



ENERGY SHIELD

Integrated Cybersecurity Solution for the Vulnerability Assessment, Monitoring and Protection of Critical Energy Infrastructures

INNOVATION ACTION

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WP1 SYSTEM SPECIFICATIONS & ARCHITECTURE

D1.2 COMMERCIAL REQUIREMENT SPECIFICATION

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Abstract:	The task will identify commercial requirements that can influence the market uptake of the EnergyShield solution, such as licensing model, pricing, modularity, etc. The task should define the EnergyShield solution pricing model (upfront vs recurring) and level, based on its competitive position on the market (new entrant, holistic solution). The task should also define the EnergyShield solution ecosystem requirements, such as the partners required to deploy the solution (cybersecurity consultancies) and the material required to train the end-users to operate the system (solution documentation, usage guidelines, case studies).
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EXECUTIVE SUMMARY

This document provides commercial requirements for the EnergyShield solution for the first few years (2022 – 2025) after the end of the project. The requirements are based on interviews with cybersecurity experts and energy sector experts from the EnergyShield consortium. Together with other documents addressing the technical functional, non-functional, and legal requirements, the current report designs the EnergyShield solution, including commercial aspects, such as the license model, product definition, contract templates, and business model.

The interviews with selected partners from the EnergyShield consortium estimate that the most suitable product is strongly focused on the integrated EnergyShield toolkit. A medium level price, the amount & quality of services, availability of features, and brand reputation of provisioned product are considered relevant.

A subscription-based licensing model for Energy Shield was preferred by most of the interviewed experts while also supporting the identity of the tools provided within EnergyShield project, i.e. each module or component could be commercialized individually.

A significant effort is expected for activities related to installation and integration for the product which could increase the license fees. It was considered an important point to have metrics in the concrete licensing model that enables potential customers to start with ES small and grow over time with the benefit.

The interviews revealed that service and support contracts are a very important part of the EnergyShield solution – some customers might not be able to use EnergyShield without a service contract. The availability of documentation and end-user training in English is of high importance, as well as 8/5 customer support. 24/7 customer support is estimated to be not required at the beginning. The majority expects low importance for customer support, training and documentation in the first language of the customer.

The interviews emphasized the high priority of external partners. It is expected that external partners will have an important role in installing and integrating EnergyShield, sales partners reaching out customers.

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ACRONYMS

ACRONYM	DESCRIPTION
24/7	24 hours on 7 days of the week
AD	Anomaly Detection
D	Deliverable of the EnergyShield project
DDoSM	DDoS Mitigation = Distributed Denial of Service Attack Mitigation
DIY	Do-it-yourself
DoA	Description of Action (part of the EnergyShield project documents)
DSO	Distribution System Operator
EPES	Energy Power and Energy System
ES	EnergyShield
GUI	Graphical User Interface
IPR	Intellectual Property Rights
OT	Operational Technology
SaaS	Software as a Service
SBA	Security Behavior Analysis
SIEM	Security Information and Event Management
SLA	Service Level Agreement
SOC	Security Operations Center
TSO	Transmission System Operator
USP	Unique Selling Point
VA	Vulnerability Analysis
WP	Work Package

1. INTRODUCTION

1.1. SCOPE AND OBJECTIVES

This deliverable specifies the future commercial requirements (2022 – 2025) for the EnergyShield solution in order to be successful in the market and to meet the (commercial) requirements of its customers.

The commercial requirements are complementary to the technical requirements and legal requirements that are specified in other deliverables. All these requirement documents direct the design of the EnergyShield solution and provide guidelines for the development of the EnergyShield toolkit and for its communication and exploitation.

The commercial requirements express what and how the EnergyShield solution needs to fulfill for the (commercial) viewpoint of the customers regarding product attributes, such as pricing model, supplementary services, documentation, language, hosting, and modularity. Additionally, the commercial requirements also define other aspects of the EnergyShield product strategy, such as positioning in the market compared to competitors regarding price, quality, and brand reputation. Furthermore, the ecosystem concept is addressed in terms of partner enabling.

1.2. STRUCTURE OF THE REPORT

After the dependencies to other tasks and deliverables are described in Section 1.3, Section 2 details the methodology how the commercial requirements are determined. Sections 3 to 6 define different clusters of requirements:

- **Section 3** addresses overall commercial requirements in terms of minimal granularity, what “toolkit” means from a high-level point of view, supplementary service, and the relative position in the market.
- **Section 4** focuses on license- and price models and the share of the license fee of a typical project price. This will especially provide an initial input for designing the license and price model.
- **Section 5** describes the high-level non-technical requirements regarding the hosting (including SaaS) and the roles of partners in installing and selling EnergyShield.
- **Section 6** addresses commercial requirements that are especially related to maintenance- and customer support for EnergyShield users.

Section 7 concludes the report and outlines how the commercial requirements are used and refined in the further course of the project.

1.3. TASK DEPENDENCIES

This Commercial Requirement Specification is created in parallel with the Technical Requirement Specification (D1.1, Task 1.1) and the Regulatory Requirement Specification (D1.3, Task 1.3). These three requirement specifications are all planned for completion in M6 (Dec 2019). Together, these requirements will be the input for the system architecture (Task 1.4) and the work packages WP2 to WP5 that create and improve the individual components and a combined toolkit.

Some commercial aspects (e.g., service included in an initial project, or hosting to be used for critical infrastructures) can be subject to legal national regulations. Therefore, there is also an overlap with Task 1.3.

From a more technical point of view, Task 1.4 has provided results on the system architecture and discussed the question what the EnergyShield “toolkit” exactly is complementary to this task.

