



Smart4Europe2 Catalysing Digitisation throughout Europe

Deliverable 4.5

SAE Sustainability Models

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¹ R=Report, DEC= Websites, patents filling, Ethics, ORDP: Open Research Data Pilot, etc., O=Other

² PU = Public, CO = Confidential, only for members of the consortium (including the Commission Services)

Acronyms Listed in Document	
SAE	Smart Anything Everywhere
S4E2	Smart4Europe2
IA	Innovation Action
FWE	Flexible and Wearable Electronics
CPS	Cyber Physical Systems
HPC	High Performance Computing
IoT	Internet of Things
OLAE	Organic and Large Area Electronics
CSA	Coordination and Support Action
DIH	Digital Innovation Hub
EC	European Commission
KPI	Key Performance Indicator
WP	Work Package
H2020	Horizon 2020

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Executive Summary

This report presents the work undertaken to achieve *Objective and Task 4.4: Develop sustainability models/plans for DIHs*. It is leveraging on Smart4Europe"1" activities, which led to valuable and still relevant results reported in the deliverable D5.5 "Recommendations on DIHs sustainability".

Smart4Europe2 addresses the question of sustainability from 3 angles:

- The sustainability of SAE beneficiaries which is addressed through community building, brokerage events, access to private investors, the SAE contest award, etc...
- The sustainability of SAE IAs themselves which remain their responsibility and for which SAE is aiming at sharing best practices after identifying potential business models to adopt
- The sustainability of the Smart Anything Everywhere initiative itself which is closely linked to the first two and synergetic with it, aiming at creating a critical mass to engage innovation stakeholders at different levels of the value chain and willing to further support the digital transformation of European companies.

To perform this task, and as presented in the Methodology section of this document, we have conducted interactions at different level of SAE innovation ecosystem:

- We exploited strong internal interactions that have been developed within the Smart Anything Everywhere ecosystem itself, especially between S4E2 team and SAE Innovation Actions. We had also the opportunities to collect feedback and expression of needs from IAs beneficiaries.
- We engaged interactions with external European players including other CSAs like DIHNET.EU but also corporate, private investors, and institutions to further assess IAs and SAE opportunities towards sustainability.

Those different interactions have permitted to identify key outcomes that have been shared with IAs as described in Section 3. These outcomes are especially addressing the position of SAE and its IAs in the European innovation landscape as well as possible relevant business models that could be applied by IAs and DIHs network in their sustainability.

The outcome of our work aimed at inspiring and supporting IAs in the preparation of their sustainability plan as presented by 3 of them in Section 4 of this document. Each IA is building its sustainability in using a specific approach: An association with membership fees for SmartEEs, the creation of a new company for Tetramax, an Innovation Club based on Barter deal for FED4SAE.

This Section presents as well a suggestion of sustainability of Smart Anything Everywhere designed to maintain SAE community while structuring the whole value chain from research to private investment.

Smart Anything Everywhere is especially supporting companies in getting access to the most relevant components, software and their smart integration to develop new products and solutions to take part to the European digitization wave. The sustainability model offered by each IA and S4E2 CSA is based on the core competencies of their consortium partners as well as the experience and expertise they have gained in supporting European SMEs in their digitization.

The next step in SAE sustainability is to create corridors with the EDIHs network so any European SME can get access to SAE technical expertise across Europe through SAE IAs services.

1 Objectives of the Smart Anything Everywhere work on business models

Smart4Europe2 (S4E2) aims at supporting the Smart Anything Everywhere initiative (SAE) in the definition and implementation of a vision for the SAE community. It aims at creating synergies between the ecosystems built by the Innovation Actions (IAs) funded under the SAE scheme and at building a consensus on strategic recommendations for the future.

In this context, Smart4Europe2 is exploring ways and means to strengthen those ecosystems and to support them in the development of a sustainable innovation management processes. The overall objectives being that IAs from the SAE initiative get involved all together in co-designing ways and means to act as one community to strengthen the digitization of European Industries through a facilitated access to high technologies. The community thus created should be able to speak with one voice and to leverage on the specificity of SAE core positioning and added-value.

To structure this work on sustainability, Smart4Europe2 partners considered that they should work on 3 various levels of implementation:

- the sustainability of the SMEs & start-ups having benefited from IAs support and members of the SAE ecosystem
- the sustainability of the IAs members of the SAE community
- the sustainability of the SAE community & network as such taking into account how it should fit with other initiatives including the DIHs and EDIHs deployment strategy.

This report presents the work undertaken to achieve *Objective 4.4: Develop sustainability models/plans for DIHs*. It is related to *Task 4.4: Develop sustainability models/plans for DIHs*.

The work undertaken is also further leveraging on Smart4Europe"1" activities which led to the following inputs reported in the deliverable *D5.5 "Recommendations on DIHs sustainability"*:

- **Sustainability of innovation support structures in general is a very long process and sustainability of IAs and DIHs network should be reached progressively.**
 - First, build a strong consortium and keep the network active.
 - Then, plan ahead the financial transition from EU funding to autonomy.
 - Organise the co-existence of public and private funding following a public/private partnership model as the ECSEL one but adapted to the issues at stake for SMEs in order to advocate for the support actions to be developed.
 - Encourage agile structure and networks relationship between thematic and local DIHs in line with the EC's expectation and to make the best of its political & financial inputs.
 - Use the DIHs network to strengthen and deepen the Single European Market through knowledge and human resources sharing to support European companies' digitalisation.

- **In the European context of the development of DIHs and EDIHs, the sustainability of Innovations Actions requires specific attention.**
 - To develop strong cooperation with the regional DIHs and future EDIHs that are now developing throughout Europe to reach more companies and to make their technologies and expertise more visible and accessible.
 - To explore membership, fees for training services and replication models as complementary revenue sources.
 - To explore public/private partnership models to facilitate access to finance for any kind of companies.
 - To join forces in the Smart Anything Everywhere initiative to create a critical mass, reduce fragmentation and speak with one voice.
 - To remain agile to be able to adapt to a very fast-moving and complex environment and remain fit for purpose, always in line with the emerging needs of companies and the emerging answers provided by technology.

