Long-term stability beyond core funding

exploring options through a business plan and cost benefit matrix

SHAPE ENERGY

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Executive summary

The main aim of the report is to develop a business plan for how the SHAPE ENERGY Platform (hereinafter also referred to as the 'Platform') could be sustained post-project and as a key aspect of creating a lasting legacy for the project work. It sets out: the needs our business would address; what sort of company structure would be required for successful delivery; a market strategy, based on a detailed market and customer analysis; competitor analysis; and operations plan and financial plan.

Moreover, a cost-benefit matrix is developed to be used by other stakeholders seeking to replicate individual Platform activities post-project. This helps determine which activity might best be used depending on the research outcome required and considering input values such as: mix of stakeholders, number of stakeholders, budget, etc. In this way, individual methods advanced by the Platform can be exploited on an ad-hoc basis by other organisations and/or applied to other societal challenges, post-project.

This report provides a review of publicly funded European Union (EU) energy-related platforms/networks that have successfully developed self-sustaining business models, with implications towards the Social Sciences and Humanities (SSH) disciplines as well as business model theory. A list of 73 platforms is collated from partner knowledge and desktop research where applicable, with key learnings identified concerning which key elements the Platform could replicate and how a self-sustaining model has been applied in the various cases. The collected data make best use of direct evidence. Specific quality parameters, as well as their relation to the sustainability of the platform, are set and tested statistically.

Furthermore, this report selects 10 'top' platforms for more detailed study, with both platform performance and platform similarity to the SHAPE ENERGY Platform explicitly considered.

In sum, a set of key elements of replication is provided, in addition to a business plan for how the SHAPE ENERGY Platform could be a sustained post-project initiative, to assist in strategic planning and the production of a management system Balanced Scorecard (BSC). Aspects of a Cost Benefit Analysis are implemented in the financial perspective of the BSC, which is further elaborated via three different scenarios based on the cooperation of two groups in shaping the European energy agenda; i.e. those who demand energy research, because they can use it to develop practical initiatives, with those who supply that research in a) a commercial way, b) with public funds, and, c) a combination of both.

Our key findings include the following:

- The platforms that organise more public events have more members.
- A number of organised events is the most important motivation factor for existing and potential new members to join and participate in platform life.
- A number of organised events is positively influenced by the publication activity and multicultural team composition, while social network activity proved insignificant.
- One of the most important elements for replication (because it highly influences the sustainability of the platform) is the type of financial support, ideally based on EU programmes or in the form of membership fees.
- An intensive and active research agenda in SSH can help to publicise the platform and attract new members and potential investors.
- Engaging multidisciplinary members and stakeholders from different areas can increase the attractiveness and complexity of research activities and the applicability of gained results in the practice.
- Organising events on a regular basis helps to share personal ideas with other experts in the field, discuss the strategies with the public and improve the reputation.
- Publishing newsletters, journal articles, conference papers, etc., on a regular basis helps to keep members in touch with the platform research activities and attracts new members.
- Social media activities are key for internal as well external communication.

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List of acronyms

BSC	Balanced Scorecard
CBA	Cost Benefit Matrix
CSA	Coordination and Support Action
EERA	European Energy Research Alliance
EIP	European Innovation Partnerships
ERA-NET	European Research Area Net
ETIP	European Technology and Innovation Platforms
Energy-SSH	Energy-related Social Sciences and Humanities
EU	European Union
EC	European Commission
EVA	Economic Value Added
IA	Innovation Action
INTERREG	Interregional cooperation projects – programmes
NPV	Net Present Value
RET	Renewable Energy Technology
RIA	2020-2030 Research and Innovation Agenda
ROA	Return on Assets
ROI	Return on Investment
SETIS	Strategic Energy Technologies Information System
SET Plan	The European Strategic Energy Technology Plan
SSH	Social Sciences and Humanities
SHAPE ENERGY	Social sciences and Humanities for Advancing Policy in European ENERGY
STEM	Science, Technology, Engineering and Mathematics
WACC	Weighted Average Cost of Capital

1. Introduction

The European energy sector has been transitioning towards a non-fossil society (the process of a gradual decarbonisation of the primary energy supply), accelerating its reliance on carbon-free flows of renewable energy (Smil, 2016). This transition is driven by increased energy demands (new appliances and converters), economies of scale with concentrated generation, and more efficient final consumption. Moreover, environmental considerations have significantly gained importance since the 1980s, leading to national and supra-national policy agreements on greenhouse gas (GHG) emissions (Smil, 2016).

The low-carbon energy transition has been intensified in recent years, being supported also by global policy outcomes, such as the 2016 Paris Agreement. The European Union (EU) energy policy, framed by the Lisbon Treaty, set clean energy targets while ensuring a secure and affordable energy supply. In an historical context, the energy market landscape was completely transformed during three legislative periods starting in the mid-1990s, while finally, the third Energy Package (2020 Climate and Energy Package) of 2009 aimed at further progress in electricity and gas markets integration. The promotion of renewable energy sources (RES) was also enhanced with the Renewables Directive, based on the priority for rolling out RES.

The EU energy policy goals, set in 2009 for the period ending in 2020, were formulated as incentives for Member States with specific national goals in terms of RES shares in consumption, GHG emissions reductions, and energy efficiency improvements (the 20-20-20 energy plan). The EU energy targets on RES are evidenced via the SHARES (EUROSTAT's Short Assessment of Renewable Energy Sources) tool, based on Directive 2009/28/EC on the promotion of the use of energy from renewable sources. In 2016, the harmonised calculation of the RES share on the gross final consumption of energy resulted in 17.04%, compared to 10.46% in 2007. For 2030, even more ambitious targets were set in 2014 (Clean Energy for All Europeans – COM (2016) 860. The at least 40% decarbonisation objective in 2030 compared to 1990 presented at the Paris Climate Change Conference in 2015 was established in line with the 2014 Roadmap to 2050, which encompasses long-term scenarios and objectives, contemplating especially the cost of energy transition to low-carbon technologies.

The Energy Union was the next policy initiative inspired by concerns over the security of the natural gas supply. It was formally launched in 2015 by Commission proposal COM (2015) 80. Heading towards a single European energy market, it is based on five closely related dimensions, one of them being research, innovation, and competitiveness (Faure-Schuyer et al., 2017) and is incorporated into the EU Strategic Energy Technology Plan, launched in 2007.

The successful achievement of the RES and other energy related targets also raises scientific questions related to societal aspects of the energy technology transitions. The multidisciplinary and multidimensionality of energy transitions is of increasing interest to the scientific community. The underrepresentation of the Social Sciences and Humanities (SSH) in contemporary energy studies research (Sovacool, 2014a) and the dominance of the Science, Technology, Engineering and Mathematics (STEM) disciplines in policy circles is widely agreed upon (Foulds and Christensen, 2016; Fox et al., 2017). According to Sovacool (2014b), energy studies should become more interdisciplinary and heterogeneous. Neglected topics in energy transition research include 12 promising research areas, including gender and identity (such as pollution from cooking stoves) and economic, political and social drivers of energy consumption (Sovacool, 2014b).

Further, the synergies between the SSH and STEM disciplines have not yet been fully utilised, and therefore embedding renewable energy technologies (RETs) into existing systems is at risk within the natural and social environments, including institutional arrangements and large-scale infrastructures (Foulds and Robison, 2018). Moreover, innovative RET business models require more complex structures and the greater involvement of consumers in decision-making. The combination of behavioural aspects and big data analysis in RETs, and energy efficiency as the key policy change, leads to calls for behavioural interventions (Giest and Mukherjee, 2018). There are also arguments that research institutions and associations should media-train scientists, with success stories presented (Figueres et al., 2017).

Based on all of this, we strongly argue that much can also be learned from business management disciplines. Soft factors and soft values have had an enormous effect on the financial world, and the value of flexibility has obviously become a key part of new business models as well as other disciplines. Indeed, there is an urgent need in the research, policy and project worlds for new evidence that uses and combines techniques that utilise multidimensional performance measurement, strategy planning and scenario analysis.

The aim of this report is to develop a business plan for how the SHAPE ENERGY Platform could be sustained post-project and as a key aspect of creating a lasting legacy for the project work. It sets out: the needs our business would address; what sort of company structure would be required for successful delivery; a market strategy, based on a detailed market and customer analysis; competitor analysis; and operations plan and financial plan.

In delivering on this aim, we hope to provide insights more broadly (e.g. to those beyond the SHAPE ENERGY consortium) on matters concerning which activity type might best be used depending on the research outcome required and the various input values (e.g. mix of stakeholders, number of stakeholders, budget, etc.). In this way, individual methods advanced by the Platform, and as discussed within this report, can be exploited on an ad hoc basis by other organisations and/or applied to other societal challenges, post-project.

This report is structured as follows: we begin by providing some background context on matters concerning the EU Strategic Energy Technology Plan, relevant stakeholder communities, business model theory, and key business models (section 2). We then detail the Methodology utilised herein this report to fulfil the study aim (section 3). Our results and analysis are presented, in line with the hypotheses we put forward and including 10 selected platforms, which we would argue platforms such as SHAPE ENERGY could learn something from (section 4). On the basis of all this, we present a Business Plan (including Cost Benefit Analysis) for the future of SHAPE ENERGY, which leads us to discussing three different scenarios (each has its own Balanced Scorecard) (section 5). We conclude with some wider reflections on what an exercise such as this could be used for by other similar projects, as well as by reiterating some headline findings and key 'take-home' messages (section 6).

2. Background context

The following sub-section 2.1 includes overviews of the EU SET Plan and other relevant platforms and provides background context for the latter a business plan proposal (section 5). The subsection 2.2 provides insight on business theory research, with subsection 2.3 then introducing key business models being used by companies worldwide. In the subsection 2.4, we explore the Balanced Scorecard method in slightly more detail, similarly again as context for when we later present our own Balance Scorecards (section 5).

2.1. The EU SET Plan and relevant stakeholder platforms

We now begin by giving an overview of the EU energy research and innovation funding context, which the SHAPE ENERGY platform situates itself within. We do this to provide background context for the latter business plan discussions and strategic commentary on how and where SHAPE ENERGY could seek to position itself moving forward.

The energy research and innovation policy framework has been integrated into the Strategic Energy Technology Plan (SET Plan) since it was launched in 2007[1], with the aims of framing the deployment of low-carbon energy technologies and coordinating the energy related research and financing. The SET Plan is part of the new European Energy Research & Innovation Agenda / Strategic Research and Innovation agenda (SRIA).

In 2015, the SET Plan communication pushed the energy system in Europe beyond technology and translated the Energy Union Research, Innovation and Competitiveness priorities into 10 actions. A steering group has been crucial in facilitating all SET Plan achievements:

1. the SET Plan Integrated Roadmap, launched in 2014;
2. the R&I core and additional priorities of the Energy Union strategy; and
3. the 10 key related actions of the SET plan, defined in 2015.

In 2010, the information system of the SET Plan (SETIS) was introduced as a planning tool, with the goal to monitor the state of low-carbon technologies.

SET Plan stakeholders include multi-helix representatives from different sectors and might be divided into three main groups, which we now discuss in turn:

1. *European Technology and Innovation Platforms (ETIPs)*

   ETIPs are key industry-led communities gathering together all relevant stakeholders throughout the entire innovation chain: industrial stakeholders (including SMEs), research and academic stakeholders, business representatives, regulators, civil society and NGOs. The industrial platforms of the initial SET plan governance structure from 2015 were simplified in 2016: the 6 European Industrial Initiatives (EIIs) were merged with the 8 European Technology Platforms (ETPs) to form 9 ETIPs (see Figure 1). Seven ETIPs are technology-oriented (wind, PV, ocean, bioenergy, geothermal, zero emissions and sustainable nuclear energy), and two deal with technological or system integration: renewable heating and cooling, and smart networks for energy transition. European technology platforms were defined in the 'Industrial Policy in an enlarged Europe' in December 2002, with the aim of connecting main triple/quadruple helix stakeholders in the R&D, such as research and academic stakeholders, public authorities, private companies and civil society. However, based on the evaluation of ETPs (2007), there have been various levels of stakeholder involvement: civil society and NGOs were underrepresented, while industry and academic/research had good representation.

1 The SET Plan was launched in 2007 within the communication, 'A European Strategic Energy Technology Plan: Towards a Low-carbon Future' [COM (2007) 723].

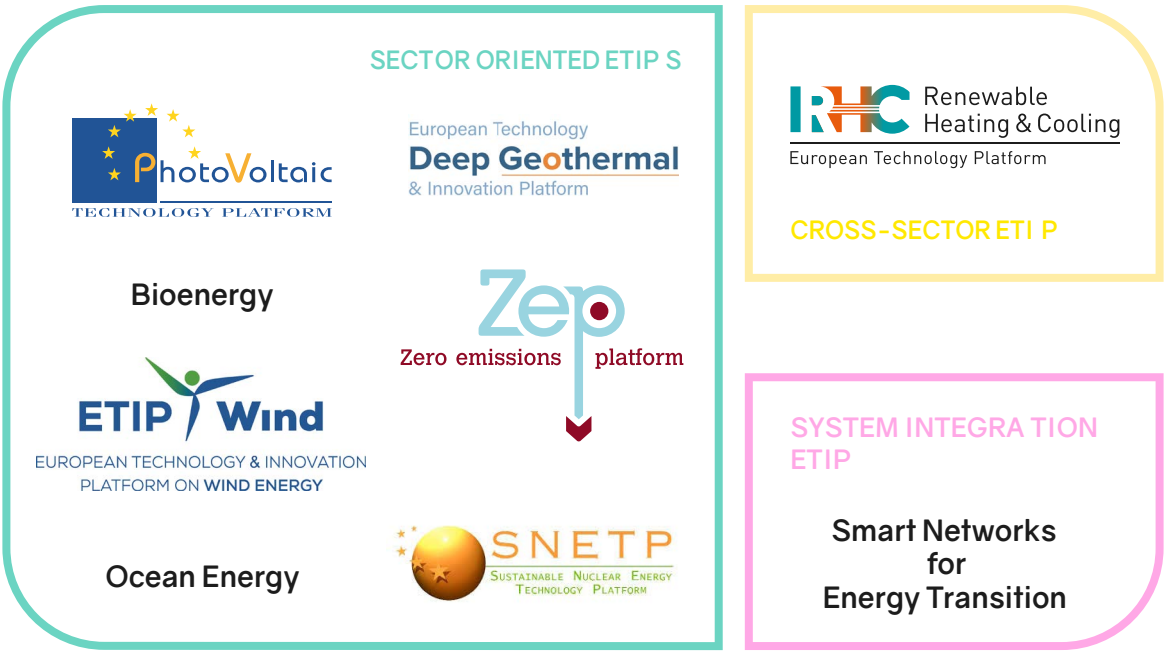


Figure 1. European Technology and Innovation Platforms (European Commission, 2016).

2. *The European Energy Research Alliance (EERA):*

   EERA connects around 250 research organisations from 30 countries involved in 16 joint programmes. EERA works together with industry units in order to coordinate research and innovation priorities. It introduces European scientific community globally and fosters collaboration worldwide. EERA also supports the creation of national energy research alliances in many countries, including the UK, the Netherlands, Spain and Belgium. Such alliances help coordinating activities at national levels and within EERA. EERA is the research pillar of the SET Plan, and, in addition to the close collaboration with the SET-Plan secretariat of the European Commission, EERA liaises with the other partners of the SET Plan.