Furthermore, this document will also provide input for the tasks of WP7 and WP8 because the commercial requirements allow to focus communication and exploitation activities regarding the market segment and the exploitation strategy.

2. APPROACH

In summary, the approach to identify the future commercial requirements for 2022 – 2025 for EnergyShield is to combine the experience and expectations from the technology providers and industry partners based on interviews. For this a survey interview template was designed, because a lot of context information and explanations are required for most topics of this survey.

After some initial research on commercial requirements, clusters and topics for the survey were identified and refined with domain experts in a workshop. The identified topics include many of the points that a potential user would later experience in an EnergyShield offer document (e.g., licensing model, optional services, maintenance and customer support) and some high-level non-technical product placement and product characteristics. As mentioned in Section 1.3, the analysis of commercial requirements does not cover the legal requirements, technical functional and non-functional requirements, and use cases, because those are the focus of other parallel tasks and deliverables of the EnergyShield project.

The primary source for the commercial requirements in this document are cybersecurity experts and energy sector experts from the technology provider companies and the industry partners of the EnergyShield consortium. Many of the interviewed experts are familiar to commercial requirements because they have roles in business development or marketing. However, still commercial requirements for EnergyShield can only be approximately estimated instead of being identified precisely. The optimal licensing model, product placement and partnering of EnergyShield will have to fit to future markets and depend on the offerings of competitors and the interests of partners. The EnergyShield Deliverable 8.1 concludes that the relevant market for cybersecurity products in the energy sector is not well-established yet (with few exceptions for products such as virus scanners and firewalls). Additionally, the EnergyShield project is still in an early stage; therefore, the toolkit and its customer value are not fully clear at this point.

For each of the commercial requirements topics, multiple-choice questions or single-choice questions (especially with options for a priority rating of low, medium and high) were used in the survey template. Additionally, the interviewees were encouraged to give comments that were included in the analysis of the results. The survey template can be found in the Annex of this document (Page 39).

The results for single and multiple-choice questions are visualized with pie charts. Bar charts are used to compare aggregated priorities (low = 1, medium = 2, high = 3). A spider diagram shows the relative market position in multiple product dimensions. For those topics that aggregate single answers, tables with the mean value, median, minimum and maximum are included. These values are of limited statistical significance because of the low number of independent interviews (≤ 7 for most topics), but allow to indicate the spread in the answers.

3. ENERGYSHIELD OFFERING

3.1. MODULARITY

The EnergyShield concept defines three interacting fields of action (assessment, monitoring & protection, learning & sharing) which are covered by five tools (VA, SBA, AD, DDoS, and SIEM), as illustrated in Figure 1. Thus, the EnergyShield concept emphasizes an integrated view on IT security for utilities [GAB19]. The three groups of tools are also called modules.

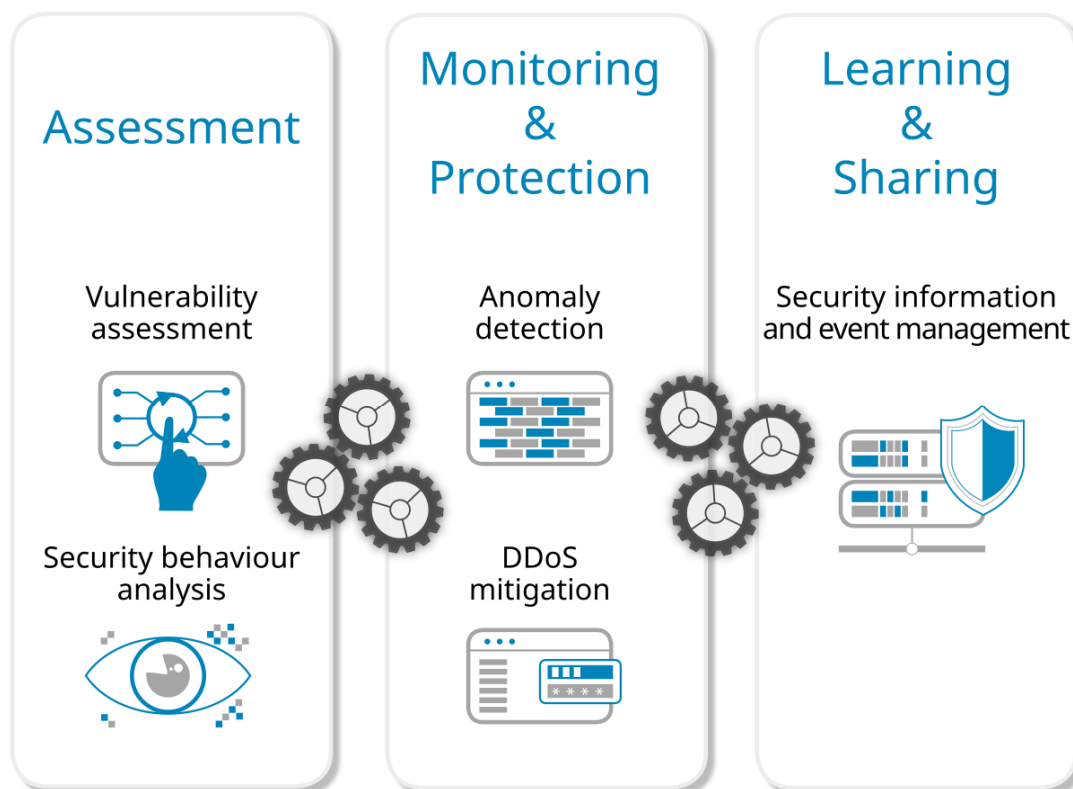


Figure 1: The three modules and the five tools of EnergyShield.