Those recommendations had been built after various internal collaborations with the SAE IAs running at that time, the lessons learned from the previous ones and interviews with external key stakeholders: policy makers or public and private funding organisations.

It was important for Smart4Europe2 partners to make the best out of what had already been done on this issue, either in the previous CSA or in other projects such as the DIHNET³ one which is also supporting DIHs in identifying the best possible business models for their activities and for pan-European collaborations. Thus, the objectives of Smart4Europe2 within the Task 4.4 are the following:

- Continue to work internally with all running Innovation Actions to build a strong SAE community, increase collaboration to join forces and try to speak with one voice each time it is possible.
- Continue the work done on Business Models reinforcement with SAE-IAs to provide relevant mapping of collaboration opportunities while optimising synergies between local DIHs and SAE-IAs.
- Identify specific needs and challenges that DIH members of SAE IAs are facing in collaboration with the DIHNET project.
- Collect best practices in terms of business models and the lessons learned from the running IAs through the work done within the WP2 “Collaboration within the SAE Network” and WP3 “Strategic outreach for SAE growth”.

³ The [DIHNET.EU project](https://www.dihnet.eu) is a H2020 project that aims at enabling the coordination of European, national and regional initiatives directly supporting the digital transformation and Digital Innovation Hubs (DIHs).

2 Methodology

In order to perform this task, the following methodology has been used to work at the 3 levels of sustainability.

- Work on possible business models to support further SMEs & Start-ups members of the SAE community in their access to market.
- Ensure internal discussions within the SAE community and with the DIHNET project to make sure this knowledge is shared and understood by all.
- Develop actions to further support SAE IAs beneficiaries to help them consolidate their business models and offer them the opportunity to have access to private investors investing in their fields of activity.

As a Coordination and Support Action, we have decided to provide analysis and insights to IAs part of SAE while working on identifying tools and actions to be developed to support IAs addressing the main challenges they are facing.

To perform this task, BLUMORPHO has analysed the main challenges faced by IAs and SAE to reach sustainability. Insights and analysis have been shared with IAs in the course of various working sessions to further support the work of each IAs in the construction of its sustainability. The objective was to engage the CSA and the IAs in an iterative process to build various but complementary solutions.

As shown in the figure below, Smart4Europe2 has identified a number of complimentary activities that all support different approaches to sustaining SAE. These are described in more detail in Section 4.

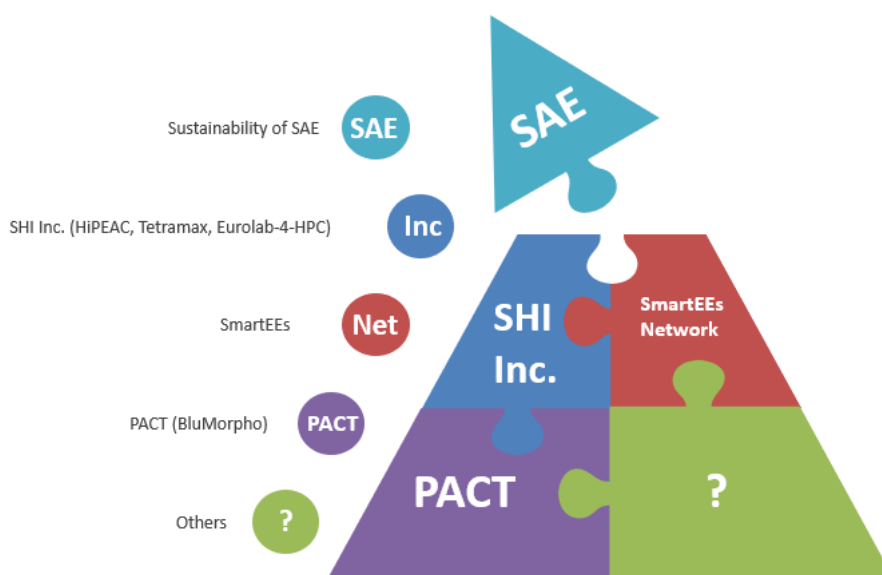


Figure 1 SAE Sustainability Jigsaw

The final objective of Smart4Europe2 is to further support the strategy adopted by each IA in reinforcing their collaborations and their impact at pan European level. The Smart4Europe2 strategy for sustainability will be introduced in the deliverable D4.6 “SAE Sustainability Strategy and Recommendations”.

To reach such objectives, S4E2 partners have conducted the following actions:

- **Close collaboration with the DIHNET.EU project⁴**

- To develop a common analysis to be shared with IAs on what could be relevant business models for IAs, DIHs and DIHs networks. Smart4Europe2 participated as well to joint actions with the DIHNET project including a workshop and concept note on sustainability challenges.
- To further define how IAs and DIHs as well as EDIHs could collaborate to strengthen European SMEs digitization.

As mentioned briefly, the DIHNET aims at enabling the coordination of European, national and regional initiatives directly supporting the digital transformation and Digital Innovation Hubs (DIHs). In this respect, the project was first aiming at creating a sustainable pan-European network of DIHs with a focus on regional DIHs. Considering the major role DIHs and EDIHs will play in the coming years to support the digital transformation of the European industry, it is of high importance that the SAE community and the IAs where DIHs are also partners, work closely together with the DIHNET project. The link between the Smart4Europe2 CSA and DIHNET is done by BLUMORPHO who is involved at the same time in the work on the Smart Anything Everywhere initiative’s sustainability and in the DIHNET work on business models for DIHs-Networks.