3. *Other EU stakeholder platforms in the energy sector:*

   The third important SET Plan stakeholder group includes a mix of academic, public-private partnerships, clusters and communities:

   - Tech/energy clusters at universities, such as the European Platform of Universities engaged in energy research, education and training (EPUE-EUA)
   - Clusters of companies, research institutions and universities, such as the European Cluster Collaboration Platform
   - Public-Private Partnerships (PPPs) or public-public partnerships, such as the Bio-based Industry, Fuel Cells and Hydrogen, Energy Efficient Buildings, and the Sustainable Process Industry
   - The six Knowledge and Innovation Communities (KIC), such as KIC InnoEnergy and EIT Raw Materials
   - The 10 European Innovation Partnerships (EIPs) such as the European Innovation Partnership on Smart Cities and Communities
   - Horizon 2020 Energy Projects gathered in the CORDIS database
   - Joint Programming Initiatives (JPIs)
   - Others, such as interregional cooperation projects (INTERREG)

The SET Plan's relevance to the innovation strategy (COM (2012) 497) is reflected in the Smart Specialisation Strategy, which aims at supporting partnerships between EU regions in different sectors (COM (2010) 553). The facilitation of the effective cohesion policy funds for innovation in energy and the creation of partnerships in order to better align R&I activities at national, regional and local levels that support – A Smart Specialisation Platform on Energy (S3PEnergy 14) – was created in May 2015 (European Commission, 2016).

In 2015, the InnovFin (Energy Demonstration Projects) was created as a risk finance instrument to support innovative, low-carbon energy projects reaching the market. In 2016, the European Union joined Mission Innovation, another innovation tool with energy research-related impact. This initiative, launched in 2015 at the Paris United Nations Climate Change Conference (COP21), represents an effort to double government investment in clean energy R&I by participating countries (22) (European Commission, 2017).

A key instrument for achieving the objectives is the ERA-NET Co-fund, under the EU programme Horizon 2020 launched in 2014. It was designed to support public-public partnerships, including also joint programming initiatives. At the end of 2016, nine energy ERA-NET co-funded networks were functional (Horizon 2020 types of actions – RIA[2], IA[3] and CSA[4]).

In sum for this sub-section: many stakeholders are involved in EU energy-related platforms and in the EU/EC energy policymaking environment, and thus it is very competitive space for new communities and platforms to function. We are therefore certain that the offering of new platforms in this area requires clear, purposive and complex modeling of functioning, i.e. a business model.

2.2. Business model theory

We now provide an overview of a business model theory. This is important context because there has been significant and growing interest in business model research among academics and business practitioners since the late 1990s. Although no publicly accepted definition of a 'business model' has been developed and agreed upon (if indeed that is actually ever possible), we can confirm a growing importance of this topic that has affected all industries and research categories worldwide.

Business model evolution belongs among the main energy industry megatrends (the remaining being carbon capacity conflict, intelligent infrastructure, demographics and customer engagement). In energy generation explicitly, splitting power plant ownership from regulated operations and opening up the market are the key drivers (Gabriel, 2008).

The first appearance of the term *business model* in scientific literature dates back to the 1950s (see the following Figures 2, 3 and 4). Data from the Web of Science database show an increasing number of records as well as citations published between 1952 and 19 November 2018. Among the Web of Science most-covered categories are Computer Science Information Systems, Management, Business, Computer Science Theory Methods and Economics.

Within this database, a search was conducted for publications with the term *business model* in the article title. The research was not limited to publications classified as belonging to certain subject areas in order to ensure the highest proximity to business model research.

2 Research and Innovation Actions: R&D to establish new knowledge or explore the feasibility of a new or improved technology, product, process, service or solution (including basic and applied research, technology development and integration, testing and validation on a smallscale prototype in a laboratory or simulated environment)

3 Innovation Actions: innovation activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services (including prototyping, testing, demonstrating, piloting, large-scale product validation and market replication)

4 Coordination and Support Actions

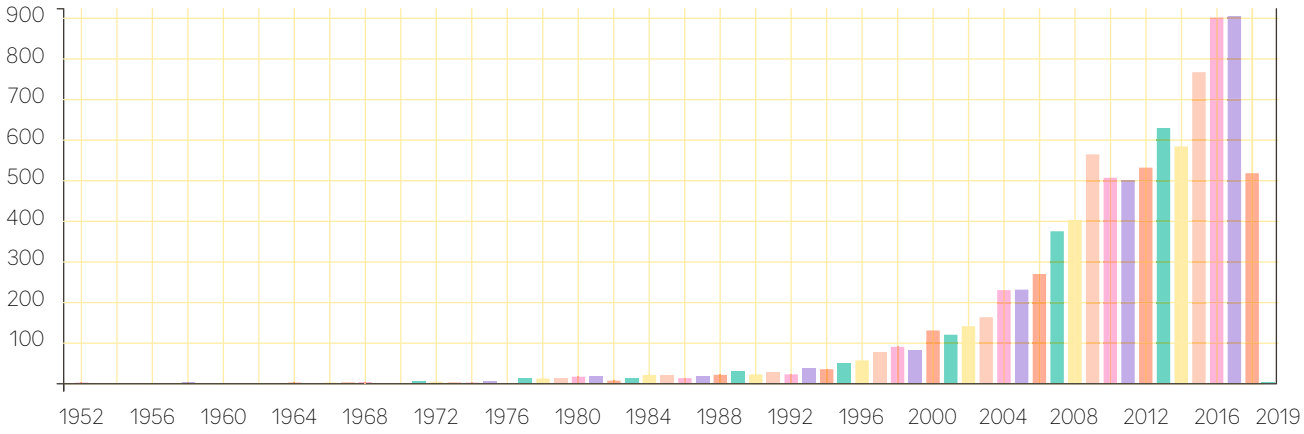


Figure 2. Published articles on business models, in the Web of Science over 1952 – 2018.

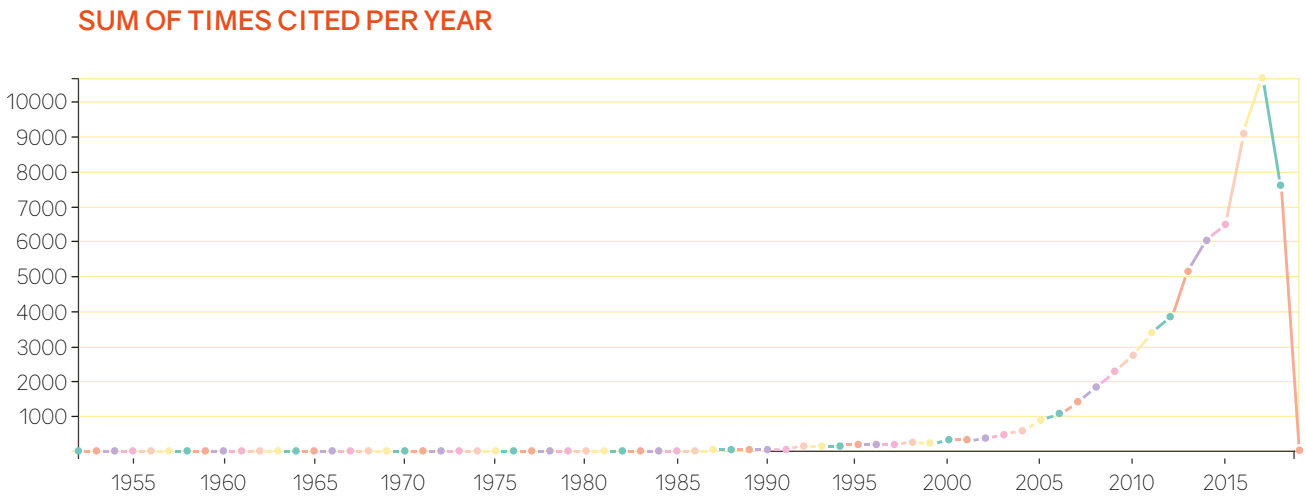


Figure 3. Citations on business models, in the Web of Science over 1952 – 2018.

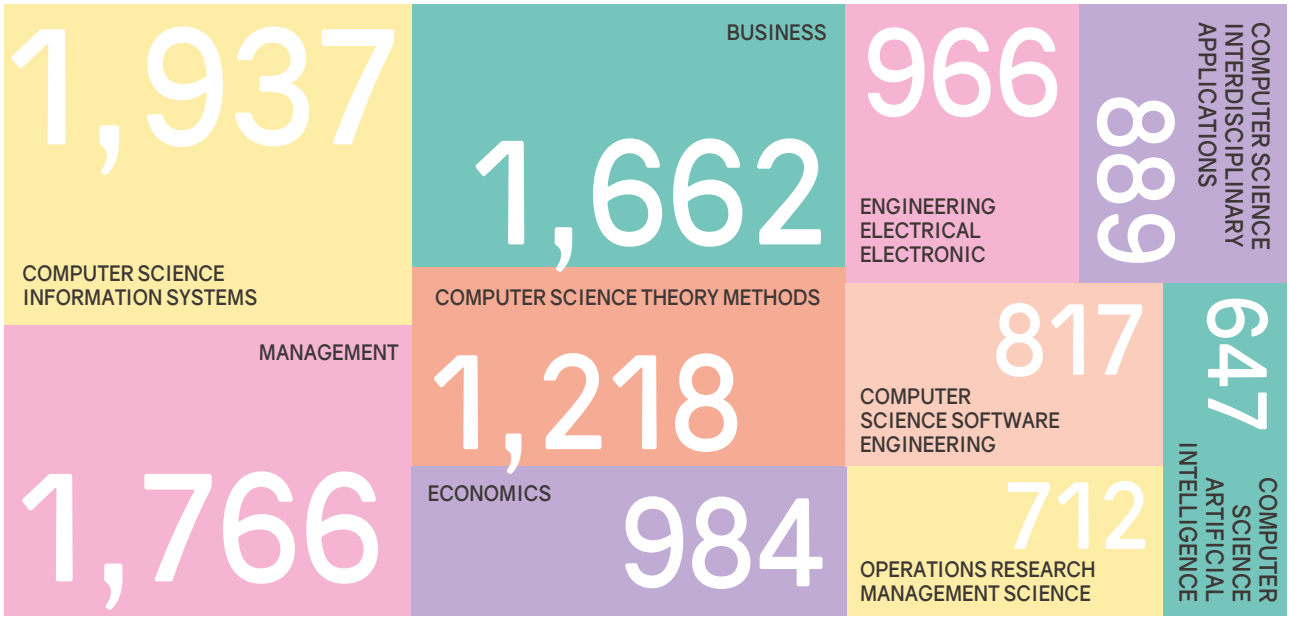


Figure 4. Overview of business model research, as per the Web of Science categories, over 1952 – 2018.

However, the business model terminology came into widespread use with the expansion of personal computers and spreadsheets (Magretta, 2002). Increased interest in business model research among academics and business practitioners can be seen since the late 1990s, nevertheless, since that time countless debates have taken place over what exactly can be considered a business model, as no publicly accepted definition has yet been developed.

Al-Debei and Avison (2010) summarised key definitions on business model research identifying key authors, business model descriptions and thematic indicators, e.g. Timmers (1998, p.4) described the business model as "*an architecture for products, services and information flows, including a description of various business actors and their roles; a description of the potential benefits for the various business actors; and a description of sources of revenues*". A couple of years later, Amit and Zott (2001, p.4) defined the same term "*to depict the design of transaction content, structure, and governance so as to create value through the exploitation of new business opportunities*". Magretta (2002, p.4) considered the business model as a vehicle "*to tell a logical story explaining who your customers are, what they value, and how you will make money in providing them that value*". Osterwalder et al. (2005, p.17-18) characterised the business model as a:

> "*...conceptual tool that contains a set of elements and their relationships and allows expressing the business logic of a specific firm. It is a description of the value a company offers to one or several segments of customers and of the architecture of the firm and its network of partners for creating, marketing, and delivering this value relationship capital, to generate profitable and sustainable revenue streams.*"

Zott el al. (2011, p.1022) summarised several business model definitions as follows:

> "*At general level, the business model has been referred to as a statement (Stewart and Zhao, 2000), a description (Applegate, 2000; Weill and Vitale, 2001), a representation (Morris et al., 2005; Shafer et al., 2005) and an architecture (Dubosson-Torbay et al., 2002; Timmers, 1998), a conceptual tool or model (George and Bock, 2009; Osterwalder, 2004; Osterwalder et al., 2005), a structural template (Amit and Zott, 2001), a method (Afuah and Tucci, 2001), a framework (Afuah, 2004), a pattern (Brousseau and Penard, 2006), and a set (Seelos and Mair, 2007).*"

In sum for this sub-section: whilst there has been much attention on business models in both research and policy, there is evidently no universal, complex and efficient model that all can agree on using – instead different types of business models can be observed.

2.3. Key business models

We now provide an overview of the most influential business models of today. This is important context because we would like to propose the most convenient and appropriate model for acheiving our main goal: of developing a business plan for how the SHAPE ENERGY Platform could be best sustained post-project.

As stated in the previous sub-section: over the years, many types of business models have been developed. These models have grown from simple concepts into robust and dynamic models. Among the most influential models of today are particularly the Baldrige Excellence Business Model, Shingo Model, Performance Pyramid, Balanced Scorecard, EFQM Excellence Model, Performance Prism, Business Model Canvas, Strategy Sketch, Lean Canvas and Sustainable Enterprise Excellence Model.

The Baldrige Excellence Business Model, one of the first models acknowledged by companies (especially in the United States), combines six areas of processes across the whole company: leadership, strategic planning, customer management, knowledge management, workforce engagement and operation focus (Kendall and Bodinson, 2017).

The Shingo Model is often considered as another lean tool, however, it should be recognised as a new way of thinking, taking into consideration the following guiding principles: respect every individual, lead with humility, seek perfection, embrace scientific thinking, focus on process, assure quality at the source, flow

and pull value, think systematically, create constancy of purpose and create value for the customer (Shingo Institute, 2017).

Similarly, the Performance Pyramid includes a hierarchy of financial and non-financial measures focusing on performance. Mackay (2005, p.9) explains that it

> "*represents an organization resolved into four interdependent levels. The first level is the traditional corporate management layer and the second; the company's sub units. The third level is not a structural business unit but rather is a representation of all the processes that are critical to the organization's success – such as creating customer satisfaction. The fourth layer represents departments*."

Balanced Scorecard (BSC), developed by Kaplan and Norton (1992), proposes a set of measures helping managers to gain a comprehensive view of their business. The original BSC consisted of four fundamental business perspectives (financial, customer, internal business processes and innovation and learning).

A similar model to the Baldrige Excellence Business Model, the EFQM (European Foundation for Quality Management's) Excellence Model was developed as a result of a European government initiative in 1999 to:

> "*provide a holistic view of the organisation which can be used to determine how these different methods fit together and complement each other. Among the fundamental concepts of excellence belong: adding value for customers, creating a sustainable future, developing organisational capability, harnessing creativity and innovation, leading with vision, inspiration and integrity, managing with agility, succeeding through the talent of people and sustaining outstanding results.*" (EFQM, 2013, p.4).

In order to address the needs for businesses to deal with performance management and modern measurements, a new three dimensional model called the Performance Prism was created by Neely et al. in 2001. This so-called second generation measurement framework consists of five interrelated facets. The top and bottom facets are Stakeholder Satisfaction and Stakeholder Contribution and the three side facets are Strategies, Processes and Capabilities (Neely et al., 2001).

Among other popular business models is the Canvas developed by Alexander Osterwalder in 2008. It is composed of several areas including key partners, key activities, value proposition, customer relationship, customer segment, key resources, distribution channel, cost structure and revenue stream. Osterwalder and Pigneur (2010, p.15) believe that "*a business model can best be described through nine basic building blocks that show the logic of how a company intends to make money*". There have been many alternatives to the Canvas model so far, e.g. the Strategy Sketch designed by Jeroen Kraaijenbrink, which facilitates thinking and talking about corporate strategy and, thus, helps in improving and generating a new one (2014). Another alternative to the Canvas business model is the Lean Canvas by Ash Maurya, which is primarily intended for start-ups and new initiatives. The Lean Canvas replaces or removes some sections of the Canvas model focusing on problems, solutions, key metrics and competitive advantage (Maurya, 2012).