For a marketing strategy, it is important to assess whether potential customers share this view or are more selective in their approach in terms of the minimal product granularity to be sold to a typical customer. If EnergyShield focuses on the exploitation of the single tools, the benefit of having integrated tools is not present; focusing on selling only the complete toolkit out of 3 modules together, might result in a too large entry price.

The results for the interview question on the minimal granularity for initial EnergyShield projects are presented in Figure 2, with the majority on the option that the three modules should provide the minimal granularity.

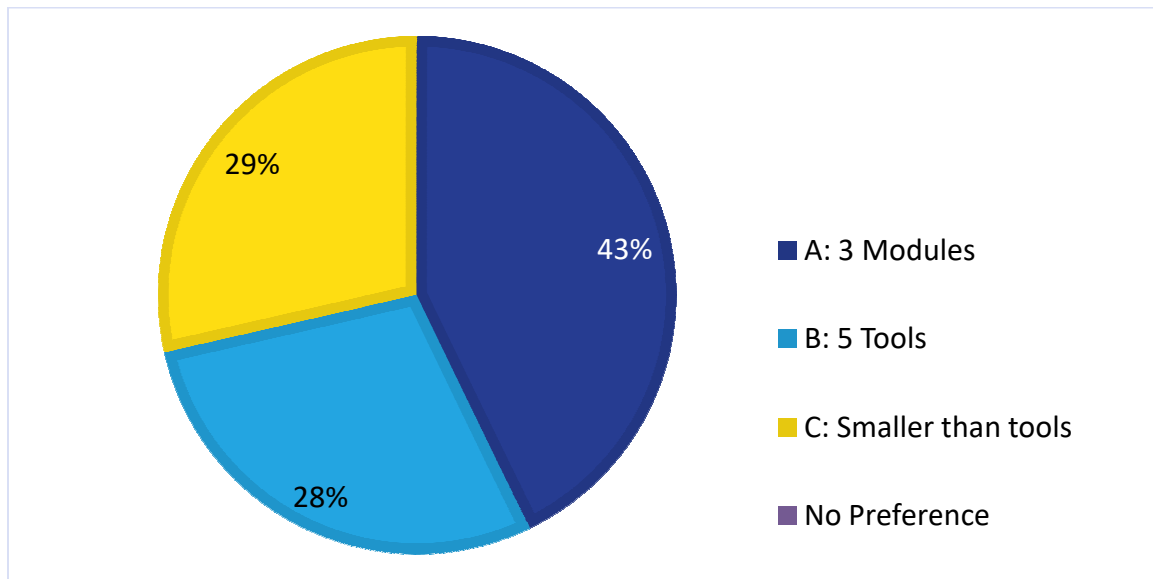


Figure 2: Distribution of answers for the expected product granularity

The answers, as well as the explanatory comments show very different assumptions regarding the way customers deal with the topic of IT security. The range extends from the sale of small single tools to solve isolated problems to the conviction that customers are not interested in tools at all but only in complete services.

The result shows that there is not yet a common sufficient understanding of the needs and attitudes of potential customers among the project partners.

It could be necessary to segment the market because there might be different clusters of needs. Segmentation approaches are, for example, the company size or the role in the energy system (producer, TSO, DSO). In the end, there could be different marketing strategies for different segments.

In summary, the project should follow the majority of the answers and focus on module-granularity. However, there should be also the possibility to buy the complete toolkit at once. For customers that only want one of the tools, there should be also an option, but this should not be put into the focus of the project and not be highlighted in product communication because it fails to provide the major USP.

Additional comments support the impression of the figure:

- At least one of the three modules [should be the minimal project granularity] – this is the basic idea of EnergyShield.
- The modules might in some cases be too large to be used.
- Even smaller components than the 5 tools as should be the minimal project granularity available to potential users. It might be easier to clarify the IPRs for small components.
- There should be smaller buyable packages about of the size of the 5 tools, and each component might have optional features & variations to buy.

Customers might tend to do one tool after another instead of one very large project, since large projects are risky. Some tools might require changes in the environment. It would be good if every customer can start with the tool that he wants. However, the tool should not be in the focus of exploitation and communication – more emphasis should be on the process and benefits.

- It would be the best for the customer to get all modules at once, but as a minimal granularity, the customer may start with one tool.
- The minimal granularity on tools-level would fall short the vision EnergyShield. Other companies successful sell larger packages, e.g. for SOC's. Companies would like one big complete solution and one contractor in charge.
- A specific tool combination could be set as a basic ES buyable package (e.g. basic version of VA, DDoSM & SIEM).

3.2. CUSTOMER SIZE

This section deals with the question whether the development of the ES-Toolkit should focus on a certain company size. As an indicator for the size, the number of employees is used as this is often related to the complexity of a company. A simplified categorization based on [ERS19] was used: Micro and small companies (< 50 Employees), medium-sized (50 to 249 employees), large companies (> 250 employees). However, this categorization has some limitations: TSOs tend to always be large companies, and a DSO with 250 employees might not be considered to be a large DSO, while an energy service company such as a wind farm-operations-company with 100 employees might be considered large within their market segment.

