessment Toolbox Key Features

4.2.1 FEEDBACK VISUALISATION: SESSION 1

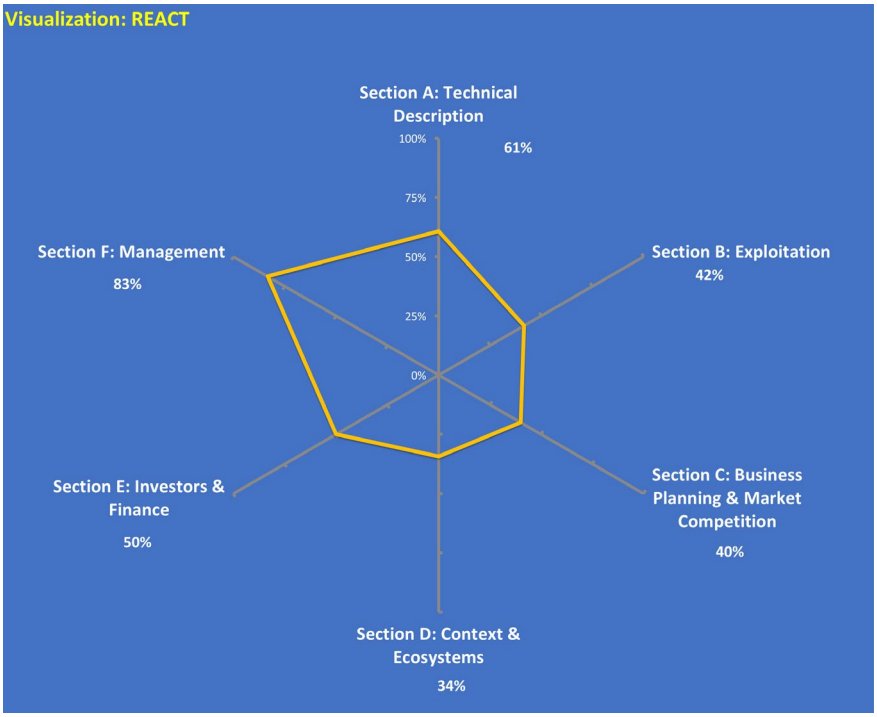
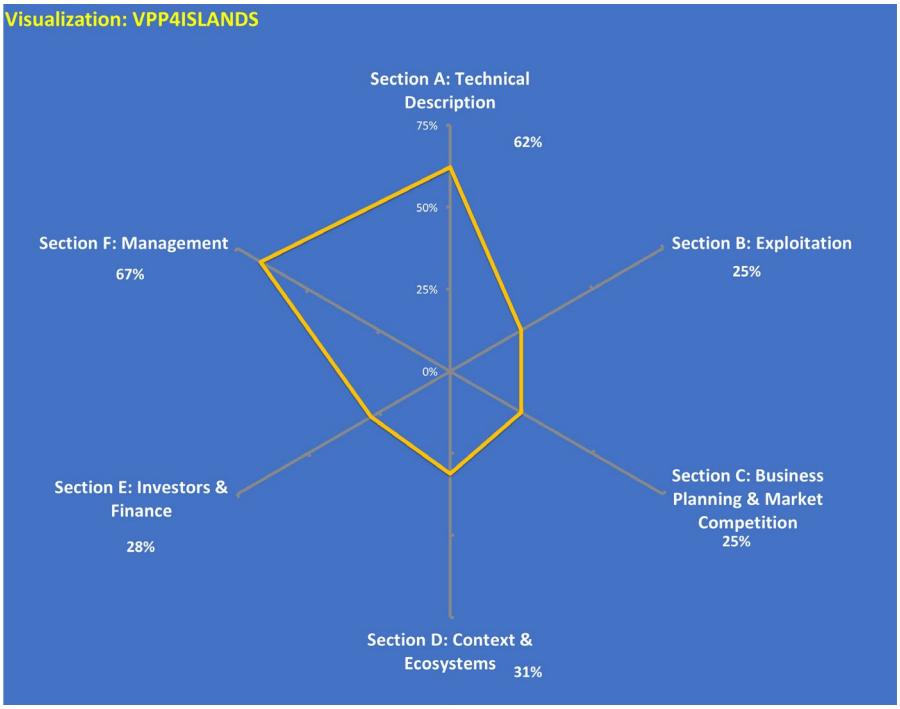