A simple model of sustainable enterprise excellence that "*results as a consequence of balancing both the competing and complementary interests of key stakeholder segments to increase the likelihood of superior and sustainable competitive positioning and long-term enterprise success*" was introduced by Edgeman and Eskildsen in 2014 (p.176).

Such models are unique in their constitution and take into consideration the individual characteristics and specifics of each corporation. Blahová (2017, p.123-124) notes that these:

> "*models include domains that are not new or somehow exceptional (although they are crucial for the right management, strategy creation, execution and corporate decision-making). However, the mutual interconnection and integration into a single whole creates viable systems improving the competitiveness of a company, profitability, effectiveness and overall performance – thereby increasing corporate value and sustainability in the volatile business environment of today.*"

In sum for this sub-section: for the complexity of soft and hard values, tangible and intangible measures, and financial and non-financial goals, we select the Balanced Scorecard (BSC) model as the most appropriate business model for building our Platform business case and we will use it the following sections.

2.4. Balanced Scorecard and Business Planning

We now provide an overview of the Balanced Scorecard (BSC) model, and we explain the benefits and perspectives that it has. This is important context because we select this approach for our case study, designing the future sustainability for our Platform in different scenarios.

Traditional financial performance metrics provide information about a firm's past results, but are not well-suited for predicting future performance or for implementing and controlling the firm's strategic plan. By analysing perspectives other than the financial one, managers can better translate the organisation's strategy into actionable objectives and better measure how well the strategic plan is executing. The BSC is a management system that maps an organisation's strategic objectives into performance metrics in four perspectives (Yu, 2005):

- *Financial*: how do shareholders view the firm and which financial goals are desired from the shareholder's perspective? The specific goals depend on the company's stage in the business life cycle.
- *Internal business processes:* which processes are most critical for satisfying customers and shareholders? These are the processes in which the firm must concentrate its efforts to excel.
- *Customers:* how is the firm viewed by its customers and how well is the firm serving its targeted customers in order to meet the financial objectives? Generally, customers view the firm in terms of time, quality, performance, and cost.
- *Learning and growth:* how can the firm learn, improve, and innovate to meet its objectives? Much of this perspective is employee-centred.

These perspectives provide relevant feedback as to how well the strategic plan is executing, so that adjustments can be made as necessary. The BSC, introduced by Kaplan and Norton in 1992, has evolved from a performance measurement tool to a strategic management mechanism and has been widely adopted in both the private and public sectors (Kaplan, 1992; Norton and Kaplan, 1996; Kaplan and Norton, 2004). The BSC is based on the rationale that skilled employees will improve process quality and cycle time, which therefore leads to on-time delivery and customer loyalty. At the end of the chain of improvements, the organisation is very likely to achieve higher returns on investments and, consequently, shareholder satisfaction (Kaplan and Norton, 1996a).In addition to measuring current performance in financial terms, the BSC evaluates the firm's efforts for future improvement using the above-mentioned metrics. The term 'scorecard' signifies quantified performance measures and 'balanced' signifies that the system is balanced between the metrics i.e.,

- short-term objectives and long-term objectives;
- financial measures and non-financial measures;
- lagging indicators and leading indicators; and
- internal performance and external performance perspectives.

The BSC has been reported as the dominant concept in the business performance measurement field. It has also been considered as an effective method to link measurement with strategy as well as to translate values into metrics. It is quite likely that the BSC could be an appropriate tool for successfully linking values, strategies, and performance measures.

Strategy is articulated in terms meaningful to top management, and therefore, to be implemented, it must be translated into objectives and measures that are actionable at lower levels in the organisation. The BSC can be cascaded to make the translation of strategy possible. While top-level objectives may be expressed in terms of growth and profitability, these goals get translated into more concrete terms as they progress down

the organisation and each manager at the next lower-level develops objectives and measures that support the next higher-level. Ultimately, achievement of BSC objectives would be rewarded by the employee compensation system. The BSC can thus be cascaded in this manner to align the strategy throughout the organisation.

However, the BSC does need some adjustments to fit to the modus operandi of not-for-profit organisations, because their main objectives are not finance-related. Here, it is suggested that the customer is positioned at the top of the strategic map. However, even this small alteration could be a complicated one. Kaplan and Norton (2001), argue that in a non-profit organisation, donors provide the financial resources – they pay for the service – while another group, the constituents, receives the service. To address this strategic problem, it was suggested that: rather than to make such a Solomonic decision, organisations place both the donor perspective and the recipient perspective, in parallel, at the top of their BSCs. They develop objectives for both donors and recipients, and then identify the internal processes that deliver desired value propositions for both groups of 'customers'.

Moreover, unique from the private sector, non-profits are often required to minimise administrative and operating costs under the watchful eyes of congregants or donors. Tight operating budgets, heavy workloads, and confusion about how to effectively perform strategic planning are all contributing factors which can cause leaders of non-profits to shy away from strategic planning initiatives. However, without a mission and values-driven strategy in place to guide long- and short-term decision-making, a non-profit's ability to increase operational capacity, operate within budget allocation, enhance employees' skill base, and meet stakeholders' needs is compromised. As such, the Purpose-Driven Church model was proposed for the BSC to demonstrate the power and flexibility needed to be an effective strategic planning and performance measurement tool (Ronchetti, 2006).

Managers using the BSC approach do not have to rely on short-term financial measures as the sole indicators of the company's performance. The BSC uses new management processes that, separately and in combination contribute to linking long-term strategic objectives with short-term actions. Business planning is the primary process that can be linked to the BSC, as it enables companies to integrate their business and financial plans. This is important considering how all organisations today are implementing a variety of change programs each with its own champions and consultants competing for the executives' time, energy and resources. It is hence becoming difficult to integrate these diverse initiatives to achieve their strategic goals, leading to frequent disappointment with the final results. It is herein that managers can use the ambitious goals set for the BSC measures as the basis for allocating resources and priorities, so that they can undertake and coordinate initiatives that move them toward their long-term strategic objectives (Kaplan and Norton, 1996b).

3. Methodology

3.1. Main goal and approach

The main goal of this study is to explore different ways to transform an originally publicly-funded platform into a sustainable self-funded one. In order to reach this goal, a detailed in-depth study of existing publicly-funded platforms or networks was conducted in several steps described as follows (Figure 5).

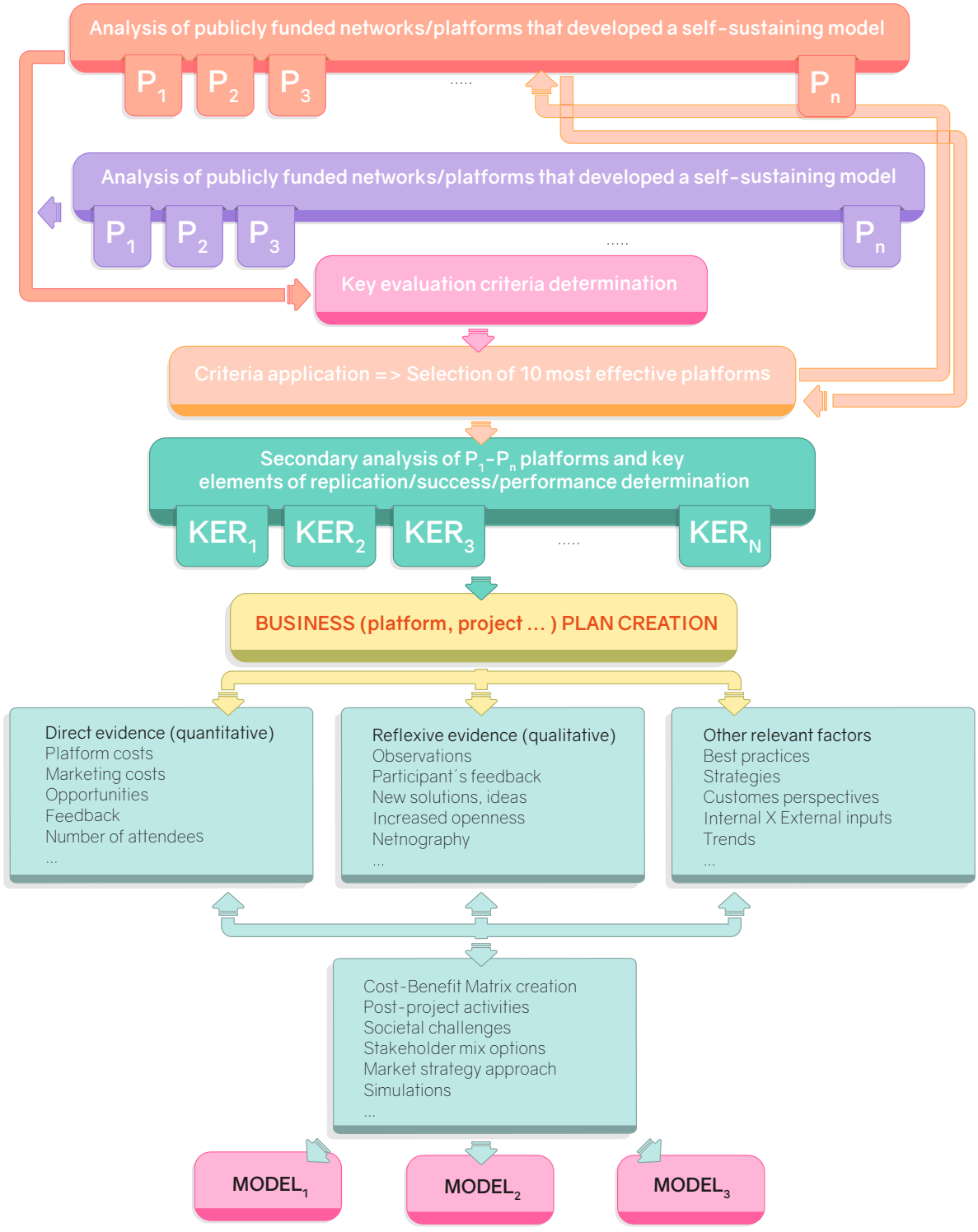


Figure 5. Methodological plan of research.

3.2. Step 1: Identifying relevant platforms and assessing performance

In the first step, a study of all available online platforms (co)financed by Horizon 2020 or other EU funds was conducted. The information on these platforms became the basis for our future analysis. Our sample included 73 platforms that were consequently classified according to the current type of financial support. We have distinguished between (1) platforms that are currently financed just by EU resources and (2) platforms that are currently in the phase of their sustainability and supported by private forms of financial support (stakeholders, investors, membership fees, etc.).

After a detailed analysis of available information (all sourced from websites and other related online records), we focused on certain specific quality parameters and their relation to the sustainability of the platform. The following criteria were subjected to statistical tests in order to explore and identify relations between them:

- Types and number of events organised every year (workshops, conferences, courses, seminars, webinars, etc.)
- Types and number of additional services and activities (consultations for companies, lectures or seminars for students and kids, social events for public, etc.)
- Social network activity (active Facebook profile, Twitter, LinkedIn, etc.)
- Own publications (conference papers, journal articles, books, monographs, reports, brochures, etc.)
- Members of consortium and number of EU countries involved

3.3. Step 2: Hypothesis-testing

In the next step, the set hypotheses describing different relations between our variables were set and tested statistically.

We now discuss each hypothesis briefly in turn.

- ***Hypothesis 1 (H1): The platforms that organise more public events (workshops, courses, conferences, etc.) have more members***

  This first hypothesis (H1) expresses the fact that when a platform is living and dynamic (e.g. as demonstrated by organising many events), it is attractive for existing as well as for new members. Based on this assumption, the next hypothesis (H2) was formulated.
- ***Hypothesis 2 (H2): The platforms that have higher publication activity also organise more public events***

  If the first hypothesis (H1) is confirmed, we would have to search for ways to increase the number of organised events. Therefore, this hypothesis (H2), as well as H3 too, consider the number of organised public events as an output variable influenced by the publication activity and number of EU countries involved.
- ***Hypothesis 3 (H3): The platforms that have members from more countries organise more public events***
- ***Hypothesis 4 (H4): The platforms that are using exclusively social media also have more members***

  During the initial analysis, we discovered that many platforms use social media as an important and strong tool for presenting themselves and motivating new members to join them. However, there are also platforms that are not active on social networks. Therefore, this hypothesis (H4), as well as H5, were set in order to prove/disprove the importance of social media for the future development and sustainability of a platform.
- ***Hypothesis 5 (H5): The platforms that are using exclusively social media organise more public events***

- ***Hypothesis 6 (H6): The platforms that have more members have higher publication activity***

  This final hypothesis (H6) examines the relation between the membership size and publication activity of the platform in order to better understand the motivation of a member to share their ideas through scientific and professional publications.

Proving/disproving all set hypotheses provided a basic overview of the relations between different variables for evaluating the quality of all considered platforms and networks in order to be able to select the top 10 among them with the highest potential for long time sustainability.

3.4. Step 3: Selecting 10 platforms for further examination

We considered two viewpoints when selecting the top 10 platforms for detailed examination:

- *Platform performance* – consisting of organised events and offered services
- *Platform similarity* – to the SHAPE ENERGY Platform, in terms of its content and budget received from Horizon 2020 funds

We used a simple three-point Likert scale in combination with the calculation of variation (in case of budget evaluation) to collect data for the top 10 platform selections. All evaluated platforms were transferred into a matrix divided into nine quadrants (Figure 6) according to their reached values in both groups of criteria, and we focused just on those included in the quadrant with the highest score in the next steps.

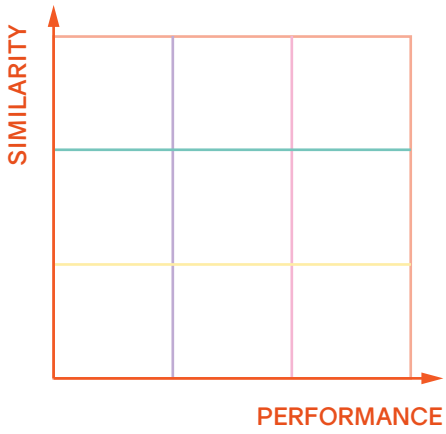


Figure 6. Evaluation matrix for selecting the 10 top platforms.

The 10 selected platforms were studied in greater detail qualitatively. First of all, all defined quality parameters were discussed again and specified in more detail (concerning e.g. what type of event was organised, in which country, for how many people, etc.). However, some additional criteria were also discussed in order to find inspiration for improving the SHAPE ENERGY Platform and ensuring its longer-term sustainability, such as:

- *The clarity of the webpage* – how easy is it to find the main vision of the platform, how easy is it to learn of upcoming events, how smartly is the webpage organised and visualised, etc.
- *Contact information* – how easy is it to get in touch with the board and platform representatives, how easy is it to find the responsible person for some special area, etc.

As a summary, a set of key elements of replication was identified. At the end of the results section, the most appropriate model for the SHAPE ENERGY Platform is presented based on mined data from the quantitative and qualitative investigations.

The data were collected from the webpages of individual platforms. In case of missing information, the authors tried to contact the responsible person. Some questions were answered quantitatively (e.g. number of countries involved, social network activity – yes/no, etc.) and others qualitatively (e.g. organised events and their periodicity, funding instruments, etc.). Afterwards, all answers were converted to the Likert scale in order to ensure the same dimension of datasets for statistical evaluation. Source data for hypothesis evaluation is available in Appendix 1 (sub-section 9.1).

4. Results and discussion

The following sub-sections include evaluations of all set hypotheses (4.1), the way the top 10 platforms were selected (4.2), and the process of their in-depth analysis (4.3).

4.1. Evaluations of set hypotheses

All set hypotheses were evaluated statistically with the use of Kendall's tau b correlation test, the Pearson correlation test or Cramer´s coefficient correlation test, depending on the type of variables (ordinal[5], nominal[6]).