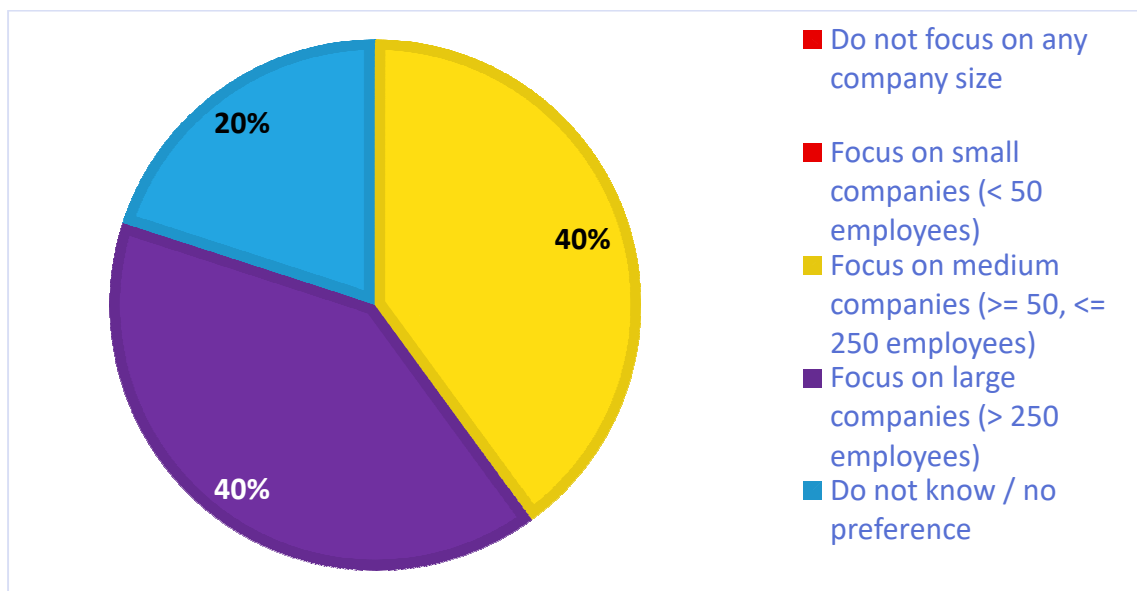


Figure 3: ES-Toolkit related to company size

Most of the interviewed project partners prefer having an initial focus on medium-sized and larger companies for the development. This can also create a product that is suitable for smaller companies. This idea was preferred in contrast to the answer to have no focus (i.e., to focus on all company sizes). In this context, medium-sized companies are considered particularly innovation-savvy and thus a good market entry segment.

Additional comments relativize a few impressions of the survey results shown in Figure 3:

- Medium-sized companies might be good adopters of such a new solution that requires some installation and configuration effort.
- Any company with mission critical tasks of any size might be able to benefit.
- We expect it makes sense to first focus on the requirements of larger companies and generalize later. Larger customers might be easier able to provide the required resources for first projects.
- Medium-sized have flexibility and faster in adapting new technology. They want to invest.

3.3. SERVICE OFFERING AND OTHER PRODUCT COMPONENTS

In addition to the delivery of the software, customers require additional services and other components such as documentation. The project partners were asked to estimate the market requirement for different types of services for the EnergyShield toolkit. For this purpose, a list of possible services was given and each service had to be rated into the categories “Low”, “Medium” and “High”.

The answers on service relevance are summarized in Figure 4 with extended statistics provided in **Error! Reference source not found..**

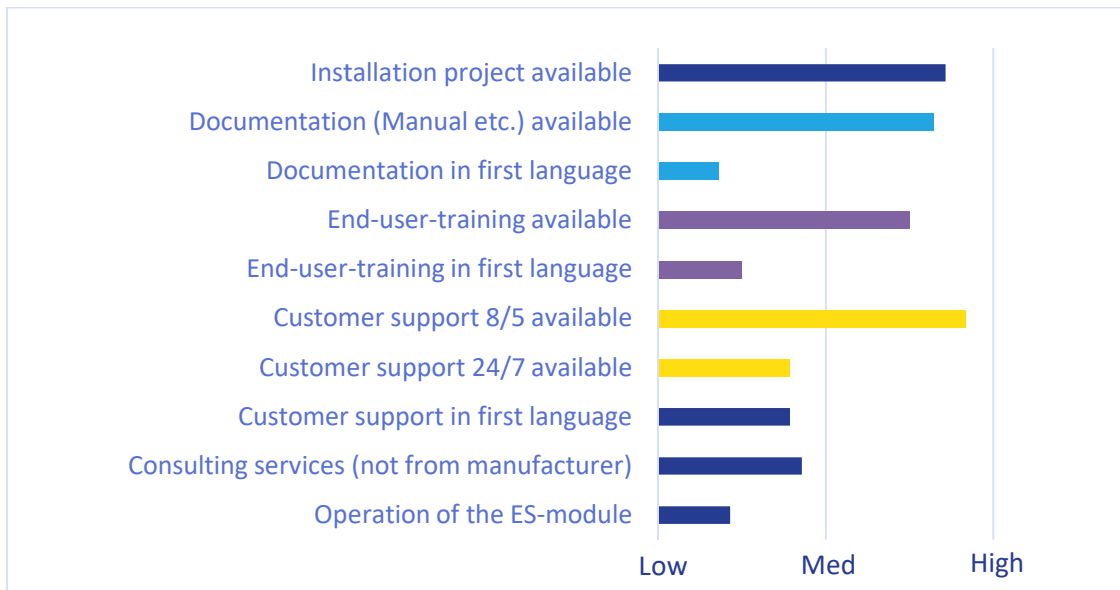


Figure 4: Average value of all assessments for service importance.