- **Analysis of the challenges faced to build a business model towards sustainability within the SAE community**

- Direct interactions with IAs supported companies:

As reported in the D4.3 on the SAE Contest Award Report, S4E partners had direct interactions with 9 companies supported by SAE IAs coming mostly from the IAs of the 2nd phase (Diatomic – FED4SAE – SmartEES – Tetramax) but also from the more recent IAs (DIGIFED).

SAE Innovation Action	Innovative companies
Diatomic	d-cube
Digifed	Datenberg
FED4SAE	The Convxlens Hopu Kalmia Protolab
SmartEES	Tagenea Ab.acus
Tetramax	Cipacto

Figure 2: companies having applied to the SAE contest award

⁴ The [DIHNET.EU project](#) is a H2020 project that aims at enabling the coordination of European, national and regional initiatives directly supporting the digital transformation and Digital Innovation Hubs (DIHs).

This was an interesting experience showcasing an increasing interest of the SAE community for joint actions of promotion of success stories beyond the application experiment as such. Those interactions were quite interesting to collect feedback on the value of each IA as well as further needs expressed by the supported companies. Various brokerage events were organized in 2020 and 2021 and will be in the future which will allow this further work of the CSA's partners to propose further services to IAs beneficiaries.

- Specific working sessions with IAs part of Smart Anything Everywhere
In the framework of the WP2 "SAE internal collaboration", 3 collaboration meetings have been organised in 2020 gathering all the Innovation Actions running under the SAE initiative framework in order to foster internal coordination on various issues (2nd of April 2020, 8th of July 2020, 26th of October 2020).
In order to engage a specific work on the challenges of sustainability, during each of those first "SAE cluster collaboration meeting" a full session had been dedicated to this issue of sustainability. Furthermore, in order to work even deeper on those questions and to allow the iterative process of co-construction mentioned above, a specific working group has been set up. This working group first met on 14th December. This meeting especially focused on the discussion of the sustainability of the SAE ecosystem and both the TETRAMAX sustainability plan and the BLUMORPHO's proposal for an SAE PACT were presented and discussed.

- **Meetings with public & private innovation stakeholders**

To further explore SAE community collaborations opportunities in its sustainability, BLUMORPHO and Smart4Europe2 partners have also exchanged with key stakeholders in the European innovation landscape on the potential synergies to be put in place.

- With EIF: how EIF & SAE could set-up a partnership to support the development of innovative start-ups.
- With EIB: how SAE & EIB could inform better the innovative companies about the Innov'Fin solutions that are accessible to support innovators.
- With private investors and public/private experts: which synergies and innovation management processes could be developed to ensure sustainable business models for IAs, DIHs networks and the companies they are supporting. To this extent, meeting have been organised with:
 - Corporate leaders: TRUMPF, BOSCH, TOTAL, PFEIFER, ORANGE, Bamboo Capital, Schneider Electric, FREUDENBERG, Evonik, Murata.
 - Clusters,
 - Geoffrey Moore, recognized expert in innovation management;
 - Euripides Eureka Cluster.

Those meetings and collaborations allow the Smart4Europe2 partners to build a consolidated vision of the challenges to face to reach sustainability.

3 Outcomes of the work undertaken shared with IAs

The chapter presents the results of the work undertaken by S4E2 partners either internally, learning from each IAs' experience or from Smart4Europe recommendations or working with external stakeholders: the DIHNET project and private and public innovation key players. It has been introduced to IAs to support the various sustainability plan in construction. The IAs sustainability plans are introduced in the chapter 4 of this document.

3.1 Analysis of what could be a relevant business model for IAs sustainability and for Smart Anything Everywhere

The close collaboration with DIHNET.EU project aims at analysing what could be a relevant business model for IAs and the SAE sustainability. **To perform this work, it was important to position IAs and SAE in the context of the EC strategy for SME digitization taking into account the DIHs and EDIHs organisations.**

1. Positioning Smart Anything Everywhere within DIHs and EDIHs strategy

All Innovation Actions part of the Smart Anything Everywhere initiative have DIHs or Competence centres as technical partners. DIHs aim at supporting SMEs to speed up the digital transformation processes. They usually combine technological infrastructures and expertise with actual business creation expertise or, at least, they are expected to advise and support the SMEs in their access to this expertise if they don't have them internally. As Innovation Actions, DIHs have been built on the concept of open innovation and the notion of public-private partnerships for innovation.

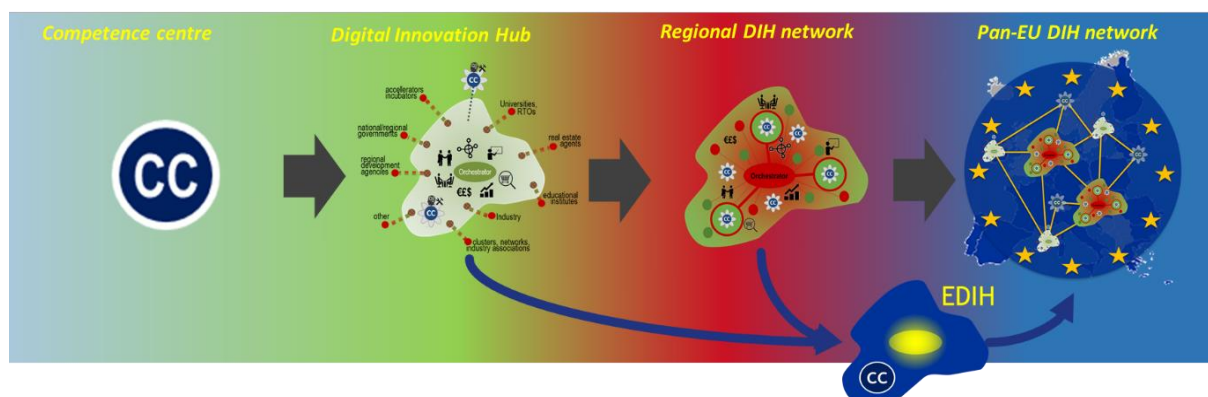


Figure 3: Main building blocks in the EU DIH network. (source: DIHNET - 2019)