For evaluating the first hypothesis (H1), the number of members was divided into four bands (Table 1) and the quantity of public events was expressed by the scale from 0 to 5 according to the number of event groups that were organised (conferences, seminars, webinars, etc.).

Table 1. Matrix of members and organised events by studied platforms.

		Frequency of events						Total
		0	1	2	3	4	5	
Members	0-10	3	1	1	1	0	0	6
	10-100	4	10	9	6	1	0	30
	100-1000	1	1	8	3	2	0	15
	1000-more	0	2	1	0	0	1	4
	Total	8	14	19	10	3	1	55

As the p-value is lower than 0.05, Kendall's tau b = 0.256, we reject the null hypothesis about the independence of the examined variables at a confidence level of 5% (Table 2) and can state that the number of organised public events positively influences the number of platform members.

Table 2. Evaluation of hypothesis H1: symmetric measures.

		Value	Asymptotic Standardised Error[A]	Approximate T[B]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	.256	.117	2.142	.032
	Gamma	.365	.162	2.142	.032
N of Valid Cases		55			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

We achieved the same result in the cases of the next two hypotheses that were tested by Kendall's tau b correlation test (H2, Table 3) and the Pearson correlation test (H3, Table 4).

5 An ordinal variable in statistics tells you about one or more categories, moreover these categories can be meaningfully ordered. For example, first, second, third, fourth, etc.

6 A nominal variable in statistics tells you about one or more categories, however these categories cannot be meaningfully ordered. For example, red, green, blue, etc.

Table 3. Evaluation of hypothesis H2: symmetric measures.

		Value	Asymptotic Standardised Error[A]	Approximate T[B]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	.330	.090	3.502	.000
	Gamma	.459	.119	3.502	.000
N of Valid Cases		73			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

Table 4. Evaluation of hypothesis H3: correlations.

		Event score	How many countries
Event score	Pearson Correlation	1	.397**
	Sig. (2-tailed)		.005
	N	73	49
How many countries	Pearson Correlation	.397**	1
	Sig. (2-tailed)	.005	
	N	49	49

** Correlation is significant at the 0.01 level (2-tailed).

In summary, the evaluation of the first three hypotheses (H1; H2; H3) demonstrates the importance for platform sustainability of organising public events and ways to cope in order to formulate a strategy for SHAPE ENERGY sustainability.

Regarding the matter of social media activity, our initial assumptions were disproved after statistical evaluation. We used Cramer´s coefficient correlation test for the evaluations of hypotheses H4 and H5. This method was selected because both hypotheses combine nominal and ordinal variables. As the p-values reached 0.753 (H4, Table 5) and 0.453 (H5, Table 6), not enough evidence exists for confirming the set hypotheses at a confidence level of 5%. Therefore, we suppose that social network activity does not influence the number of members and organised public events.

Table 5. Evaluation of hypothesis H4: symmetric measures.

		Value	Approximate Significance
Nominal by Nominal	Phi	.149	.753
	Cramer's V	.149	.753
N of Valid Cases		54	

Table 6. Evaluation of hypothesis H5: symmetric measures.

		Value	Approximate Significance
Nominal by Nominal	Phi	.261	.453
	Cramer's V	.261	.453
N of Valid Cases		69	

The final hypothesis examines the relation between the membership size and publication activity of the platform, and it was also rejected by Kendall's tau b correlation test (Table 7), meaning that the number of publications is not influenced by the number of members.

Table 7. Evaluation of hypothesis H6: symmetric measures.

		Value	Asymptotic Standardised Error[a]	Approximate T[b]	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	.154	.124	1.216	.224
	Gamma	.240	.190	1.216	.224
N of Valid Cases		55			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

In order to ensure the sustainability of the SHAPE ENERGY Platform, we should concentrate on the variables that positively influence the quality, viability and sustainability of other similar platforms. According to the results of the hypotheses' evaluations, we can conclude that the number of organised events is the most important motivation factor for existing and potential new members to join and participate in platform life. As our testing proved, the number of events is positively influenced by the publication activity and multicultural team composition, while social network activity proved insignificant.

4.2. Top 10 selected platforms and their in-depth analyses

According to the results of the hypotheses testing, we can conclude that periodically organised events, additional services offered, and periodically published results of research activities have a positive impact on the attractiveness of a platform for partners, members and stakeholders. Therefore, these identified activities were used to express platform performance as one of the criteria for selecting the top 10 of them for in-depth analysis. The second criterion was the platform similarity to the SHAPE ENERGY Platform, which was expressed by two variables: the content and the amount of support received from Horizon 2020 funds. All criteria were measured by the three-point Likert scale, which helped us to transform qualitative parameters into quantitative ones. We used the following interpretation of Likert scale values:

- 1 = doesn´t fit, (almost) no events organised, no additional services, very different topic, amount of support offered varies by more than 50% from ours, etc.
- 2 = partially fits, some categories of events organised, some additional services offered, topic is quite close to ours, amount of support offered varies between 25 and 50% from ours
- 3 = fits in large measure, (almost) all type of events organised, many additional services offered, topic and support offered is very close to the SHAPE ENERGY Platform

The results of platform evaluations were transferred into the following matrix (Figure 7) consisting of nine quadrants according to the reached average value (1, 2 or 3). In order to make the matrix more transparent for readers, we used the codes of platforms (numbers from 01 to 73) instead of their full names.

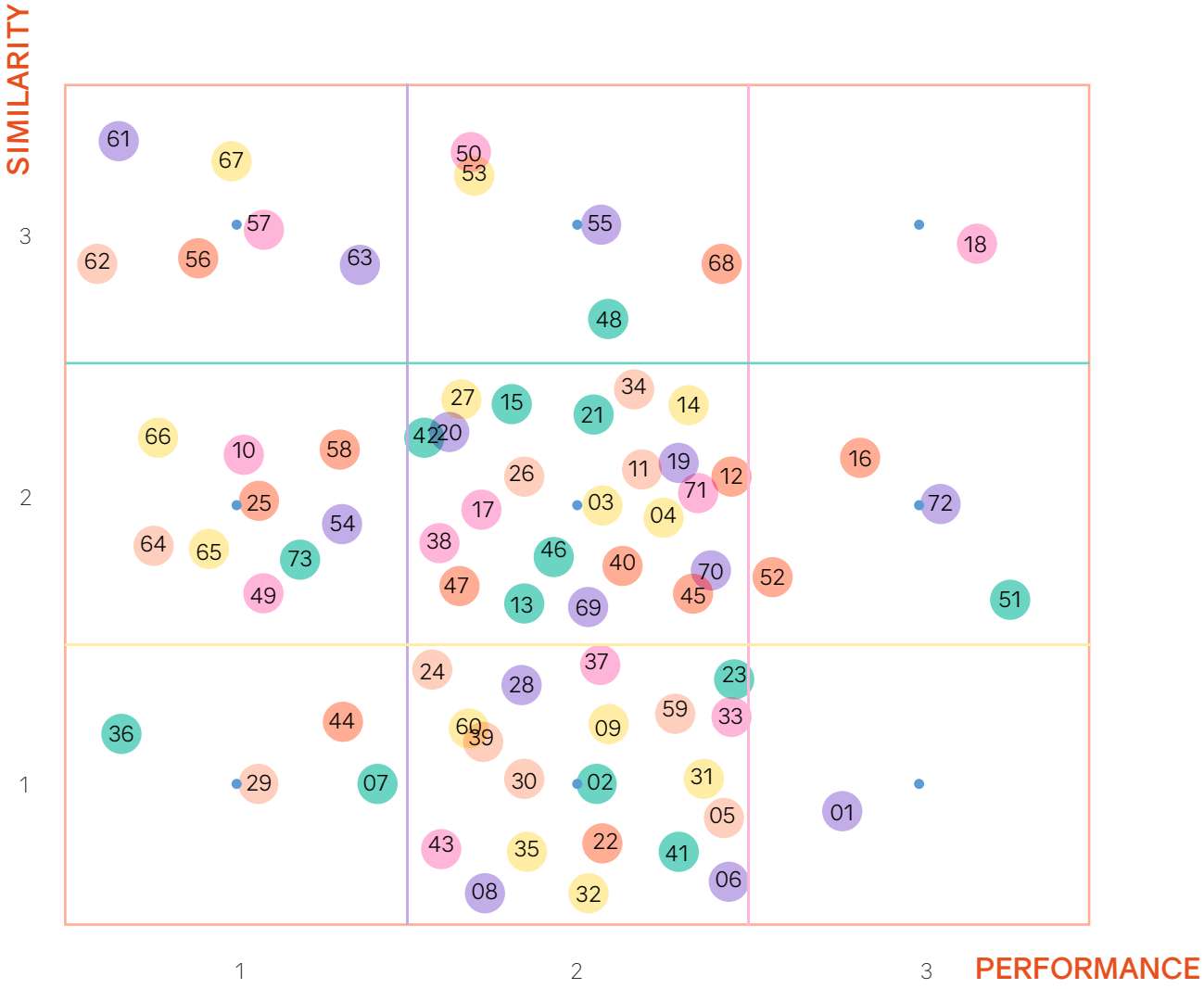


Figure 7. Evaluation matrix including all examined platforms.

The main goal of the previously mentioned evaluation matrix was to select 10 platforms for more detailed study that would help us to develop our business plan. When considering both evaluation criteria (similarity and performance), we focused on the platforms with the highest Likert scale values. Since the quadrant that is equal to value 3 in both criteria includes just one platform (platform no. 18), we will consider also the next two strongest quadrants (combinations of Likert scale values 2 and 3) for the next steps of our study. Finally, the set of top 10 platforms includes the platform numbers 16, 18, 48, 50, 51, 52, 53, 55, 68 and 72. Source data for evaluation matrix available in Appendix 2 (sub-section 9.2).

We now present headline evaluation overviews (with accompanying figures) for all of the 10 platforms that we selected based on the Likert scale values:

SNETP

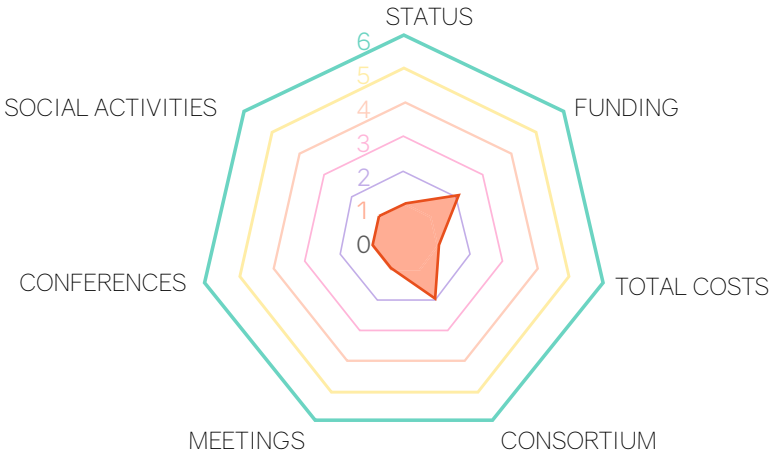


Figure 8. Spider graph – Sustainable Nuclear Energy Technology Platform.

The Sustainable Nuclear Energy Technology Platform (SNETP) (Figure 8) focuses on safe nuclear energy fission. This platform was developed in 2007 and is supported by member fees. The platform organises member meetings, workshops and conferences. A research agenda in the energy area is also provided. The vision of low-emissions was defined until 2050 via the 'Low carbon energy by 2050' project funded by Horizon 2020.

ZEP

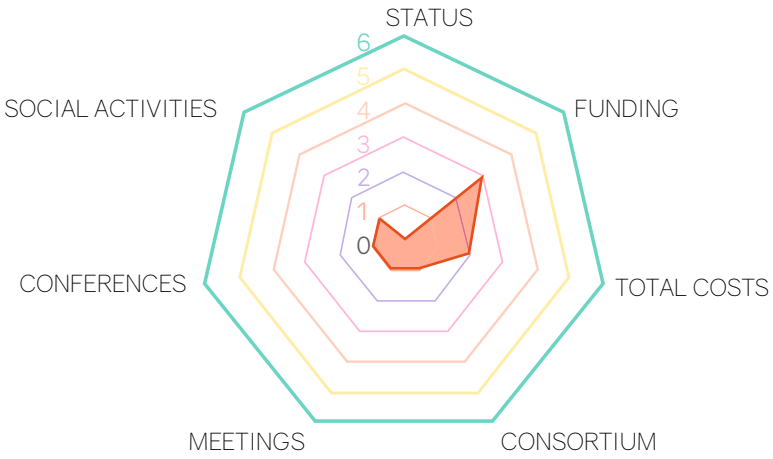


Figure 9. Spider graph – Zero Emissions Platform.

The 'Zero emissions platform' (Figure 9) was founded in 2005. The main aim of this emissions platform is to be a facilitator and expert adviser on technological aspects and to identify and remove barriers in zero-emission technology and power plant activities. The platform is supported by the European Commission and is still active after the closed Horizon 2020 project. The activities of the platform are sponsored; the amount of the membership fee is not publicly available. Many events are organised every year, namely meetings, conferences and summits. The platform integrates over 300 experts from 19 different countries including academia and research, NGOs and companies.

CEESEN

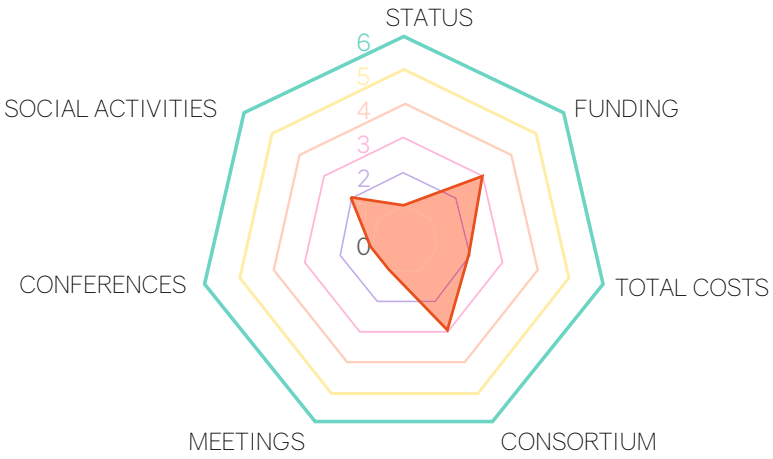


Figure 10. Spider graph – Central Eastern European Sustainable Platform.

The 'Central Eastern European Sustainable Platform' (CEESEN) (Figure 10) was created as a result of the PANEL 2050 project supported by the Horizon 2020 programme. The project is still active and is designing a roadmap for reaching sustainability. The platform integrates thousands of stakeholders via project events such as meetings, workshops and trainings. Trainings focus on the areas of advocacy, policy-making, renewable energy, energy management and others.

EUA ENERGY AND ENVIRONMENT PLATFORM

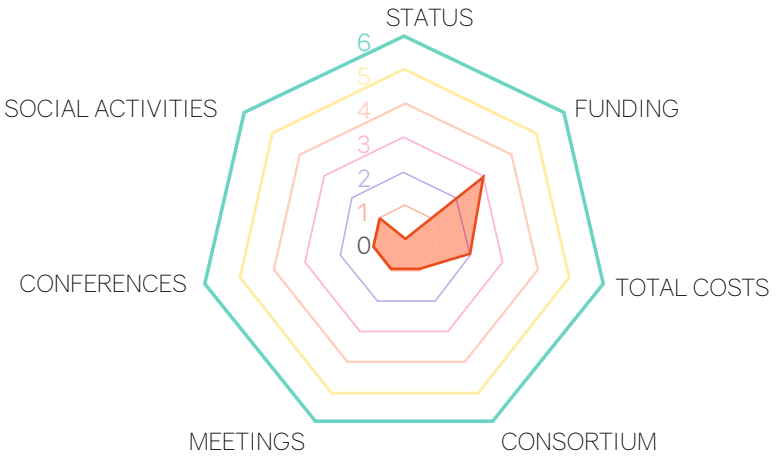


Figure 11. Spider graph – European University Association (EUA) Energy and Environment Platform..