Table 1. Summary of answers on service importance. (1=Low, 2=Medium, 3=High)

Service	Mean	Median	Min.	Max.	Var.
Installation project available	2,7	3	1	3	0,49
Documentation (Manual etc.) available	2,6	3	1,5	3	0,34
Documentation in first language	1,4	1	1	2	0,19
End-user-training available	2,5	3	1,5	3	0,36
End-user-training in first language	1,5	1	1	2,5	0,36
Customer support 8/5 available	2,8	3	2	3	0,14
Customer support 24/7 available	1,8	2	1	3	0,56
Customer support in first language	1,8	1,5	1	3	0,70
Consulting services (not from manufacturer)	1,9	2	1	2,5	0,19
Operation of the ES-module	1,4	1	1	2	0,24

With relatively low variance (only one outlier), the availability of an installation project was of high relevance. It is expected that the average customer does not want to install and integrate the software themselves.

A high importance was identified for product documentation in English language such as manuals. Only a low importance was identified for documentation in the first language of the customer. Especially cybersecurity and IT-experts in the energy domain might be more used to documentation in English language than the common system user in the energy sector.

There was a large agreement on high importance for 8/5 customer support (i.e., Monday to Friday at office hours) by EnergyShield. Most participants in the interviews considered 24/7 (i.e., customer support at any time on any day of the

week) as being too expensive to be provided within the next few years by EnergyShield. Since companies such as DSOs and TSOs are 24/7-companies, there need to be mechanisms in the product or sufficient workarounds (e.g., restart a tool, deactivate a tool), such that 24/7-support are not an absolutely essential part of the product. The availability of customer support in the first language of the customer could be summarized to medium importance.

The availability of consulting for ES independently from the tool providers was identified to be low and medium. However, cybersecurity consultants are very important for EnergyShield because of being a multiplier for exploitation and a potential partner sales channel, as described in the EnergyShield Deliverable 8.1 “Exploitation Plan Draft” [EPD19].

Full-service solutions (outsourced operation of the ES modules) also hardly play a role in the answers. This is to some extent surprising because smaller companies in particular will hardly have the necessary resources at their disposal. However, this conclusion might result from the focus on larger companies (see Section 3.2).

Additional non-aggregated comments during the interviews:

- It would be too high a barrier for ES if no installation project is provided – only very large customers might have their own employees for installation.
- The Installation Project is very important – ES should provide turnkey solutions.
- First language documentation of sufficient quality might be generated with translation software.
- For some conservative customers, the (technical) manuals are essential. Documentation in first language may be considered an unnecessary cost for modern customers.
- End-user-training is important for such non-trivial systems.
- A high level of customer-support is required for security issues. For some issues a simple “just restart” might be enough. In some cases, it must be known when it is time to “stop all network connects to the outside”.
- First language customer support is important – not all operators (especially during the night) might speak English.
- Offering consulting services might be very important because it also has the potential to be the primary sales channel. Such security tools require an in-depth explanation.
- There might be a strong variation in answers depending on the type of customer. English-only-services might be acceptable for some customers in the context of security, because IT-experts are more used this, in contrast to other departments of the customers.
- 24/7 for OT components usually by some integration partner and not by ES.

- An operation offer (i.e., full service with outsourced operation of the ES modules) would be nice – “EnergyShield as a Service” or a specialized SOC as a Service. In other domains there are successful offers of this type.

3.4. TOOLKIT & TOOLKIT CONVENTIONS

An important question for the success of the EnergyShield toolkit is the extent to which the single parts (e.g., tools and modules) are *uniform*. From another point of view, what does “toolkit” really mean? Two extreme interpretations are:

- The toolkit is just a marketing umbrella with a shared logo and shared market communication, but from a technical point of view, the tools are completely independent and have nothing in common.
- The toolkit is a combination of homogenous tools on a shared technical platform with the same look & feel. All tools operate hand in hand (interfaces between the tools, shared services and shared data models) and have a high level of integration. Additionally, the development processes, coding standards, design guidelines, continuous integration, customer service, sales contracts etc. are all aligned or identical.

A discussion about the very technical details of the uniformity of the platform is not part of this document - the technical requirements are part of D1.1 “Technical Requirement Specification” [TRD19].

A selection of the project partners where asks how important uniformity it is on various technical and non-technical dimensions in order to meet the market requirements for EnergyShield. The results are summarized in Figure 5 and **Error! Reference source not found..**

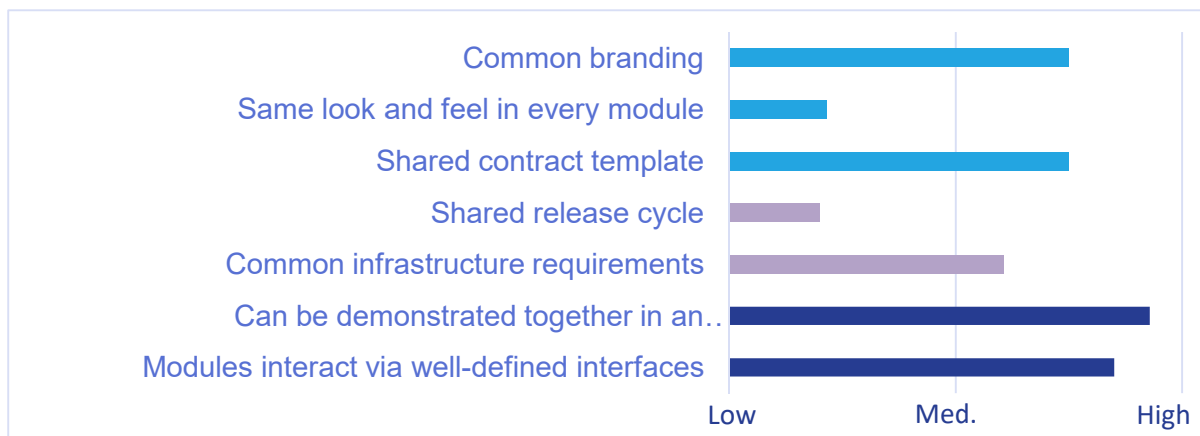


Figure 5: Average value of all assessments regarding uniformity

Table 2. Summary of answers on toolkit uniformity. (1=Low, 2=Medium, 3=High)