Figure 3: Visualisation REACT



4.2.2 FEEDBACK VISUALISATION: SESSION 2

Figure 5: Visualisation MUSE GRIDS

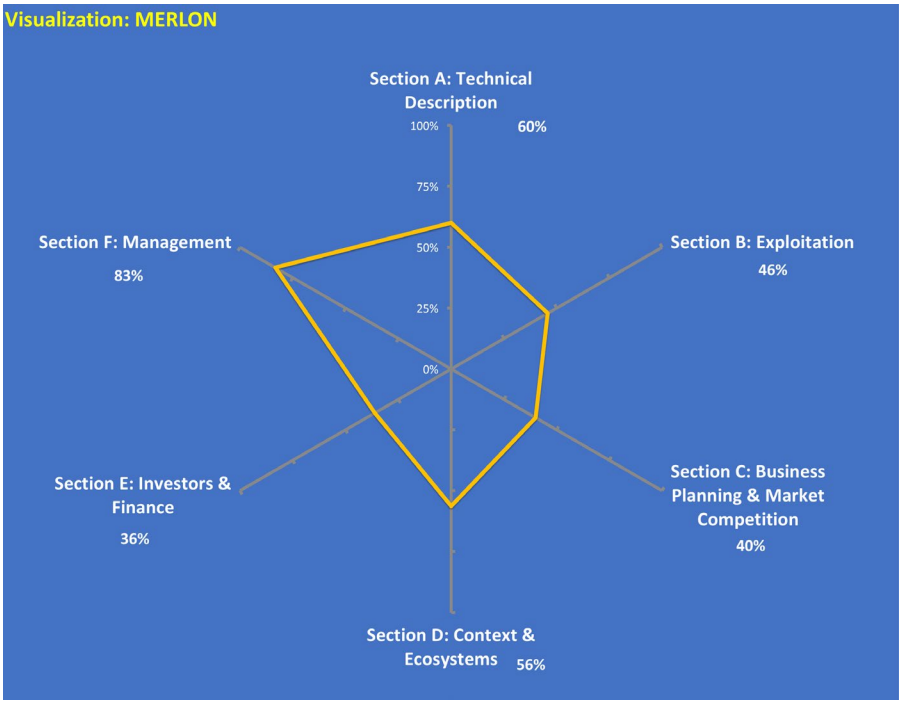


Figure 6 Visualisation MERLON

4.2.3 FEEDBACK VISUALISATION: SESSION 3