As illustrated in the figure below, they are expected to become the single contact point in the digital value chain at local level and to make the link between their local ecosystems and the European ones. The DIHNET project usually describes this Pan-European ecosystem as resulting from the synergies created between four **different building blocks that are all entities that we can find within the SAE ecosystem:**

- The **Competence Centres (CCs)** which are focusing on the development of new and innovative technologies, relying most of the time on state-of-the-art technological infrastructures and technological experts. Their main focus is usually to help the industry translating these innovative technologies into products and accompanying manufacturing systems.
- The **Digital Innovation Hubs (DIHs)** which are expected to expand the technological services of various and complementary CCs to support this transformation process with more **business-oriented services**. DIHs aim at strengthening the **regional innovation ecosystem** in a **specific industry/technology area** by boosting collaboration between the CCs and the local companies.
- The **Regional DIH network** which gather the several DIHs and CCs of the region and mutualizing certain services and activities to achieve economies of scale, gain a critical mass, try to avoid too much overlapping and competition and, on the opposite, develop new synergies and cross-fertilisation.
- The **Pan-European DIHs networks** which is now developing in order to enhance Pan-European collaborations and create at the European level, the same kind of synergies that are expected from a better collaboration and integration at the Regional level: facilitating access to expertise, infrastructures and already available innovative products.

To those four elements, the European Commission has decided to add the **European DIHs** which will be in charge of implementing the Digital Europe Programme and which will have a critical impact on the structuration of the European innovation landscape. According to the European Commission, EDIHs are *“one-stop-shops that help companies become more competitive with regard to their business/production processes, products or services using digital technologies, by providing access to technical expertise and experimentation, so that companies can “test before invest”. They also provide innovation services, such as financing advice, training and skills development that are needed for a successful digital transformation.”* The EDIHs are expected to implement the Digital European Programme which is, till now, focusing on HPC, AI and cybersecurity as priority technologies. However, more broadly, the EDIHs are expected to support the European industry to twin the green and digital transitions. They are thus expected to provide industry and public sector with support on a broader range of technologies. This means that the EDIHs should rely on pre-existing successful European networks as the SAE one, that can provide them with expertise they don't have internally.

Many partners within the SAE Innovation Actions are either DIHs or EDIHs or Regional DIH network. So there is a challenge here to create synergies on the trust and the collaborations already developed within the SAE community and the proven technical expertise on cutting-edge technologies.

As recommended by the previous CSA Smart4Europe, the Smart Anything Everywhere Initiative and the Smart4Europe2 partners are building further on how to develop Pan-European collaborations with DIHs and EDIHs by playing the SAE community role of technical experts on cutting-edge technologies and related innovation management.

SAE value proposition

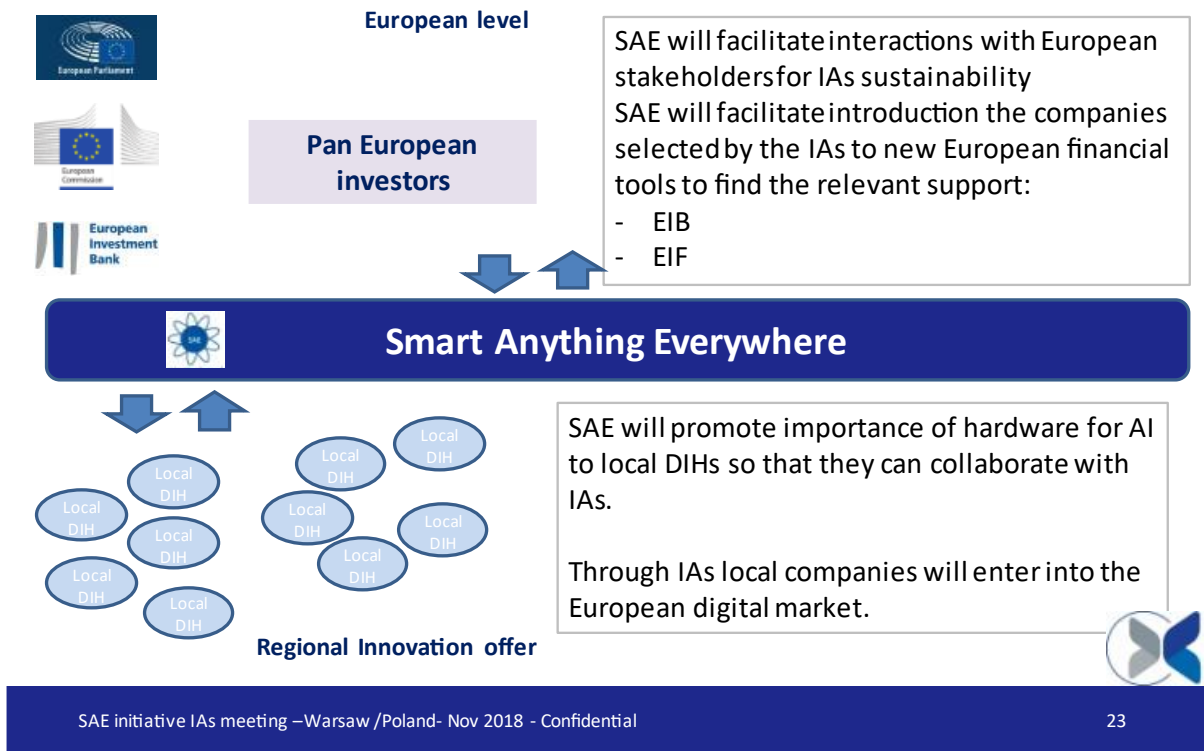


Figure 4: SAE positioning within the European Innovation landscape (Smart4Europe – November 2018)

The sustainability of the Smart Anything Everywhere Initiative and its related Innovations Actions will also rely on the positioning towards those key actors and the collaboration that they will be able to build, bringing their experiences working with very early stages companies but also with low tech SMEs to support their digitization.