Toolkit dimension	Mean	Median	Min.	Max.	Var.
Common branding	2,5	3	1	3	0,60

Same look and feel in every module	1,4	1	1	3	0,53
Shared contract template	2,5	2,5	2	3	0,20
Shared release cycle	1,4	1	1	3	0,64
Common infrastructure requirements	2,2	2	1	3	0,56
Can be demonstrated together in an online environment	2,9	3	2	3	0,12
Modules interact via well-defined interfaces	2,7	3	1,5	3	0,36

The majority of the interviewed partners considered the importance for a common branding for the parts of the toolkit. Each module and tool should be recognizable as being a part of EnergyShield, e.g., by presenting the logo in the GUI. However, a low importance was stated for aligning the complete look and feel, because this would require much more effort than just some general common branding.

There was a very high agreement on the point that there should be some general shared contract template for selling the EnergyShield toolkit and its parts. Therefore, the opposite of having individual templates for each module in EnergyShield was rejected. The participants of the interviews were aware that there might be some differences in the details of the modules (e.g., some are OT and some are IT tools without the requirement for continuous operation).

Most interviewed partners gave a low importance to synchronizing the release cycle of the tools. An alternative method must be chosen in order to reduce the chance that customers experience too many tool version incompatibility issues. It was stated that tools might have different release cycle requirements and a synchronization will violate these requirements.

There was no clear consensus on the importance of common infrastructure requirements. For instance, it was discussed whether it is acceptable to customer if different EnergyShield tools require database management systems from different vendors. Some interviewed partners saw a high requirement for alignment in this point, while others argued for the opposite position.

The majority of the interviewed partners pointed out a high importance for having a relatively complete demo kit (e.g., online demo kit) and that modules have to interact with each other via well-defined interfaces.

Additional statements by the partners:

- The question is whether EnergyShield is a platform or tool suite. A platform is more promising.
- EnergyShield should be an umbrella brand but the tools should still have their own individual visual identity.
- Some customers might accept heterogeneous technology (e.g. DBMS) but it is more expensive for them.

All project partners largely agree that it is very important that all tools are integrated in a common context. This applies to the external presentation (branding) as well as to the design of the supply and service contracts.

The technical design, on the other hand, does not have to be coordinated in detail, since the different tools are also aimed at different users in the company. The heterogeneity of the technical requirements of the individual tools must not, however, unnecessarily drive up the costs for the customer. SaaS solutions for all tools should be run by the same hosting or cloud provider. Hardly any customer will be willing to manage a separate provider for each tool.

3.5. RELATIVE TARGET POSITION COMPARED TO THE COMPETITION

An important question for the marketing of a product is the unique selling proposition (USP) and the relative placement in the market compared to competitors (in 2022 – 2025). Therefore, it was discussed how EnergyShield should be positioned regarding certain aspects such as quality, brand reputation and price compared to other cybersecurity providers in the energy sector.

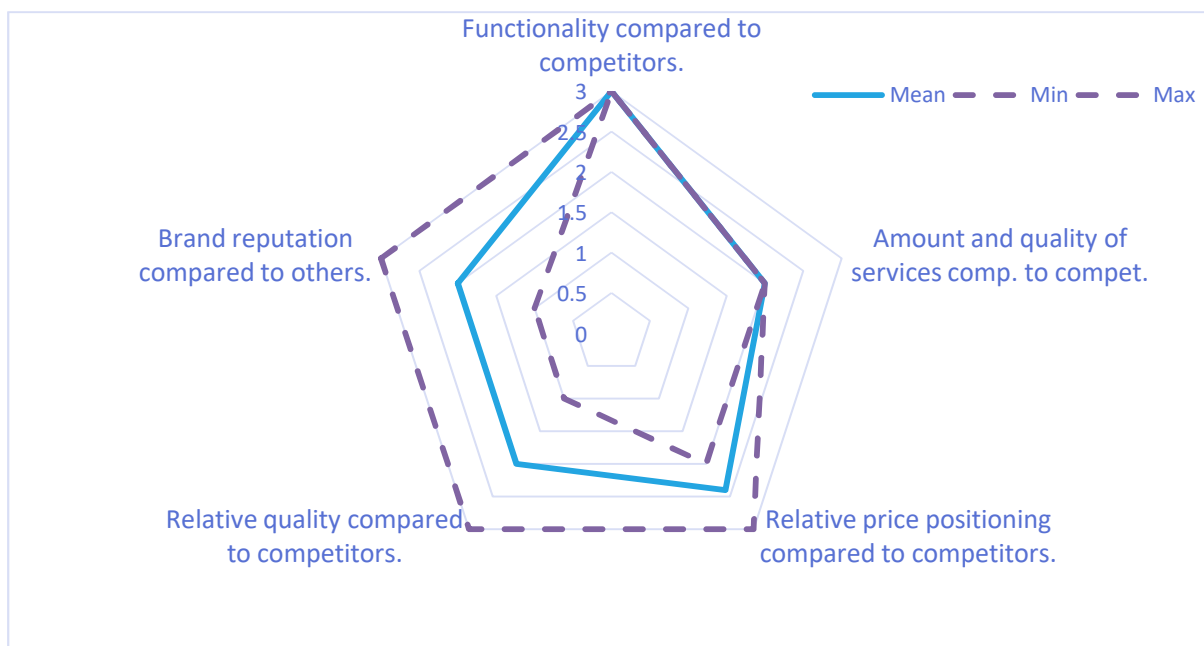


Figure 6: Average value of all assessments on the relative positioning of EnergyShield. (1=Low, 2=Medium, 3=High)