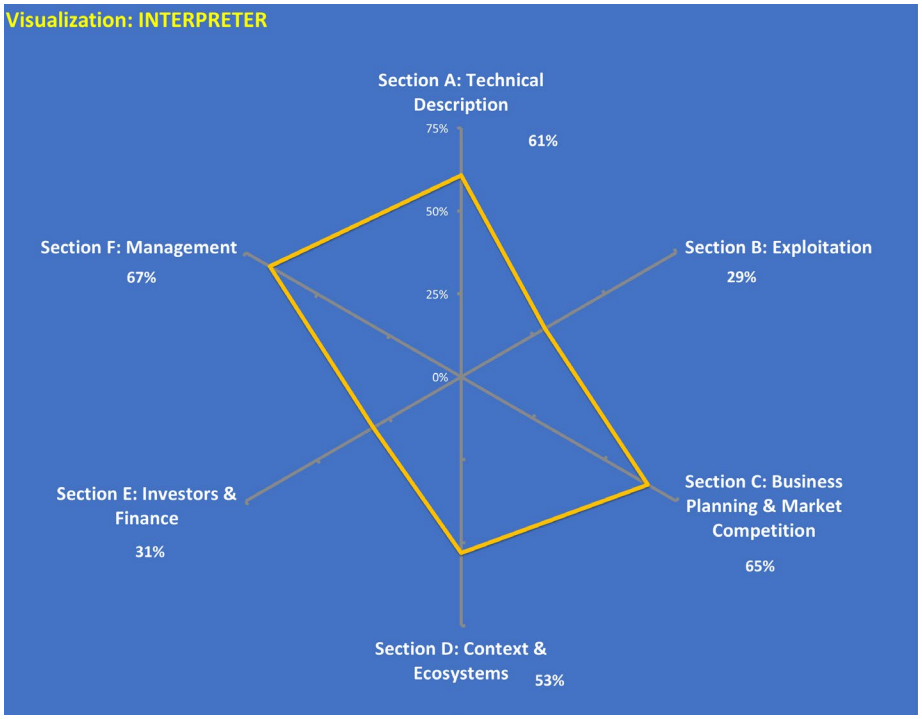


Figure 7: Visualisation INTERPRETER

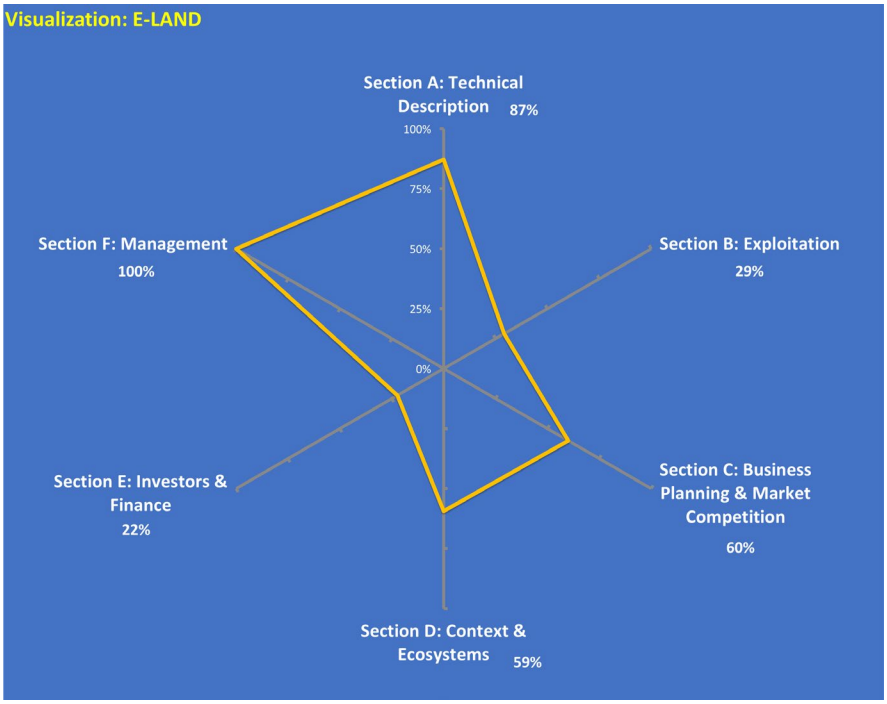
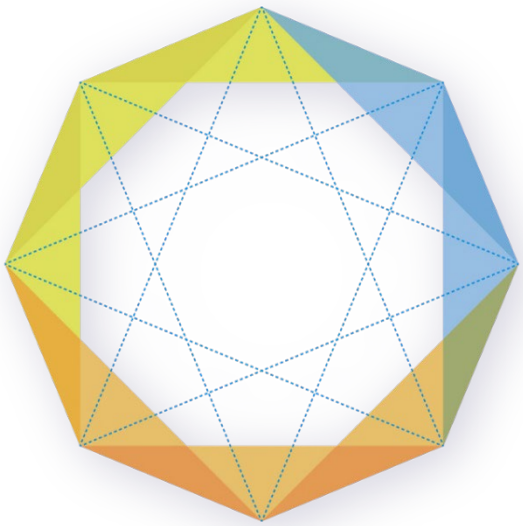


Figure 8: Visualisation E-LAND



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