2. Definition of possible business models for sustainable collaboration

The Smart4Europe2 consortium also engaged into a formal work on defining the most appropriate business model to support their community.

▪ Definition of business model

Business model is a description of how a business makes money and in other words “how to generate and capture value to sustain an activity”. Business model is a concept focus on value indeed. It relies on how to deliver value to customers or beneficiaries at an appropriate cost so valuable activities can be sustained.

The definition of a business model relies on answering the following key elements:

- Who are your customers, what are their pain points and what is your offer to address their pain points?
- How you will reach your customers with the relevant go to market strategy and what will be your related cost?
- How you will produce your solutions and what will be the related cost?
- Then analysing what is expected from your customers, and your own organization to sell and produce, what is the best approach to generate revenues to sustain your activities.

Business model is also explained in the St. Gallen Business Model Navigator in the figure below.

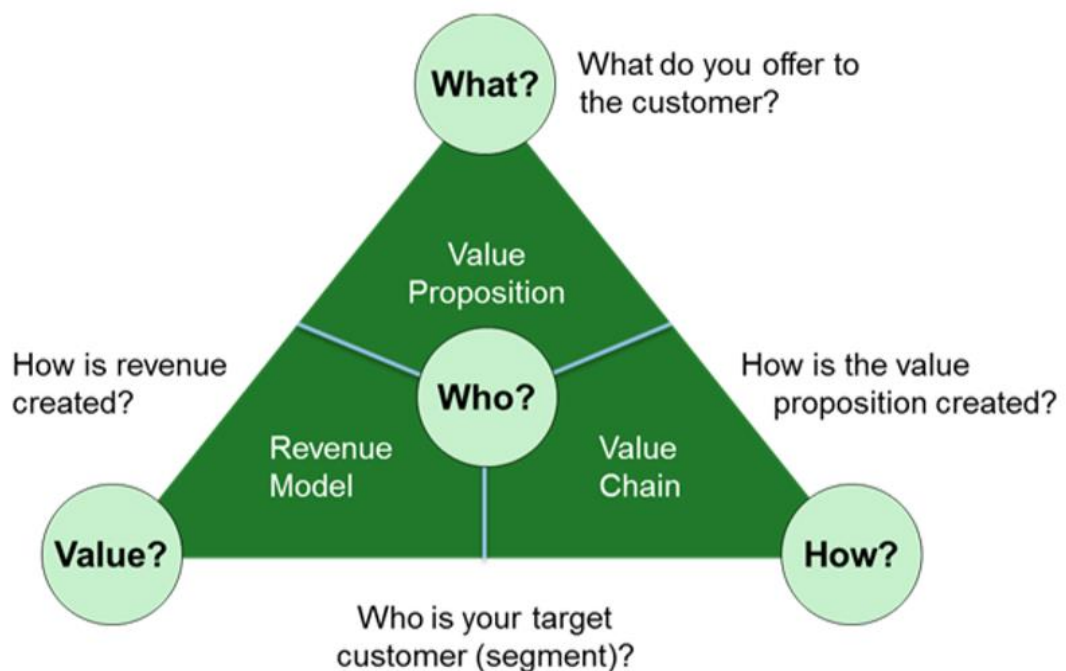


Figure 5: St. Gallen Business Model Navigator

- **Exploration of possible business models for collaborations**

Through the collaboration with the DIHNET.EU project, different business models have been identified for IAs and CSA of IAs.



Figure 6: Possible business models for Pan-European collaboration (DIHNET.EU project – 2020)

- **No business model without a strong value proposition**

The selection of the most relevant business model is closely linked to the definition of the value proposition and to the targeted beneficiaries.

As mentioned previously, IAs and SAE will bring their expertise and competencies to EDIHs and DIHs network. It is indeed important to take into account SAE and IAs unique value proposition to build on new business models for the sustainability of their activities.

Smart Anything Everywhere especially addresses “smart” applications in providing components, software and their integrations for the deployments of digitization in many applicative sectors. This is a differentiation factor from, for example, I4MS which is dedicated to manufacturing or from RODIN related projects which are related to Robotics, etc...

Smart Anything Everywhere is especially dedicated to the development of new products and services that will offer strong Unique Value Proposition and strong differentiation to reinforce SMEs competitive positioning but also support the emergence of new promising companies.

Such positioning and value proposition will be indeed important to position SAE and its IAs in the European landscape of collaboration with DIHs and EDIHs which should be part of their sustainability.

The various sustainability plans explored further in the chapter 4 have been built on addressing the unique value proposition of each IAs and several possible business models. The SAE sustainability will probably rely on those various solutions that will co-exist and strengthen the SAE ecosystem with their complementary approach.

4 Various business models considered in the scope of the Smart Anything Everywhere

This chapter presents the different sustainability plan built by IAs part of Smart Anything Everywhere and by Smart4Europe2 for the SAE initiative itself.

4.1 The Innovations Actions sustainability plans

SmartEEs' Association

The sustainability plan of SmartEEs project relies on the creation of a pan-EU end-users driven Association that will:

- Address the topic of Flexible & Wearable Electronics (FWE).
- Provide two types of services to the Network and to the Industry. These services will be new or consolidate existing ones at Industrial Association like *OE-A*, *AFFELIM*, *PRINTOCENT*,... and will focus on end-users needs.
- Link regional ecosystems via key local representatives, starting with the 3 cluster partners DSP Valley, Minalogic and OES Saxony and going beyond to all regions covered by the 14 partners and also towards EU13 regions.