This platform (Figure 11) connects stakeholders from the energy and environmental research, education and innovation fields. The activities of the platform are supported by the European Union in various projects. The platform hosted a webinar focusing on its energy research and education activities implemented through the project UNI-SET. One of the publications tackles problems associated with future university energy research.

EUROPEAN ENERGY EFFICIENCY PLATFORM

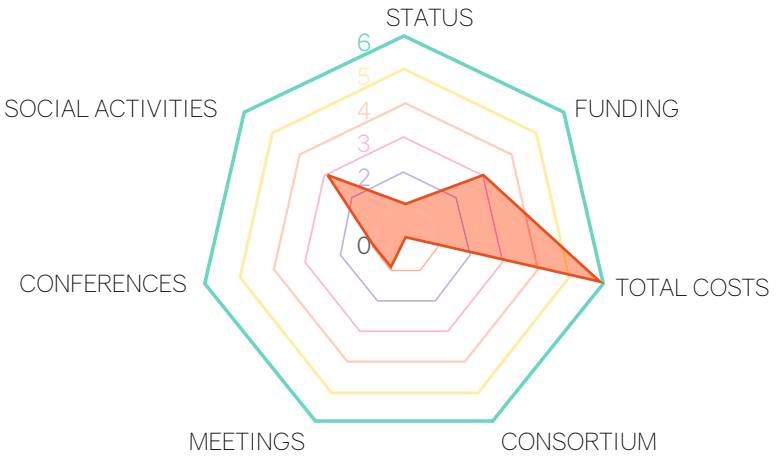


Figure 12. Spider graph – European Energy Efficiency Platform.

The 'European Energy Efficiency Platform' (Figure 12) is supported by the European Commission. The platform is an open tool for the energy efficiency community. Many publications are available on the platform websites in the form of reports, articles and newsletters. The platform is active in organising workshops, meetings, conferences and webinars.

FUTURE EARTH'S RESEARCH FOR GLOBAL SUSTAINABILITY

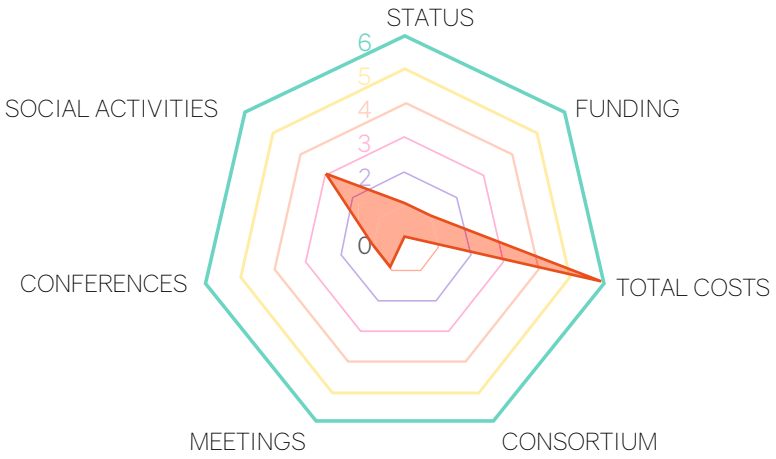


Figure 13. Spider graph – Future Earth's Research for Global Sustainability Platform.

The 'Future Earth´s Research for Global Sustainability Platform' (Figure 13) was launched in 2015 and is funded by sponsors. It is a privately funded platform in the amount of 5.5 Mil EUR during 2016-2017. Membership fees are not listed on the web page. The platform is social media connected (Twitter, Facebook, Instagram...) and organises many activities in the fields of research, innovation and stakeholder collaboration. More than 20 symposiums, forums and conferences were held in the last two years. The platform has defined its vision in future research and has so far supported over 20 projects.

INNOENERGY

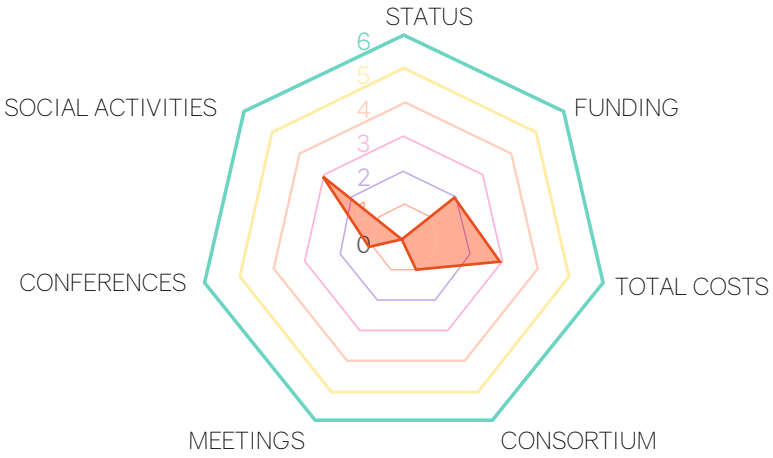


Figure 14. Spider graph – InnoEnergy Platform.

The 'InnoEnergy' platform (Figure 14) supports and invests in innovation for sustainable energy supported by the EIT. The vision is to be a leading engine for innovation and entrepreneurship in the energy area and to build a sustainable framework of knowledge (industry, research and higher education). The platform has over 400 stakeholders from European member states and offers workshops and conferences. The platform is still active on its web page.

ACCOMPLISSH

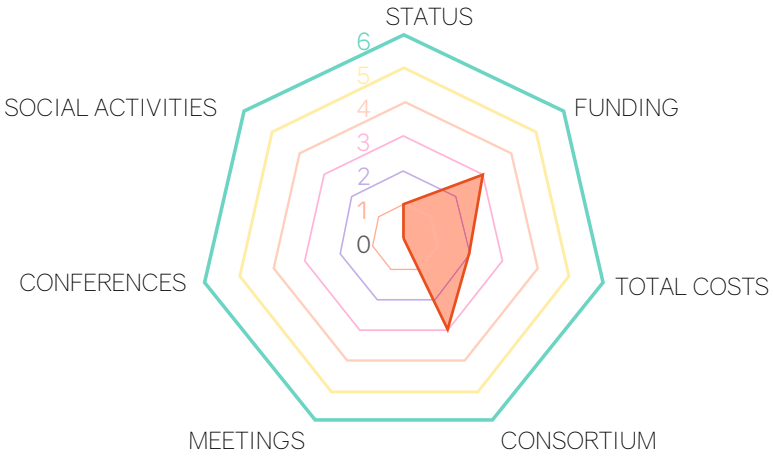


Figure 15. Spider graph – ACCOMPLISSH Platform.

The 'ACcelerate CO-creation by setting up a Multi-actor PLatform for Impact from Social Sciences and Humanities' (ACCOMPLISSH) (Figure 15) Horizon 2020 project aims to develop a platform with partners from government, academic, private and other sectors to deliver an innovative SSH model. The platform has held conferences and meetings (public and closed for partners). The platform is designed to facilitate dialogue among partners from academia, the SME/ industry sector, government and other civil partners.

START2ACT

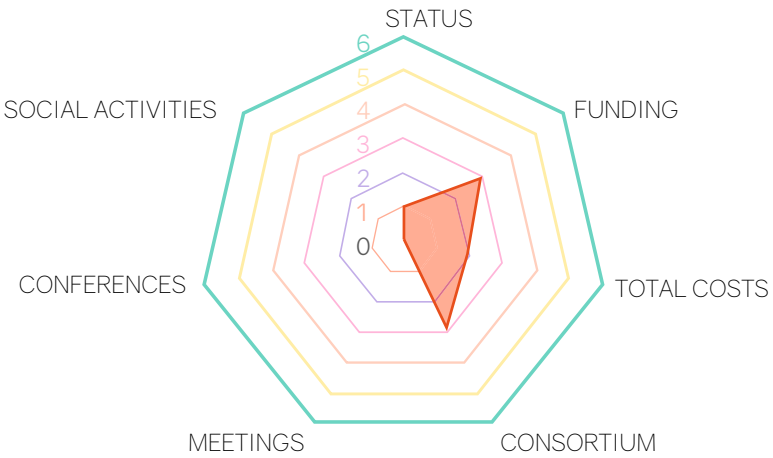
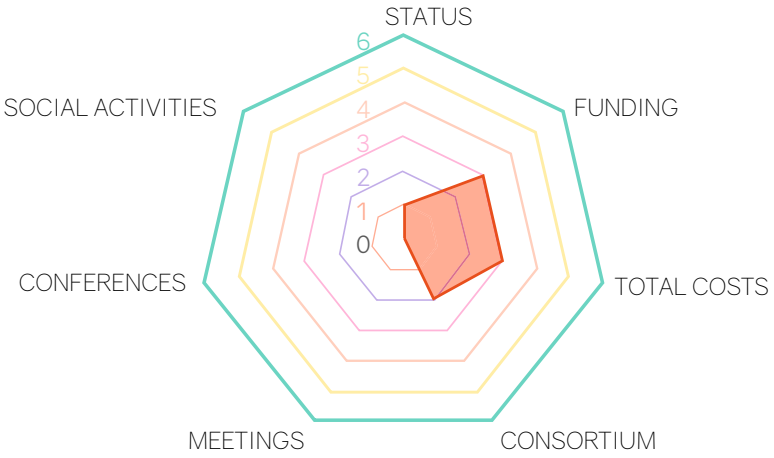


Figure 16. Spider graph – START2ACT Platform.

The 'START2ACT' platform (Figure 16) organises breakfasts, trainings and mentoring to help SMEs and start-ups save energy and cut costs. The trainings are available in nine European Union countries and are supported by the closed Horizon 2020 project. The offers are based on e-learning and an on-line forum that provides the possibility to ask an expert. The platform organises meetings, forums and webinars in the energy area.

ACCOMPLISSH



'SATELLITE' (Figure 17) is involved in research and innovation action projects. The main aim is to implement new urban transport solutions in labs Europe-wide. It focuses on transport research and innovation projects funded by Horizon 2020 and other EU programmes. The platform is socially active and organises forums every year.

Figure 17. Spider graph – SATELLITE Platform.

In the next phase, the selected 10 platforms were analysed in greater detail in order to define key elements for replication. The type of financial support was considered as one of the most important elements for replication because it highly influences the sustainability of the platform. We found out that 80% of the selected platforms have been financed by various EU funding instruments; even the European Energy Efficiency Platform is supported directly by the European Commission. On the contrary, the platform Future Earth's Research for Global Sustainability is supported by private resources. Some others use a combination of both types of financial support. When speaking of founding a new platform supported by the Horizon 2020 programme, its sustainability is not reachable without any follow-up financial support in the form of other grants or membership fees. In the case of platforms that have not been supported by private resources, a significantly lower number of events and other organised activities is observed.

Regarding the future of the SHAPE ENERGY Platform, it is appropriate to continue in the currently set model of financing based on EU grant programmes. In case of a lack of public funds, it is necessary to pursue the possibilities of private funding and to set membership fees in such a way that will enable the platform to pursue current activities (like platform SNET, Figure 8). Information about all organised events, research activities or offered services must be visible on the platform's webpages and social media. Even though there is no strong statistical relationship in between new members, number of events and social media activities (H4 and H5), we consider social media as an effective communication tool that is required by users, and the wider experience of our project (and communications partners) supports this. The best platforms organise workshops, conferences, symposiums and other events on a regular basis, more than once per year, and publish news several times per month. For example, the platform ACCOMPLISSH, which is similar to the SHAPE ENERGY platform and funded by the Horizon 2020 programme, is engaged in many research activities and organises numerous events as results of publicly financed project and formulates a strategy for research activities in the field of energy throughout the EU. Based on the performed research, the following key elements for replication were identified:

1. Project funding (long-term platform sustainability would require finding some funding instruments, ideally based on EU programmes or in the form of membership fees).
2. Intensive research activities focused on SSH (intensive and active research in the field would help to publicise the platform and attract new members and potential investors).
3. Members and stakeholders from different areas (engaging multidisciplinary members and stakeholders would increase the attractiveness and complexity of research activities and the applicability of gained results in the practice).
4. Organising events on a regular basis (the best platforms organise at least one conference per year and regular workshops, seminars and project members' meetings. It helps to share personal ideas with other experts in the field, discuss the strategies with the public and improve your reputation).

5. Publishing newsletters, journal articles, conference papers, etc., on a regular basis (regular publications help to keep members in touch with the platform research activities and to attract new members).
6. Social media activities (e.g. Twitter, Facebook, Instagram) – social media activities are understood as a matter of course today, and the SHAPE ENERGY Platform must respect them and use them to actively address other experts and the public.

As such, this list of six key elements can act as a set of recommendations for not only SHAPE ENERGY, but to all projects/platforms that are working in international, problem-focused, and policy-relevant environments, where there are a plethora of groups competing for your time/participation.

5. Business Plan creation and Cost Benefit Analysis – a case study on the SHAPE ENERGY Platform

This section focuses on the actual creation of a business plan. Specifically, based on the findings of the previous sections, we present a business plan for how the SHAPE ENERGY platform could be a sustained post-project initiative, and we propose/demonstrate this through using the strategic planning and management system: Balanced Scorecard (BSC). Aspects of the Cost Benefit Analysis (CBA) are described below and implemented in the financial perspectives of the following models (scenarios).

The system connects the overall strategy with mission and vision statements, core values, and a strategic focus with objectives, measures and desired targets. In order to decide which activity might best be used depending on the process of replication, four perspectives are needed, namely: financial; customer; internal processes; and learning and growth (see sub-section 2.4 for detailed descriptions). Outcomes, goals and actions are designed in three different scenarios based on visions that differentiate between the proposed plans.

This section is structured as follows: subsection 5.1 introduces the CBA concept and how CBA can be transformed into the BSC (which is broader concept). Subsection 5.2 introduces the shared mission, vision and values for Platform, while subsection 5.3 presents three possible future scenarios of the Platform´s continuation – business case.

5.1. Introducing the Cost Benefit Analysis / matrix concept

We often experience the need for evaluation of investments or strategic decisions when financing and managing projects, which can be linked and subsequently can influence the output of the whole project. It is not sufficient enough to evaluate incomes and expenses only as the financial indicators, but to see the issue in the broader sense. That means to cover benefits as well as demands connected with the project itself and the project of all people involved. One of the methods providing general view of evaluation of investments or strategic decisions is so-called Cost Benefit Analysis (CBA).

A CBA includes comparisons of incomes and expenses, as well as the socio-economic evaluation of the impact of strategic decision in the broader sense related to the project. The basis of it is to extend the comparison of incomes and expenses to a numerical expression of pros and cons for the surroundings. Although these do not need to be in monetary units, they are often demonstrated so.

As for European Commission, CBA is explicitly required, among other elements, as a basis for decision making on the cofinancing of major projects included in operational programmes (OPs) of the European Regional Development Fund (ERDF) and the Cohesion Fund.

CBA is an analytical tool to be used to appraise an investment decision in order to assess the welfare change attributable to it and, in so doing, the contribution to EU cohesion policy objectives. The purpose of CBA is to facilitate a more efficient allocation of resources, demonstrating the convenience for society of a particular intervention rather than possible alternatives.[7]

The need for evaluation of investments or strategic decisions in a broader sense inspired us to connect the Balanced Scorecard and CBA/M together into one systematic approach that is defined in the following sub-section 5.3. In our BSC model, principles of CBA are inbuilt within the BSC perspectives. Details are provided in the perspectives of financial as well as non-financial perspectives (such as customers, internal processes and learning and growth).