Table 3. Summary of answers on relative product positioning. (1=Low, 2=Medium, 3=High)

Product dimension	Mean	Median	Min.	Max.	Var.
Functionality compared to competitors.	3	3	3	3	0,00
Amount & quality of services	2	2	2	2	0,00
Relative price positioning compared to	2,4	2	2	3	0,24

competitors.					
Quality compared to competitors.	2	2	1	3	0,40
Brand reputation compared to others.	2	2	1	3	0,40

Figure 6 shows the average relative market positioning regarding attributes such as price, quality and services that EnergyShield should take.

The interviewed partners were uniform (no variance) with setting the functionality on “high” compared to competitors. The main reason this can be achieved is based on the USP-claim of EnergyShield to uniquely combine the single tools into integrated modules and providing with this more functionality than single tools or non-integrated toolsets of competitors.

Similarly, all interviewed partners had no variance in defining the amount and quality services to medium. This means that the level of services should target the average compared to the market – in other words it is the goal not to be worse and not to be better than the average competitor in the domain of cybersecurity products for the energy sector.

There was some small variance on the answers regarding the price. Most answers were towards addressing a medium price level. Some other answers argued for a high price with the argument that EnergyShield can claim a higher price because of more functionality than the competition.

There was low confidence (i.e., large variance) in the opinions on quality and brand reputation. In both cases there were answers that stated that a low level can only be addressed, mainly because of the reason that EnergyShield will be new to the market and a relatively new product. It was argued that getting a medium or high brand reputation right from the beginning is a too a goal and would require too large invests and focus on brand reputation building. On the long term, the interviewed partners agreed on medium to high brand reputation. Some positions on quality was that EnergyShield should not first aim to reach medium or high quality, before first projects, it was more important to be early in the market. Other positions on quality were that it is essential to aim for high quality right from the beginning for cybersecurity products. On average there are medium goals for positioning regarding quality and brand reputation (for the next few years).

It was discussed that it is also necessary to clarify additional non-functional product characteristics, such as the location of suppliers and service providers or which legal regime they are subject to. These questions play an increasingly important role, especially in safety issues, where states must also be regarded as a potential threat.

In summary, all respondents considered a particularly good functionality in relation to the competition to be particularly important, as this supports the USP. This is the dimension which is the most important to focus on in the development of the EnergyShield toolkit.

4. LICENSING & PRICING

4.1. TRADITIONAL VS. SUBSCRIPTION-BASED LICENSING

Two major alternative models of software licensing are (e.g., [CMA07]):

- the more classical one-time payment for time-unlimited use (“perpetual license”) with up-front-payment in combination with (time limited) maintenance contracts, and the
- Subscription based license contracts that limit the right to use a software to some time period, such as a year. Subscription contracts usually include the maintenance and other service into the license fee.

In practice, both categories may include additional terms such as a limit on the number of users or that only specified named users are allowed to use the software. Based on our experience, subscription-based contracts for software are increasingly gaining acceptance in the energy sector, but still are less common than in other domains.

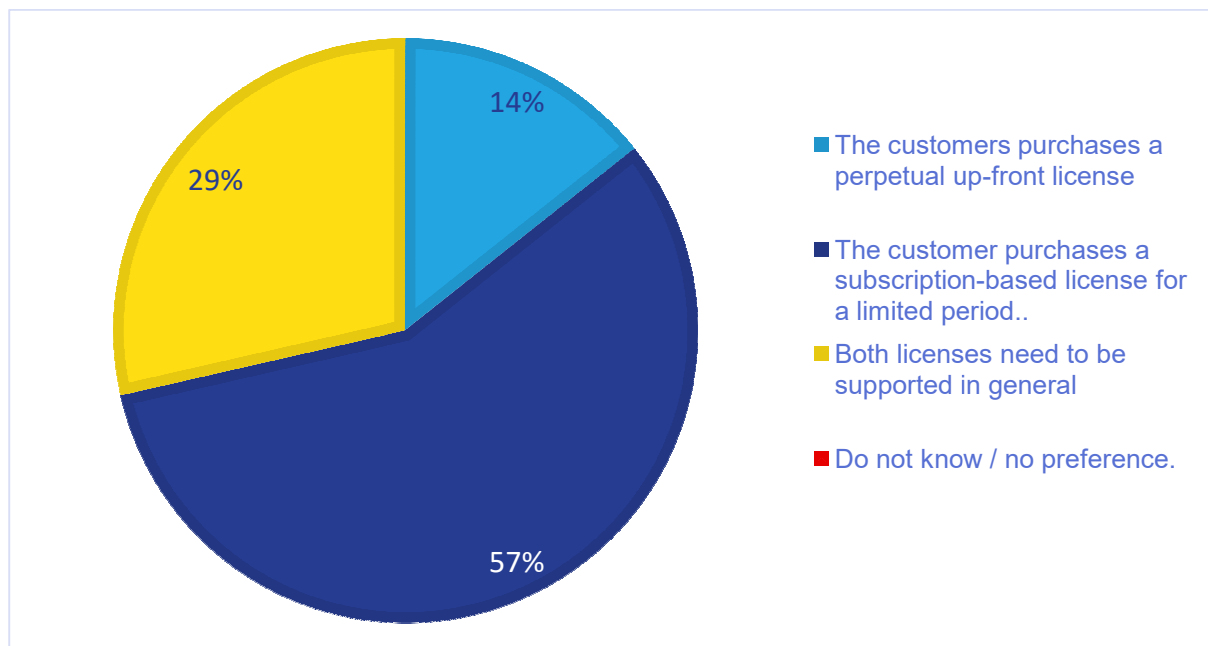


Figure 7: Expected most suitable license model.