The need to articulate SmartEEs with the upcoming network of EDIHs has also been taken into consideration in order to anticipate, mitigate and prevent overlaps, as respective targets are different, and roles will be complementary anyway. EDIHs are meant to digitize the early & large majority of followers and laggards (technology adoption lifecycle). They will capitalize upon technologies and bespoke services developed and made available by DIH projects such as SmartEEs and SmartEEs2 (for the case of OLAE and FWE technologies, respectively). The SmartEEs Association is meant to promote and grow Flexible and Wearable electronics that are still breakthrough technology. The service balance for stimulating breakthroughs is different from the services to scale adoption, towards later adopters. E.g. for breakthrough there is more of an RDI component, the access to finance is more subsidy and high-risk private investors. For scaling adoption there is more business development and the access to finance is more towards bank loans.

This positioning of the SmartEEs Association in the EDIHs landscape (Figure) is to deal with funnel technologies through proven feasibility and proven adoptability. The scope is not on technology development per se, it is on confronting technology with applications and then hand over to EDIHs, which will act as regionally anchored hubs.

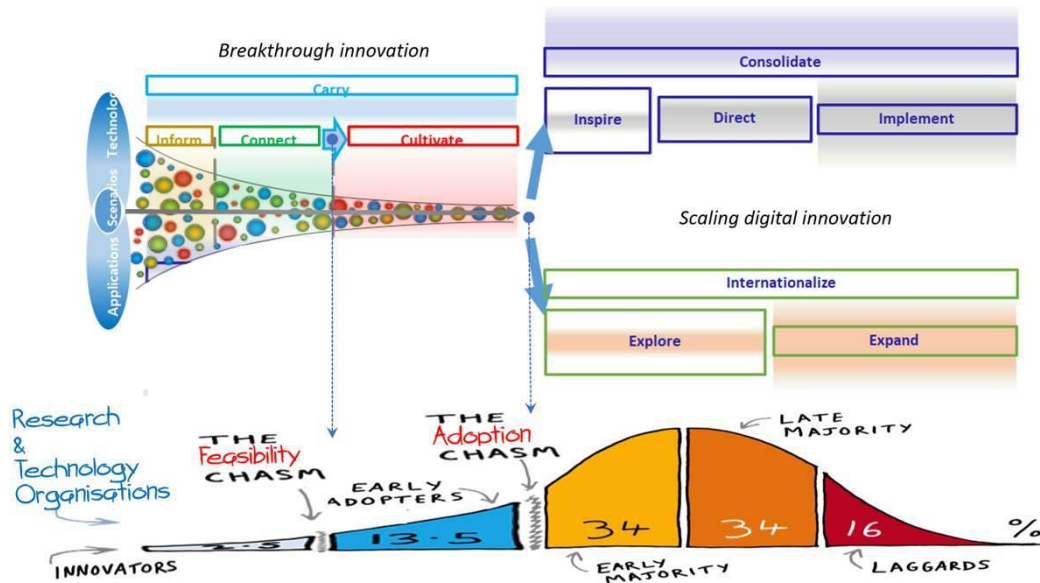


Figure 7: Innovation Actions vs EDIHs in the European Innovation value chain (SmartEEs2 – January 2021)

As represented in 8, **European collaborative corridors** (dashed blue circle) of application-oriented EDIHs (red circle) are expected to interweave with the technology-advancing initiatives such as SmartEEs (dashed yellow circle).

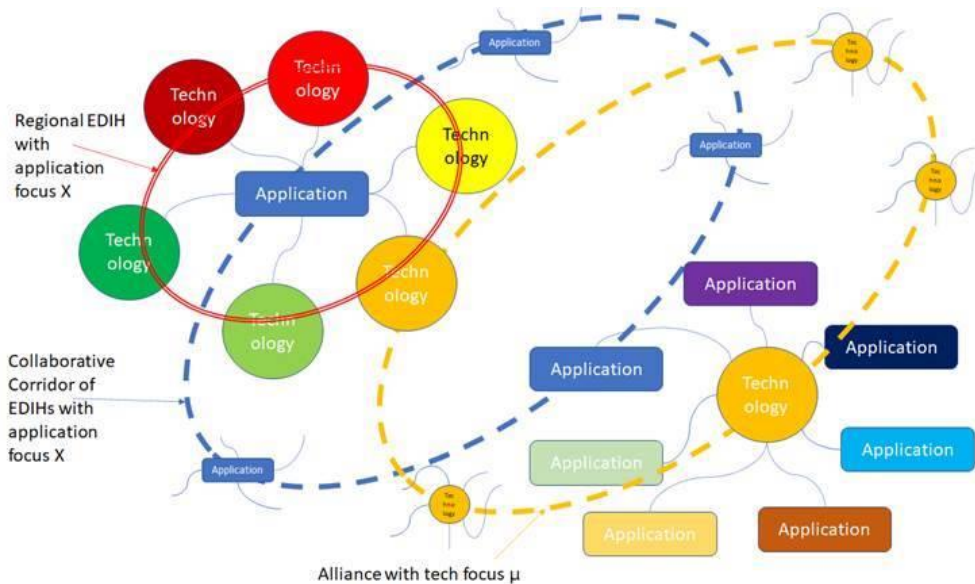


Figure 8: Innovation Actions vs EDIHs in the European Innovation value chain (SmartEEs2 – January 2021)

As an example, the blue circle could be a network of EDIH's bringing new digital healthcare solutions to the market of Health companies and caregivers, a market that we all know to be very important for FWE.

FED4SAE Innovation Club

The last period of the FED4SAE project has confirmed the value brought by the FED4SAE consortium to companies benefiting from the FED4SAE support. It has been agreed among the FED4SAE partners to keep the consortium active since it has value to operate the EC objectives to support European SMEs digitization thanks to its strong Industrial and DIHs network and the innovation management operated by BLUMORPHO.