7 European Union, 2015. *Guide to Cost-Benefit Analysis of Investment Projects*. ISBN 978-92-79-34796-2.

5.2. Setting up the Mission, Vision and Values in the context of SHAPE ENERGY Platform

This sub-section focuses on a creation of important sets of rules, goals and roles of our Platform in the future. Mission and Values are taken as fixed statements that are not going to change in the future, while visions are suggested in three scenarios (and thus can indeed more easily change/evolve).

5.2.1. Mission

A mission is a short statement that shows the platform´s main purpose, region, key market, etc. The general contribution of mission, vision and values formulation is to integrate all platform stakeholders in the long-run.

SHAPE ENERGY's stated mission is:

> *To Advance Europe´s Expertise in Using and Applying Energy-SSH to Accelerate the Delivery of Europe's Energy Union Strategy.*

5.2.2. Values

Values show the key attributes of a culture. They set the borders for our activities and influence the way we behave.

From our own reflections and experiences of participating in the SHAPE ENERGY Platform, we suggest that its three core values could be as follows:

Core value 1:	Sustainable, innovative and quality platform.
Core value 2:	European energy researchers and practitioners brought together for future interdisciplinary energy-related endeavours.
Core value 3:	Development of Europe's expertise in using and applying energy-SSH.

5.2.3. Vision

A vision statement is a declaration that defines a desired future change, so it helps to target where the platform wants to be in the future, and it helps to determine the right direction for the platform´s future growth. It is considered to be a long-term statement that will not need essential revision during the life of the platform.

We suggest that the SHAPE ENERGY vision statement could be:

> *Having energy-SSH better integrated into the EU policy(making) process, including how evidence is sourced through the energy research and innovation funding the EU provides.*

5.2.4. Vision Scenarios

We continue our case in three different scenarios based on the cooperation of two groups in shaping the EU energy policy agenda. This will build a deep and shared understanding of what is needed and what is possible, as well as stretching their collective ambition.

- *Scenario A: Our innovative platform will unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research in a commercial way (sponsors, member fees, conference fees, trainings fees, etc.).*
- *Scenario B: Our innovative platform will unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research with public funds (different research and educational projects, national/international funds, etc.).*

- *Scenario C: Our innovative platform will unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research in a commercial way and with public funds.*

We now take each of these three scenarios in turn and produce a Balanced Scorecard for each, as part of thinking through theoretically how one would strategically approach each scenario.

5.3. Presenting the SHAPE ENERGY Balanced Scorecards for three future scenarios

Following sub-sections 5.3.1, 5.3.2 and 5.3.3, we now focus on presenting the Balance Scorecards (BSCs) of the three possible future scenarios for Platform continuation. All previous sections have led into the suggested strategy maps and goals. Elements of Platforms' replication (defined in sub-section 4.2) feed into these scorecards with statistically confirmed and important activities (based on hypothesis testing H1-H5 in the section 4). These BSCs act as a useful source for SHAPE ENERGY partners to reflect on the future and, at the same time, these scorecards could be useful for other projects in similar fields or initiatives and also as a template BSCs for their own discussions.

5.3.1. Balanced Scorecard – Scenario A

Whilst we acknowledge that there are fundamental issues with the key indicator of our prosperity being economic growth and economic profit, not least for a sustainability-related platform, we maintain that position here. Indeed, for a (conventional) commercial-based way of ensuring continuation, we consider economic profit as a main goal.

Strategy goals follow mission, vision and strategy analysis, and in order to explain mutual linkages and the cause-effect relationship from the strategy map, it is necessary to set proper strategy goals for each perspective, and to suggest the most convenient measure and responsibility (Figure 18).

For each of the key strategy goals from the strategy map (Figure 18), we suggest the most convenient measure and goal for the period of three years. SWOT analysis and strategy is designed for each perspective.

Figure 18. Strategy map for commercial vision (Scenario A).

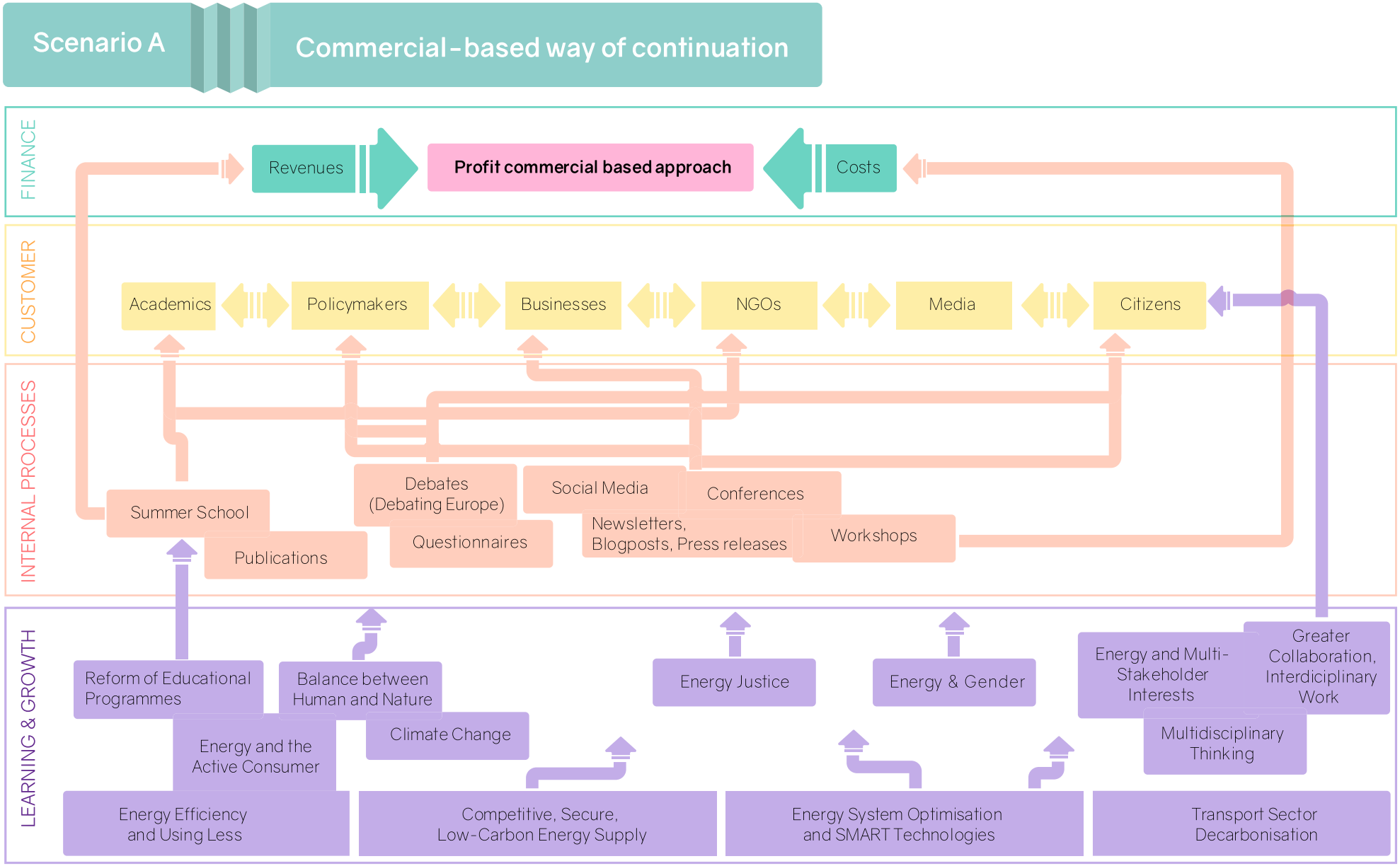


Table 8. Balance Scorecard for Scenario A (commercial funding option)

SHAREHOLDER / FINANCIAL PERSPECTIVE					
VISION	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research in a commercial way.				
SWOT	*OPPORTUNITIES*	Use the brand recognition of the SHAPE ENERGY Platform and continue with Horizon 2020 support Collaboration with EU and other institutions			
	THREATS	No Horizon 2020 financial support Similar Platforms existence (strong competition)			
	STRENGTHS	Effectively used financial support from Horizon 2020 (invested capital) Existence of cross-cutting theme reports and other recognised publications Strong position on social media			
	WEAKNESSES	Transformation from public to commercial world Dramatically volatile funding			
STRATEGY	Keep the sustainability of a platform Establish an equilibrium between stability and profitability				
GOALS	GOAL'S DEFINITION	MEASURE	2019	2020	2021
	Create sufficient profits to cover all costs and future growth	ROA	<2%	<2%	<2%
	Properly evaluate every new investment	NPV	<0	<0	<0
	Tender evaluation on every spending	Individual selection	ROI>WACC	ROI>WACC	ROI>WACC
CUSTOMER PERSPECTIVE					
VISION	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research in a commercial way.				
SWOT	*OPPORTUNITIES*	Resources to hire skilled staff			
	THREATS	Low percentage of cooperation between different stakeholders and their interests Inadequate number of skilled employees			
	STRENGTHS	Researcher database Massive network of members and partners on the Platform			
	WEAKNESSES	Political interference Public procurement rules might affect decision-making			
STRATEGY	Provide optimal conditions (service) for greater collaboration and interdisciplinary work Create linkages between different stakeholders and their interests				
GOALS	*GOAL'S DEFINITION*	*MEASURE*	2019	2020	2021
	Increase of linkages between different stakeholders	No. of new linkages	10	10	10
	Increase conditions (service) for greater collaboration	Satisfaction rating	80%	85%	90%
	Increase number of skilled staff	No. of new skilled staff hired	Increase by 5%	Increase by 5%	Increase by 5%

INTERNAL PROCESSES PERSPECTIVE					
VISION	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research in a commercial way.				
SWOT	*OPPORTUNITIES*	In touch with community needs Access to information / knowledge			
	THREATS	Personal interest			
	STRENGTHS	Use of contemporary technologies			
	WEAKNESSES	Responsibility Productivity			
STRATEGY	Organise events that will highlight and defend the need of SSH in energy Provide efficient tools for stakeholders' communication and knowledge exchange Organise summer schools and similar activities that will bridge the academic curricula with real practical needs Encourage innovation (both social and sociotechnical)				
GOALS	GOAL'S DEFINITION	MEASURE	2019	2020	2021
	Increase the number of events highlighting the need of SSH in energy	No. of new events	2	3	4
	Increase the number of summer schools (other activities) bridging the academic curricula and real practical needs	No. of new summer schools	2	3	3
	Increase the number of funds employed	No. of funds employed	3	4	5
LEARNING AND GROWTH PERSPECTIVE					
VISION	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research in a commercial way.				
SWOT	*OPPORTUNITIES*	Knowledge and skills			
	THREATS	New technologies result in new skills and competencies required to do the work			
	STRENGTHS	Motivation of staff engaged			
	WEAKNESSES	Technology			
STRATEGY	Provide accessible overviews of seminal and recent research on four salient energy-related Social Sciences and Humanities (energy-SSH) themes: (1) Energy and gender; (2) Energy and multi-stakeholder interests; (3) Energy justice; and (4) Energy and the active consumer.				
GOALS	GOAL'S DEFINITION	MEASURE	2019	2020	2021
	Increase the number of accessible overviews of recent research in selected energy-SSH themes	No. of new accessible overviews	5	10	15
	Improve the knowledge and skills of staff involved	No. of trainings	Increase by 5%	Increase by 5%	Increase by 5%
	Enhanced usability of new technologies	No. of user-savy technologies	Increase by 5%	Increase by 10%	Increase by 15%

A nice example of the platform financed under the Scenario A is platform 'Průmyslové inženýrství' (prumysloveinzenyrstvi.cz).[8]

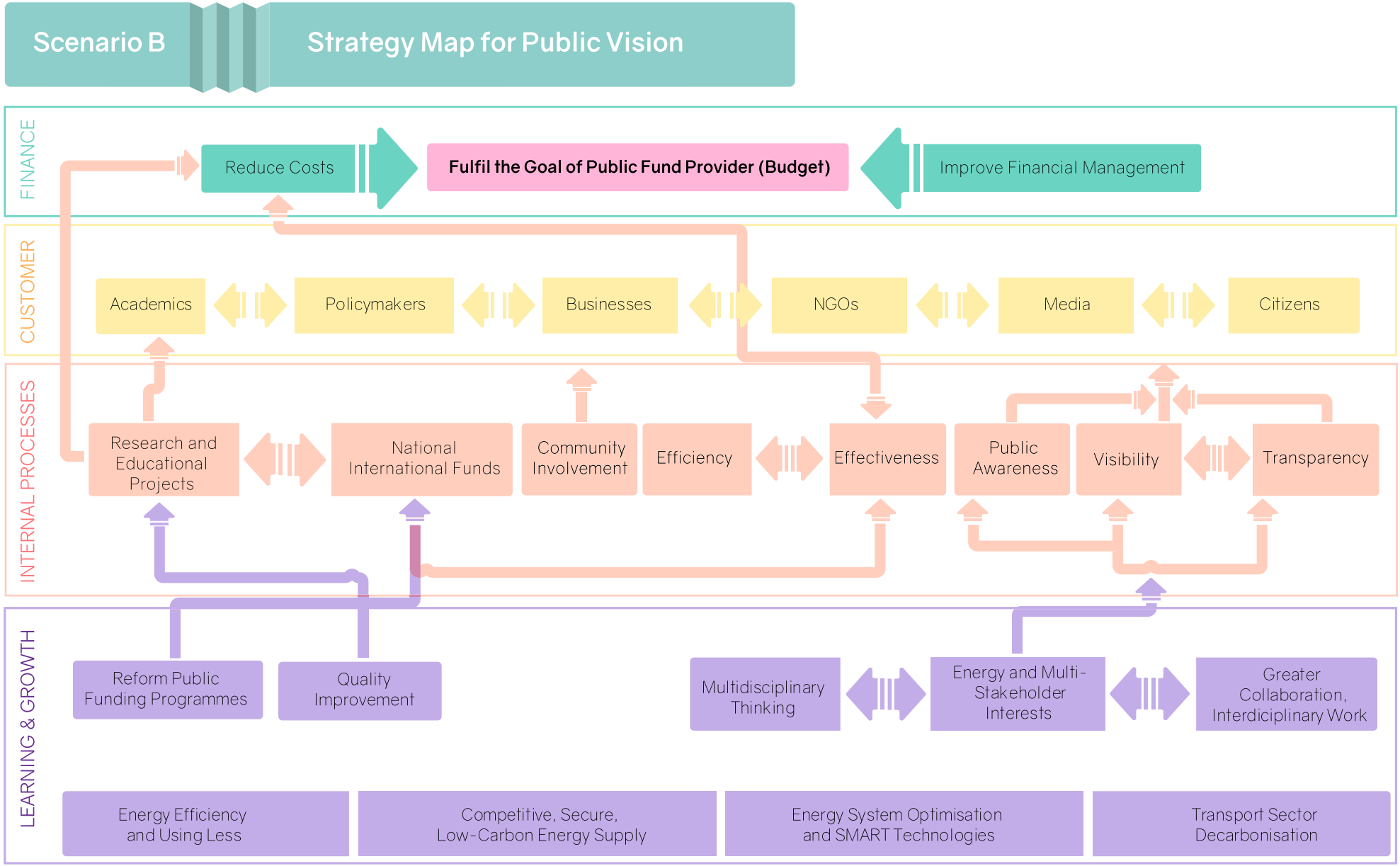
5.3.2. Balanced Scorecard – Scenario B

Measuring performance in the public sector that goes hand-in-hand with a public funds utilisation has become increasingly important recently. Public sector organisations that provide funds to supply various research initiatives (in our case, energy research) have been under greater pressure from both external and internal environments to demonstrate improvements in the quality of research outputs, performance, accountability, etc. Achieving desired outcomes, their efficiency and effectiveness is necessary to reach an agreement on performance expectations.

Our innovative Platform will unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research with public funds (different research and educational projects, national/international funds, etc.) (Figure 19).