However, being an Innovation Action engaging European DIHs, FED4SAE is providing services that will also be offered by EDIHs and DIHs including test before invest, coaching, brokerage activities, access to funding etc... Therefore, the objective of FED4SAE sustainability is not to enter in a kind of competition with EDIHs and DIHs network but to bring an additional added-value. It is especially important since part of the FED4SAE partners are also DIHs.

To engage FED4SAE sustainability, it has been decided to set-up an agile strategy structuring a simple model leveraging on the strengths and branding of each partner with an Open Ecosystem approach bringing value to all members. The FED4SAE partners have decided to act as a “Club” with partners and members linked by a PACT so, basically, an agreement of collaboration to maintain collaboration to keep the ecosystem active.

The activity of the FED4SAE Innovation Club is operated through a community platform promoting activities, technologies and competencies of the different members, launching invitation to members activities and events and contributing to structure the full innovation chain from research to private investment.

The operating rules of the FED4SAE Innovation Club are the following:

- The Club is dedicated to maintain and enlarge the FED4SAE ecosystem in order to promote CPS added-value to support its adoption by European SMEs and, beyond CPS, to promote all the digital technologies that can enable a positive transition by twining the green and digital transformation.
- The enlargement of the FED4SAE ecosystem means, at first, to strengthen its links with the Smart Anything Everywhere community and Innovation actions, following the rule “stronger together we go further”.
- Further supporting CPS adoption means also facilitating further access to funding for innovative companies. The Club will thus contribute to structure the full innovation value chain through its members and founding partners’ network.
- The Club is operating under a community App to keep its management simple, affordable, and agile.

- The business model of the Club is based on Barter Deal⁵ for basics operation related to communication activities like promotion of events. For technical and business training, specific business models will be implemented especially in alignment with EDIHs and DIHs activities.
- The Club will operate to support SMEs and start-ups in their fundraising strategy through the DIHs activities but also through actions undertaken by BLUMORPHO and its investors' network as well as its Venture Studio.

The SAE-HiPEAC Incorporated (SHI) – TETRAMAX sustainability plan: a new initiative for cross-project self-sustainability

This concept has been elaborated on and proposed by Rainer Leupers, coordinator of TETRAMAX, active member of the HIPEAC community and of the Eurolab-HPC project, and former coordinator of the TETRACOMM project. It aims at building a practical solution/implementation to the various sustainability plans that have been drafted in the past years but which have never reached a concrete and practical impact at the end of the European projects and have remained theoretical.

In order to address the sustainability challenges of those various and complementary initiatives, the idea behind the concept of the SAE incorporated would be to settle a company with core members from HiPEAC, Tetramax and Eurolab-HPC which would also be open to other founder members from the SAE community. One of the drivers for this project is that it would be possible to incorporate the SHI Inc. into existing SAE's IAs.

The proposal is to create a legal entity to leverage on well-proven projects assets and networks, to achieve synergetic and long-term self-sustainability of all participating projects and add-on to local approach of individual projects.

The SHI would be *"A united and self-sustained pan-European academia-industry network in ICT, stimulating faster innovation via technology, skills and people transfer"*.

A survey had been performed towards 195 HiPEAC/SAE members indicating how much they would be prepared to pay for different services:

- Brands, networking and events
- Closing the gap between academia and industry
- Bringing together separated technical and application domain communities
- Technology transfer, innovation, and entrepreneurship
- Advanced training and dissemination opportunities across Europe
- Consultation meetings and road-mapping activities on emerging trends in ICT

The business model would be based on:

⁵ A Barter Deal is a system of exchange of goods or services where participants in the transaction don't use money or monetary medium. Bartering seems an easier and quicker operating model to implement in this case as FED4SAE partners all agreed to keep the network active, open and agile.

- The continuation of the successful HiPEAC conference, membership fees and a mix of other services.
- An estimate of 2 person months of effort was anticipated from SAE IAs, but a financial contribution would also be possible.
- The foreseen legal structure would be a GmbH which requires around 25K Euros of investment.
- Approximately 10 founders are being solicited.

At the time this deliverable is written, the discussion on the services and the added-value that the SAE incorporated could provide is still on-going.

4.2 The Smart Anything Everywhere collaboration PACT towards a sustainable SAE Network

The concept of a SAE PACT to support the SAE network sustainability has been proposed by BLUMORPHO to the SAE community. It is built on the lessons learned after having worked on the sustainability of various projects: Innovation Actions (COWIN, Gateone-project, FED4SAE and SmartEEs), CSA (Smart4Europe & Smart4Europe2) and being part of the DIHNET project, aiming at setting the conditions of a sustainable DIHs & EDIHs network.

Through the PACT, the Smart Anything Everywhere sustainability plan proposed by BLUMORPHO aims at building a strong enough cohesive community to structure the innovation value chain in the core technologies at stake to support the green and digital transformations towards a positive transition.

The PACT relies on leveraging on value brought by each member's core competencies and activities.

Objectives

The SAE PACT has been designed to address **objectives** that are common to all the SAE community of Innovation actions:

- Reach sustainability of Innovation Actions and SAE activities
- Define how activities relying on EC support can become self-sustainable activities
- Further leverage on European added-value and support the SAE beneficiaries' sustainability

1. Reach sustainability of Innovation Actions and SAE activities

In order to reach the sustainability of Innovations Actions and SAE activities without engaging in a too complicated structure, the idea is that the SAE network should leverage on the branding, success and effective core activities of each party joining and agreeing to operate through a barter deal.

A strong and effective SAE network will have to engage public and private financing to allow further technology exploitation by start-ups and SMEs. It should reduce the fragmentation of the technical innovation management market, ensure interdisciplinary activities inside the network, combine different technologies towards differentiation (CPS, Low energy computing, Flexible electronics, ...).

2. Define how activities relying on EC support can become self-sustainable activities

It is considered as a challenge to maintain the Smart Anything Everywhere ecosystem active without relying on the H2020 funding. The SAE PACT, its governance model and operating rules have been designed to optimize the use of resources and leverage on the European added-value generated by the whole SAE community. Beyond the business model based on barter deal, BLUMORPHO considered that the best way to sustain the SAE community and more broadly its goals to digitise Europe's industry is through a mobile application. Human resources considerations, structural costs related to setting up a new organisation and more all contributed to the decision of the light structure of an App to enable the SAE community management. The App tested by BLUMORPHO and already in use for the FED4SAE Innovation Club will be fully dedicated to the SAE IAs' ecosystems and will facilitate interactions within the ecosystem. Each IA will be able to manage its own community within the App and each IAs community will be able to interact with the others.

3. Further leverage on European added-value: ensure the sustainability of SMEs & start-ups having benefited from the SAE IAs support

One of the main drivers of the SAE PACT concept comes especially from the experience of the gateone-project which ended in 2018. During this project, BLUMORPHO had a special focus on the sustainability of the supported companies during and after the Innovation Action duration and on the return on investment generated by European public money.

The €2.9 million initial investment in the development of 50 full-scale demonstrators had already generated a €6 million return on investment at the end of the project in 2018. In 2017, full-scale models had generated a €1.9 million ROI and lead to the creation of a new company. In 2018, those investments generated 4 M€ in revenues or fundraising. Out of the 50 supported companies, 42 are still active in 2021 and 26% of them have been acquired by larger companies. In the last 12 months, this community of innovative companies have raised 11M€ and a new venture has been successfully launched after winning the Innovation Radar prize of the EU in 2018.

The various brokerage events organised in the framework of SAE CSAs and in the framework of each SAE Innovation Actions have demonstrated that innovative company members of the SAE community were mainly early stage and require most of the time further support to build their growth strategy. It is thus important that the SAE PACT enable the community to address this question to ensure a significant return on investment by following and supporting the SAE beneficiaries in their growth and by identifying and support potential champions that could drive the development of stronger European ecosystems.

Mission and activities

The Smart Anything Everywhere sustainability PACT has been designed according to the **mission** of the SAE network defined as:

“Structuring the full innovation value chain from research to private investment in leveraging on core competencies of each party joining the network in a win-win relationship”.

The Smart Anything Everywhere network will be especially dedicated to:

- Facilitate the adoption of cutting-edge technologies by SMEs and start-ups
- Act at Pan-European level while reinforcing collaborations at Regional, National and European levels
- Raise private funding in companies adopting SAE community technologies to support their growth and further reinforce the ecosystem

The Smart Anything Everywhere PACT governance principle

- The governance model is based on a **rotating presidency** of the network among the Pioneers joining the action in the scope of Smart4Europe2 activities.
- The network business model is based on a **barter deal** between all parties.
- The network will be opened to any new party or new member based on **eligible criteria** related to the value brought to the network.
- Each party will be invited to share its feedbacks and wish with the community. Each party is granted with an **equal right to vote** in decision making process.
- For any collaboration set-up within the network, the **standard consortium agreement** rules will apply with regards to **IPR, no competition, confidentiality agreement**. It could be adapted case by case. A high flexibility in terms of scope of collaborations will be considered (joint events, workshops, training sessions, ...) depending on mutual interest and expected gain for each party joining.
- Each party shall have the right to withdraw from the Agreement and the PACT at any time and with no penalty by means of a 30 (thirty) days' notice.

The SAE PACT is proposing to SAE community members the following action to support the sustainability of the community.

- Developing strong cooperation with the regional DIHs and future EDIHs that are currently developing throughout Europe in order for them to clearly identify the SAE community's technologies and expertise.
- Joining forces in the Smart Anything Everywhere initiative to create a critical mass, reduce fragmentation and speak with one voice.
- Exploring further sources of funding for specific actions but first, fund the first level of interactions and collaborations on barter deals to build on each other strengths.
- Setting-up a light community management tool with a dedicated SAE App in order to remain agile and to be able to adapt to a very fast-moving and complex environment and remain fit for purpose, always in line with the emerging needs of companies and the emerging answers provided by technology.

5 Conclusion

The Smart4Europe2 partners have decided to address the question of sustainability from 3 points of view:

- The sustainability of SAE beneficiaries which shall be addressed through community building, brokerage events, access to private investors, the SAE contest award, etc...
- The sustainability of SAE IAs themselves which remain their responsibility and for which SAE is aiming at sharing best practices.
- The sustainability of the Smart Anything Everywhere initiative itself which is closely linked to the first two and synergetic with it, aiming at creating a critical mass to attract innovation stakeholders willing to further support the Digital transformation of European companies.

The work performed under the Task 4.4 permitted to detect different options to reach sustainability of IAs and SAE activities. Each plan is based on a specific business model (association with membership, creation of a new company, Innovation Club based on Barter deal, ...). Sustainability actions are collaborating and co existing to further promote their activities and value proposition. It is already a great achievement.

Such achievement is due to the commitment of IAs and SAE to maintain their activities and communities active beyond the current support of the EC.

It is also only possible because each IA and SAE have developed key competencies and expertise to address key challenges faced by start-ups and SMEs to be part of European digitization. Each IA and SAE bring value to the European ecosystem to support the green and digital transformation.

SAE will further support IAs in their sustainability operations in providing a decentralised and multi-lateral collaborations platform operated through a PACT. This community platform will structure the whole value chain from research to private investment. In its sustainability, SAE aims indeed to further foster collaborations between stakeholders active into the green and digital transformation.

It will thus be very important to further bridge IAs and SAE to the EDIHs network activities in creating specific corridors. Each EDIH could thus further exploit services offered by SAE and its IAs when it deals with access to components, software and their smart integration (i.e. CPS, HPC, IoT, FWE.....) to develop new products and to support digitization of European SMEs with access to proven experience and expertise.