8 The platform is focused on current trends in the field of industrial engineering and Industry 4.0. Its followers are industrial companies, research institutions and universities, students and the public. Its main vision is to establish a community of practitioners, experts, researchers and all other enthusiasts for lean production, industrial engineering, process management and all related topics. In contrast to SHAPE ENERGY, this platform was not supported from public funds. It was founded by a group of students in order to share knowledge and experiences and increase them. Despite a quite different starting point for the platform, its future running and problems with ensuring its sustainability are the same as in the case of SHAPE ENERGY. It is still growing, and it requires more time to administrate it, to ensure proper publicity and to coordinate all offered events and services. The first step the founders took was to find attractive partners and motivate them to join the team and express their support. Partners organise interesting events that are published through the platforms. The platform owners also offer consulting services through another organisation that participates in the project. With a growing number of interesting members and increasing credibility among professionals and communities, the platform has also become attractive to research institutions and universities, which offer support in organising some events. Membership is free for now, and the platform is totally open access for all. It is not so financially demanding since its visitors share materials, ideas, events and other offers directly with each other through the website and social networks. Its owners support just the basic administration, communications with visitors and the publishing of short articles through the platform blog. On the other hand, they benefit from new contacts, knowledge, ideas and opportunities for their consultancy business.

Figure 19. Strategy map for public vision (Scenario B).



Strategy goals follow mission, vision and strategy analysis, and thus in order to explain mutual linkages and the cause-effect relationship from the strategy map, it is necessary to set proper strategy goals for each perspective and suggest the most convenient measure and responsibility.

Table 9. Balance Scorecard for Scenario B (public funding option).

Shareholder / Financial Perspective					
Vision	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research with public funds.				
SWOT	*Opportunities*	Government engagement			
	Threats	Business risk Administrative cost efficiency			
	Strengths	Community support			
	Weaknesses	Public awareness and visibility Financial sustainability			
Strategy	Ensure financial health and viability Ensure resources increase				
Goals	Goal's definition	Measure	2019	2020	2021
	Improvement of efficiency of launching the programme (project, initiative)	No. of new programmes launched	2	2	2
	Improvement of best use of financial resources	EVA	Increase by 10%	Increase by 15%	Increase by 20%
	Increase in support from legitimising authorities	No. of new authorities	3	4	5
Customer Perspective					
Vision	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research with public funds.				
SWOT	*Opportunities*	Resources to hire skilled staff			
	Threats	Inadequate number of skilled employees			
	Strengths	Delivery of services consistent in value and quality			
	Weaknesses	Political interference			
Strategy	Ensure service availability Support community satisfaction Support durable self-sufficiency Provide for fundamental needs				
Goals	Goal's definition	Measure	2019	2020	2021
	Increase of value/ benefit of the programme	Survey	90% satisfaction	95% satisfaction	95% satisfaction
	Increase in community satisfaction	Community satisfaction questionnaire	90% satisfaction	95% satisfaction	100% satisfaction
	Improve service availability	Survey	Improvement by 5%	Improvement by 5%	Improvement by 5%

Internal Processes Perspective					
Vision	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research with public funds.				
SWOT	*Opportunities*	In touch with community needs Access to information / knowledge			
	Threats	Personal interest Political interests			
	Strengths	Use of contemporary technologies			
	Weaknesses	Responsibility Productivity			
Strategy	Ensure programme impact Manage programmes as a portfolio Partner to maximise reach Leverage volunteers and donors to drive change Establish reputation for excellence Diversify revenue streams				
Goals	Goal's definition	Measure	2019	2020	2021
	Improvement of programme strategic alignment	Survey	85% satisfaction	90% satisfaction	95% satisfaction
	Improve and leverage quality	No. of best business practices adopted	3	3	3
	Encourage innovation (both social and sociotechnical)	No. of new programmes delivered	2	2	3
Learning and Growth Perspective					
Vision	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research with public funds.				
SWOT	*Opportunities*	Highly skilled workforce Trust and teamwork			
	Threats	New technologies result in new skills and competencies required to do the work			
	Strengths	Learning based on data, outcomes and experience Contribution to human services research and innovation			
	Weaknesses	Professional competencies that support strategy Technology			
Strategy	Provide inspirational leadership Equip staff with the tools necessary to support the strategy Create a positive performance driven culture				
Goals	Goal's definition	Measure	2019	2020	2021
	Increase in well-planned workforce	No. of employees in developmental assignments	50	50	50
	Increase the number of leadership trainings	No. of employees in leadership assignments	10	10	10
	Increase employee satisfaction	Employee satisfaction questionnaires	85% satisfaction	90% satisfaction	95% satisfaction

A nice example of a platform financed under through Scenario B is the TPUE platform[9].

5.3.3. Balanced Scorecard – Scenario C

The following Scenario C focuses on a combination of public and internal sources of funds. This combination creates the highest number of requirements for the Platform's management. In such a scenario, the management must be able to fulfil the requirements given by a public funds provider and at the same time, the Platform must also depend on its own business activities that are not in conflict with the rules from public funds provider.

Consequently, for this scenario, our innovative platform would unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research, but critically in both a commercial way and with public funds.

Strategy goals follow mission, vision and strategy analysis, and thus in order to explain mutual linkages and a cause-effect relationship from the strategy map, it is necessary to set proper strategy goals for each perspective, suggesting the most convenient measure and responsibility (Figure 20).

9 Platform TPUE (Technology Platform Sustainable Energies in the Czech Republic) supports research and development activities in the field of the production, transmission and consumption of modern forms of energies in Czech Republic. It was founded in 2009 as an interest association of corporate bodies, and it has used just public ways of funding, as described in Scenario B. The platform activities follow the European Strategic Energy Technology Plan (SET-Plan) accepted in 2008. It has used public sources of financing during its entire existence, for example, funding instruments of the CzechInvest agency (5.1 SPTP02/036) in 2013-2015, the EU grant program OPVK (Operation Program Education of Competitiveness) in 2011-2014, or the EU grant program OPPI (Operation Program Entrepreneurship and Innovation for Competitiveness) in 2014-2020. It ensures the efficient communication and cooperation between research institutions and the commercial sphere in order to strengthen the competitiveness of the Czech Republic in the field of energy technologies and to share knowledge publicly. It represents and supports its members and creates a supportive and collaborative environment for their cooperation and for employing new technologies for sustainable energy development. The platform is a partner of the government of the Czech Republic and the European Commission, and its services are offered free of charge.

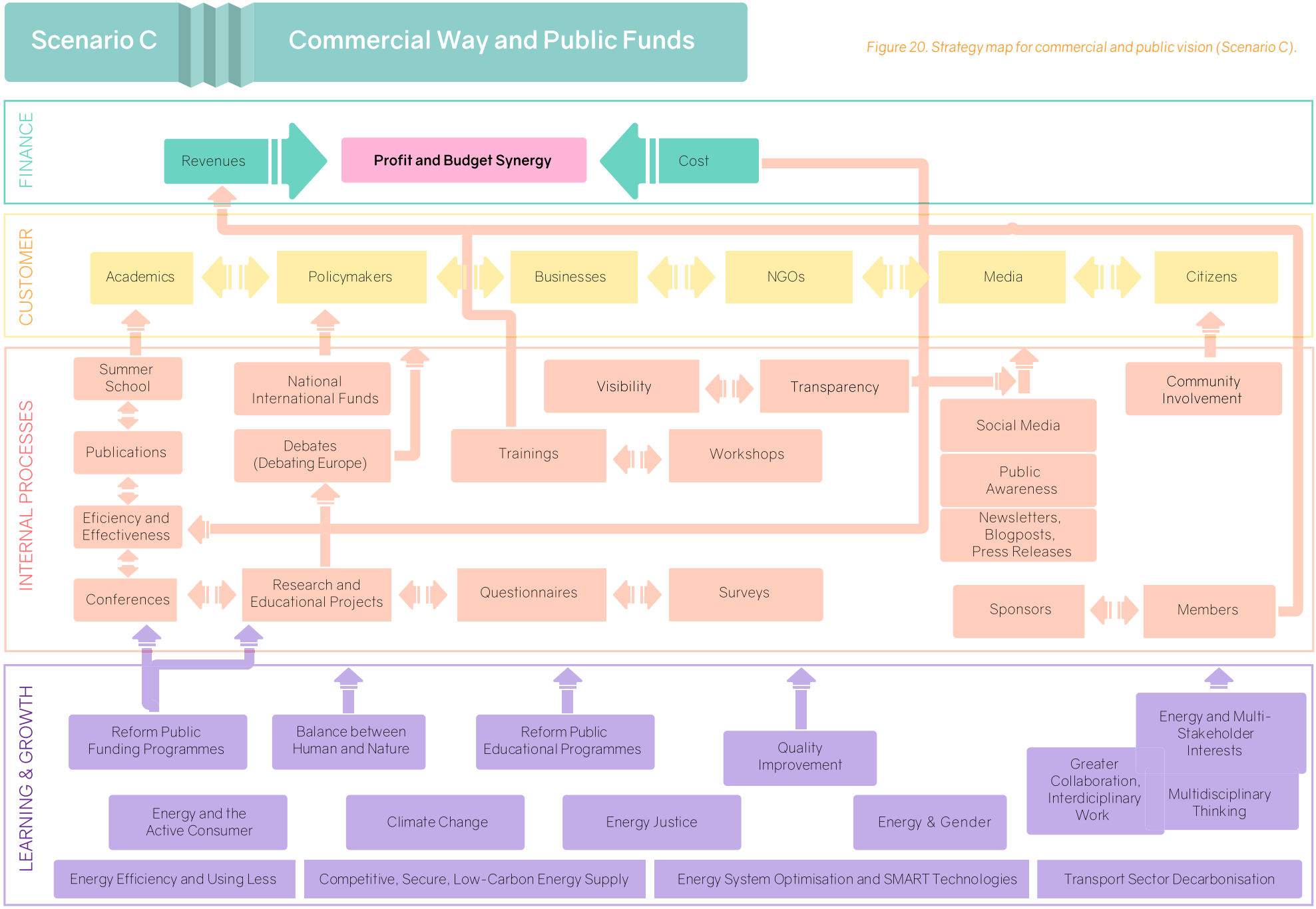


Figure 20. Strategy map for commercial and public vision (Scenario C).

Table 10. Balance Scorecard for Scenario C (commercial and public funding option).

SHAREHOLDER / FINANCIAL PERSPECTIVE					
VISION	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research in a commercial way and with public funds.				
SWOT	*OPPORTUNITIES*	Use the brand recognition of the SHAPE ENERGY Platform and continue with Horizon 2020 support Collaboration with the EU and other institutions Government engagement			
	THREATS	No Horizon 2020 financial support Similar platforms existence (strong competition) Business risk Administrative cost efficiency			
	STRENGTHS	Effectively used financial support from Horizon 2020 (invested capital) Existence of cross-cutting theme reports and other recognised publications Strong position on social media Community support			
	WEAKNESSES	Transformation from public to commercial world Dramatically volatile funding Public awareness and visibility Financial sustainability			
STRATEGY	Keep the sustainability of a platform Establish equilibrium between stability and profitability Ensure financial health and viability Ensure increased resources				
GOALS	GOAL'S DEFINITION	MEASURE	2019	2020	2021
	Create sufficient profit to cover all costs and future growth	ROA	<2%	<2%	<2%
	Properly evaluate every new investment	NPV	<0	<0	<0
	Tender evaluation on every spending	Individual selection	ROI>WACC	ROI>WACC	ROI>WACC
	Improvement of the efficiency of launching the programme (project, initiative)	No. of new programmes launched	2	2	2
	Improvement of best use of financial resources	EVA	Increase by 10%	Increase by 15%	Increase by 20%
	Increased support from legitimising authorities	No. of new authorities	3	4	5

Customer Perspective					
Vision	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research in a commercial way and with public funds.				
SWOT	*Opportunities*	Resources to hire skilled staff			
	Threats	Low percentage of cooperation between different stakeholders and their interests Inadequate number of skilled employees			
	Strengths	Researcher database Massive network of members and partners of the platform Delivery of services consistent in value and quality			
	Weaknesses	Political interference Public procurement rules might affect decision-making			
Strategy	Provide optimal conditions (service) for greater collaboration and interdisciplinary work Create linkages between different stakeholders and their interests Ensure service availability Support community satisfaction Support durable self-sufficiency Provide for fundamental needs				
Goals	Goal's definition	Measure	2019	2020	2021
	Increase linkages between different stakeholders	No. of new linkages	10	10	10
	Increase conditions (service) for greater collaboration	Satisfaction rating	80%	85%	90%
	Increase number of skilled staff	No. of new skilled staff hired	Increase by 5%	Increase by 5%	Increase by 5%
	Increase of value/benefit of the programme	Survey	90% satisfaction	95% satisfaction	95% satisfaction
	Increase community satisfaction	Community satisfaction questionnaire	90% satisfaction	95% satisfaction	100% satisfaction
	Improve service availability	Survey	Improvement by 5%	Improvement by 5%	Improvement by 5%

INTERNAL PROCESSES PERSPECTIVE					
VISION	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research in a commercial way and with public funds.				
SWOT	*OPPORTUNITIES*	In touch with community needs Access to information / knowledge			
	THREATS	Personal interest Political interests			
	STRENGTHS	Use of contemporary technologies			
	WEAKNESSES	Responsibility Productivity			
STRATEGY	Organise events that will highlight and defend the need of SSH in energy Provide efficient tools for stakeholders' communication and knowledge exchange Organise summer schools and similar activities that will bridge the academic curricula with real practical needs Encourage innovation (both social and sociotechnical) Ensure programme impact Manage programmes as a portfolio Partner to maximise reach Leverage volunteers and donors to drive change Establish a reputation for excellence Diversify revenue streams				
GOALS	GOAL'S DEFINITION	MEASURE	2019	2020	2021
	Increase the number of events highlighting the need of SSH in energy	No. of new events	2	3	4
	Increase the number of summer schools (other activities) bridging the academic curricula and real practical needs	No. of new summer schools	2	3	3
	Increase the number of funds employed	No. of funds employed	3	4	5
	Improvement of programme strategic alignment	Survey	85% satisfaction	90% satisfaction	95% satisfaction
	Improve and leverage quality	No. of best business practices adopted	3	3	3
	Encourage innovation (both social and sociotechnical)	No. of new programmes delivered	2	2	3

Learning and Growth Perspective					
Vision	Energy-SSH Better Integrated into the European Policy Process. To unite those who 'demand' energy research, because they can use it to develop practical initiatives, with those who 'supply' that research in a commercial way and with public funds.				
SWOT	*Opportunities*	Knowledge and skills Highly skilled workforce Trust and teamwork			
	Threats	New technologies result in new skills and competencies required to do the work			
	Strengths	Motivation of staff engaged Learning based on data, outcomes and experience Contribution to human services research and innovation			
	Weaknesses	Technology Professional competencies that support strategy			
Strategy	Provide accessible overviews of seminal and recent research on four salient energy-related Social Sciences and Humanities (energy-SSH) themes: (1) Energy and gender; (2) Energy and multi-stakeholder interests; (3) Energy justice; and (4) Energy and the active consumer. Provide inspirational leadership Equip staff with the tools necessary to support the strategy Create a positive performance-driven culture				
Goals	Goal's definition	Measure	2019	2020	2021
	Increase the number of accessible overviews of recent research in selected energy-SSH themes	No. of new accessible overviews	5	10	15
	Improve the knowledge and skills of staff involved	No. of trainings	Increase by 5%	Increase by 5%	Increase by 5%
	Enhanced usability of new technologies	No. of user-savy technologies	Increase by 5%	Increase by 10%	Increase by 15%
	Increase of well-planned workforce	No. of employees in developmental assignments	50	50	50
	Increase the number of leadership trainings	No. of employees in leadership assignments	10	10	10
	Increase employee satisfaction	Employee satisfaction questionnaires	85% satisfaction	90% satisfaction	95% satisfaction

SusChem is a good example of how a platform can operate under the Scenario C which expects public funding in combination with some pieces of private sources[10].

Platform CityOne[11] is a similarly useful point of reflection and reference. It focuses on users and designers of smart cities and sharing knowledge in the field. It uses combined model of funding which was described above as Scenario C. It includes two groups of stakeholders with different outputs and benefits for them. Cities, towns and regions can use the platform for presenting their visions and strategic goals, local start-ups, smart project and innovative organisations. They can also find partners and suppliers of smart orders through the platform. Cities, towns and regions can use the platform free of charge. On the other hand, he platform is also focused on innovative innovative companies, start-ups or individuals that can present their own smart solutions, references and inform about organised events and results. Private companies can present maximum three products or services free of charge.

To sum up, applied types of scenario that can be used for funding the platform in the future are dependent on the main vision and goal of the platform, focused group of stakeholders and interested persons and organisations, organised events and other activities. In general, platforms that are strongly focused on research activities cannot get by public funding. On the other hand, platforms that bring important knowledge, experiences and business opportunities for various private organisations can engage some significant partners from the private sphere that can ensure its financial support. Membership fees are very often applied to get some money for platform's administration, but it is not a sufficient source of financing alone.

10 SusChem (a Czech technology platform for sustainable chemistry) is a fully open platform for researchers, universities, private organisations or the public, focused on increasing the competitiveness of the Czech chemical industry. It was founded in 2005 with financial support from the European Union and the Association of the Chemical Industry of the Czech Republic. It started as a part of this association, but it later acheived legal subjectivity. During the period 2009-2012, SusChem realised project no. 5.1 SPTP01/005, supported by the EU grant program OPPI (Operation Program Industry and Innovation). Later, in the period 2012-2014, its activities were supported by another OPPI program under project no. 5.1 SPTP02/035. Since 2016, SusChem has realised project no. CZ.0 1.1.02/0.0/0.0/15_037/0007182, supported by the EU grant program OPPIK (Operation Program Entrepreneurship and Innovation for Competitiveness). Despite the fact that public funding represents the major financial source for its operation, it also has some other types of income. Other funding instruments include payments for offered consultancy services, registration fees for organised events, or membership fees that are used especially for ensuring the basic administration of the platform. It currently has 25 members, including private companies, universities and research institutions.

11 Platform CityOne was founded in 2016 by Mr. Bárta, a member of the Smart City Commission of Brno.

6. Conclusions

The SHAPE ENERGY Platform is working to develop Europe's expertise in using and applying energy-related Social Sciences and Humanities research (energy-SSH) to accelerate the delivery of Europe's Energy Union Strategy.

The main aim of this report is to develop a business plan for how the Platform could be sustained post-project and as a key aspect of creating a lasting legacy for the project work.

This report firstly provides a review of publicly funded EU energy-related platforms/networks that have successfully developed a self-sustaining business model, with implications towards the SSH disciplines as well as business model theory including an overview of influential models of today. Key business models such as the Baldrige Excellence Business Model, Shingo Model, Performance Pyramid, Balanced Scorecard, EFQM Excellence Model, Performance Prism, Business Model Canvas, Strategy Sketch, Lean Canvas and Sustainable Enterprise Excellence Model are described and analysed. Subsequently, a list of 73 platforms is collated from partner knowledge and desktop research where applicable and key learnings are identified about which key elements the Platform could consider replicating and about how the self-sustaining model has been applied in each case.

As a part of generating possible solutions for further strategic reflection, we developed selected parameters of cost-benefit to be used by other stakeholders seeking to replicate individual Platform activities post-project. This helps determine which activity might best be used depending on the research outcome required and considering input values such as: mix of stakeholders, number of stakeholders, budget, etc. In this way, individual methods advanced by the Platform can be exploited on an ad hoc basis by other organisations or applied to other societal challenges, post-project. Criteria such as: Types and number of events organised every year, Types and number of additional services and activities, Social network activity, Publications, Members and other quality and quantity parameters were subjected to statistical testing. Six hypotheses were set and tested in order to prove the relevance of selected key actions and areas of sustainability for one's time/participation.

Furthermore, this report presents 10 'top' platforms which we studied in greater detail from a qualitative perspective, with a particular focus on platform performance and platform similarity to the SHAPE ENERGY Platform in terms of its content and budget received from the EU funds. We used a three-point Likert scale to explore the relationships between performance and similarity.

As a summary, a set of key elements of replication is provided and a business plan for how the SHAPE ENERGY Platform could be a sustained post-project initiative is proposed using the strategic planning and management system Balanced Scorecard (BSC). As such, this list of six key elements can act as a set of recommendations for not only SHAPE ENERGY, but to all projects/platforms that are working in international, problem-focused, and policy-relevant environments, where there are a plethora of groups competing for your time/participation.

Aspects of the Cost Benefit Analysis are implemented in the financial perspective of the Balanced Scorecards, which is further elaborated via three different scenarios based on the cooperation of two groups in shaping the European energy agenda; i.e. those who demand energy research, because they can use it to develop practical initiatives, with those who supply that research in a) a commercial way, b) with public funds, and, c) a combination of both. Each scenario is represented by a tailored strategy map. These scorecards are the climax of the report and are built on the previous sections' results. Scorecards can act as a useful resource for SHAPE ENERGY partners to reflect on the future aspects of their projects.

In doing this study, it was clear how one can easily gather many interesting new findings with strategic value in terms of sustainability and post-project activities planning. We statistically confirmed that platforms organising more public events have more members at the same time. We also know that the number of organised events is the most important motivation factor for existing and potential new members to join and participate in platform life. A number of organised events is also positively influenced by the publication activity and multicultural team composition, while social network activity proved surprisingly insignificant.

One of the most important elements for replication (because it highly influences the sustainability of the platform) is the type of financial support, ideally based on EU programmes or in the form of membership fees. An intensive and active research in SSH can help to publicise the platform and attract new members and potential investors, while engaging multidisciplinary members and stakeholders from different areas can increase the attractiveness and complexity of research activities and the applicability of gained results in the practice. Organising events on a regular basis helps to share personal ideas with other experts in the field, discuss the strategies with the public, and improve the reputation. Publishing newsletters, journal articles, conference papers, etc., on a regular basis helps to keep members in touch with the platform research activities and attracts new members as well. We also confirmed that social media activities are key for internal as well external communication.

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9. Appendices

9.1. Appendix 1: Source data for hypothesis evaluation

Code	Acronym	Event score	Members	Countries	Social Network	Publication score
01	EIP on AHA	4	N/A		1	1
02	EIP-AGRI	3	10-100	7	1	1
03	EIP SCC	1	10-100	27	0	0
04	EIP Water	2	10-100	27	1	0
05	EIP Raw Materials	2	10-100	27	1	1
06	EATIP	2	10-100		1	0
07	FABRE TP	3	10-100		1	1
08	Food for Life	1	N/A		1	2
09	FTP	1	0-10		1	0
10	Plants for the Future	1	10-100		1	1
11	TP Organics	1	10-100		0	1
12	EBTP	2	10-100		1	1
13	EU PV TP	2	10-100		0	1
14	RHC	4	100-1000		1	1
15	ETIP SNET	3	N/A	28	1	2
16	SNETP	4	10-100	28	1	4
17	ETIPWind	1	10-100		1	1
18	ZEP	2	100-1000	19	1	3
19	WssTP	2	100-1000		1	1
20	MSP	3	10-100	28	1	3
21	EPoSS	2	10-100	28	1	4
22	ETP4HPC	3	10-100		1	1
23	euRobotics AISBL	2	N/A	28	1	1
24	NEM	3	100-1000	28	1	1
25	NESSI	1	100-1000	28	1	1
26	Networld 2020	1	1000+	28	1	1
27	Photonics 21	1	1000+	28	1	1
28	ECTP	2	100-1000	28	1	1
29	ESTEP	1	10-100	28	0	1
30	EuMaT	2	N/A	28	1	2
31	FTC	1	N/A	28	0	1
32	Manufuture	2	100-1000	28	0	1
33	Nanomedicine	2	100-1000	28	0	2
34	SMR	2	10-100	16	1	1
35	SusChem	2	N/A	14	1	1
36	ACARE	0	N/A			0
37	ALICE	3	100-1000		1	1
38	ERRAC	0	N/A		0	1

39	ERTRAC	1	10-100	19	0	1
40	Waterborne	2	N/A		1	1
41	EU EIP +	2	N/A		1	1
42	Nanofutures	2	100-1000	28	1	1
43	ETPIS	2	100-1000	28	1	0
44	ConXEPT	0	N/A		0	0
45	ETIP DG	2	10-100	6	1	1
46	ETIP OCEAN	3	100-1000	28	1	1
47	Person	1	10-100	28	1	2
48	CEESEN	2	N/A	28	1	2
49	SEFEP	0	N/A			0
50	EUA	2	N/A	28	1	1
51	EEEP	4	N/A	28	0	1
52	Future Earth	2	1000+		1	4
53	InnoEnergy	2	100-1000	28	1	0
54	Climate-KIC	0	100-1000	24	1	0
55	ACCOMPLI-SSH	2	10-100	12	0	1
56	C-ENERGY 2020	0	10-100	18	1	0
57	EUFORIE	0	0-10	5	1	1
58	4RinEU	0	10-100	28	1	1
59	ECCP	4	100-1000		1	2
60	RETHINK	0	10-100	14	1	4
61	BOOSTEE-CE	0	10-100	7	1	1
62	EE-24	0	N/A			0
63	Crowfunders	1	10-100	7	1	1
64	EUBCE	1	10-100	28	1	0
65	HERON	0	0-10	7		0
66	REFLEX	2	0-10	5	0	0
67	ISAAC	0	0-10	1	1	1
68	START2ACT	3	10-100	10	1	0
69	MOBILITY4EU	3	0-10		1	3
70	SocialCar	5	N/A	13	1	2
71	EMPOWER	3	10-100	7	1	2
72	SATELLITE	5	1000+	96	1	3
73	SENSIBLE	1	10-100	6	1	2

* *Event score: expressed by a scale from 0 to 5 according to the number of event groups that were organised in the latest periods (conferences, seminars, courses, workshops, webinars)*

Members: divided into 4 groups (0-10, 10-100, 100-1000, 1000 and more)

Countries: no of countries involved

Social Network Activity: 0/1 (NO/YES)

Publication score: expressed by a scale from 0 to 4 according to the types of publications applied (conference papers, journal articles, books, reports/brochures)

9.2. Appendix 2: Source data for evaluation matrix

Code	Acronym	Events	Services	Publications	Performance	Topic	Budget	Similarity
01	EIP on AHA	3	3	2	3	1	1	1
02	EIP-AGRI	2	3	2	2	1	1	1
03	EIP SCC	1	3	1	2	2	1	2
04	EIP Water	2	3	1	2	2	1	2
05	EIP Raw Materials	2	3	2	2	1	1	1
06	EATIP	2	3	1	2	1	1	1
07	FABRE TP	2	3	2	2	1	1	1
08	Food for Life	1	3	2	2	1	1	1
09	FTP	1	3	1	2	1	1	1
10	Plants for the Future	1	1	2	1	2	1	2
11	TP Organics	1	3	2	2	2	1	2
12	EBTP	2	3	2	2	3	1	2
13	EU PV TP	2	3	2	2	3	1	2
14	RHC	3	1	2	2	3	1	2
15	ETIP SNET	2	1	2	2	3	1	2
16	SNETP	3	3	3	3	3	1	2
17	ETIPWind	1	3	2	2	3	1	2
18	ZEP	2	3	3	3	3	2	3
19	WssTP	2	1	2	2	2	2	2
20	MSP	2	2	3	2	2	1	2
21	EPoSS	2	2	3	2	2	1	2
22	ETP4HPC	2	3	2	2	1	1	1
23	euRobotics AISBL	2	2	2	2	1	1	1
24	NEM	2	2	2	2	1	1	1
25	NESSI	1	1	2	1	1	3	2
26	Networld 2020	1	3	2	2	1	3	2
27	Photonics 21	1	3	2	2	1	2	2
28	ECTP	2	2	2	2	1	1	1
29	ESTEP	1	1	2	1	1	1	1
30	EuMaT	2	3	2	2	1	1	1
31	FTC	1	2	2	2	1	1	1
32	Manufuture	2	2	2	2	1	1	1
33	Nanomedicine	2	3	2	2	1	1	1
34	SMR	2	3	2	2	2	1	2
35	SusChem	2	3	2	2	1	1	1
36	ACARE	1	1	1	1	1	1	1
37	ALICE	2	3	2	2	1	1	1
38	ERRAC	1	2	2	2	1	3	2
39	ERTRAC	1	2	2	2	1	1	1
40	Waterborne	2	2	2	2	2	2	2
41	EU EIP +	2	1	2	2	1	1	1
42	Nanofutures	2	3	2	2	1	2	2
43	ETPIS	2	3	1	2	1	1	1
44	ConXEPT	1	1	1	1	1	1	1

45	ETIP DG	2	3	2	2	3	1	2
46	ETIP OCEAN	2	3	2	2	3	1	2
47	Person	1	2	2	2	3	1	2
48	CEESEN	2	3	2	2	3	3	3
49	SEFEP	1	1	1	1	3	1	2
50	EUA	2	3	2	2	3	3	3
51	EEEP	3	3	2	3	3	1	2
52	Future Earth	2	3	3	3	3	1	2
53	InnoEnergy	2	3	1	2	3	3	3
54	Climate-KIC	1	1	1	1	3	1	2
55	ACCOMPLISSH	2	2	2	2	2	3	3
56	C-ENERGY 2020	1	2	1	1	3	3	3
57	EUFORIE	1	1	2	1	3	2	3
58	4RinEU	1	1	2	1	2	1	2
59	ECCP	3	2	2	2	1	1	1
60	RETHINK	1	1	3	2	1	1	1
61	BOOSTEE-CE	1	1	2	1	3	3	3
62	EE-24	1	1	1	1	3	2	3
63	Crowfunders	1	1	2	1	3	3	3
64	EUBCE	1	1	1	1	3	1	2
65	HERON	1	1	1	1	2	2	2
66	REFLEX	2	1	1	1	2	1	2
67	ISAAC	1	2	1	1	2	3	3
68	START2ACT	2	3	1	2	3	3	3
69	MOBILITY4EU	2	1	3	2	1	2	2
70	SocialCar	3	1	2	2	1	2	2
71	EMPOWER	2	1	2	2	3	1	2
72	SATELLITE	3	3	3	3	1	2	2
73	SENSIBLE	1	1	2	1	3	1	2

* *Events: 1 = no events organised, 2 = some categories of events, 3 = all types of events organised*

Services: 1 = no additional services, 2 = one/two types of services, 3 = more services offered

Publications: 1 = just brochures and no other publications, 2 = some papers, journals, 3 = high publication activity of the platform

Performance: Average value from events, services and publications

Topic: 1 = very different to ours, 2 = quite close to ours, 3 = the same or very close to ours

Budget: 1 = not published, or it varies by more than 50% from ours, 2 = amount of support offered varies between 25 and 50% from ours, support offered is very close to ours

Similarity: Average value from topic and budget values

SHAPEENERGY

shapeenergy.eu

Anglia Ruskin University | Global Sustainability Institute

KIT Karlsruhe Institute of Technology

POLITECNICO DI TORINO

LAET

NTNU Norwegian University of Science and Technology

ORTA DOĞU TEKNİK ÜNİVERSİTESİ MIDDLE EAST TECHNICAL UNIVERSITY

Tomas Bata University in Zlín Faculty of Management and Economics

BSERC black sea energy research centre

energycities

friends of europe

DuneWorks research & advice for sustainability

acentO comunicación

ecee