As shown in Figure 7, a majority of the partners plead for subscription-based licenses. Some, however, assume that this model is not generally enforceable since customers might have for instance situation-specific-constraints and that a classic license model with unlimited use and supplementary maintenance contract should therefore also be offered. Especially for the on-premises software tools of EnergyShield, the traditional “perpetual” up-front license might be still more preferred by many customers in the energy sector.

4.2. RELATIVE EFFORT OF INSTALLATION AND INTEGRATION

In addition to the purchase of software tools, the corresponding installation and the integration requires considerable effort. To understand the nature of the EnergyShield offering and to set the direction in terms of requirements, selected project partners were asked in what ratio the license fees for a typical deployment are expected to be to the costs for an implementation project. Obviously, especially software license fees can be the result of very strategic pricing and might have nothing to do with the actual costs or complexity of a product. However, this question was indented to analyze whether the nature of the EnergyShield toolkit it something which is considered more plug&play (i.e., basically zero installation and integration effort) or if it is inevitable that installation and integration costs dominate a project calculation for a typical customer.

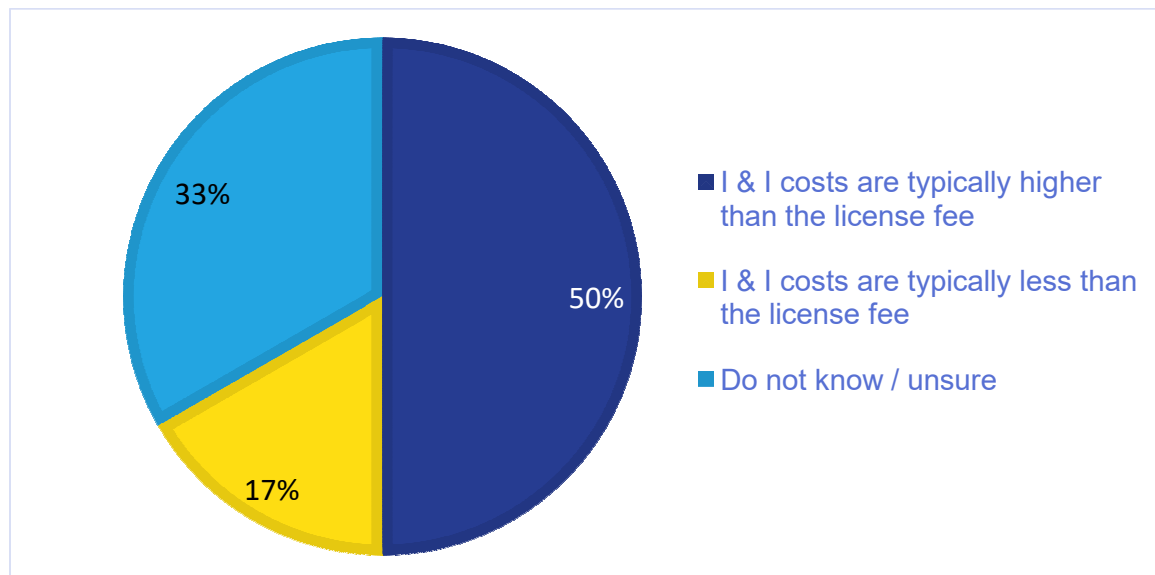


Figure 8: Expected and targeted cost relation between licenses and the implementation project.

As shown in Figure 8, there is no clear picture on this issue, but a majority expects that the integration and installation part of a project will dominate license fees in a typical project. This also indicates that it is not expected by the participants of the interviews that installation and integration costs can be reduced to a minor position, although this would be desirable. From a requirements point of view, the development should try to reduce installation and integration costs. It is our conjecture that there will be no plug and play for similar new security tools in this domain (based on a reasonable development budget). However, maybe it will be possible (e.g., for the SIEM) to train the users, so that they can do a lot of the installation & integration on their own. One interviewed partner expects that 1/3 license fee and 2/3 implementation costs is a reasonable and realistic estimate that could fit to the market for the time period 2022 – 2025.

However, the interviews also showed that the amount of integration and installation costs depend on the type of the module. The anomaly detection and DDoS mitigation tools in EnergyShield might be relatively easy to integrate compared to competitors, however, still there is some effort (even hardware installation for the OT anomaly detection). The SIEM of EnergyShield will aim for standard interfaces to other EnergyShield modules, but still it is a SIEM and SIEMs typically are systems that are to be integrated with many other systems for the highest benefit.

In some cases, the relation might also depend on the size of the company (e.g. training to historical data / knowledge).

Implementation efforts (i.e., installation and integration) are often considerable, whereby the integration into heterogeneous existing system environments is often also connected with a considerable planning risk. At the same time, high investment costs, which often burden the company's equity capital, also represent a high psychological threshold for customers. It therefore makes sense to carry out a total cost of ownership analysis as a basis for price modelling in the further course of the project.

4.3. LICENSE SCALING

Besides the question of a perpetual license or subscription based license, which is addressed in Section 4.1, license fees usually vary in addition on other criteria in order to fit to the budget. In many cases the goal of license fee design is to fit the license price to the value to the customer and to achieve a fair price for both sides. The required functions of software are often largely independent of the size or Company size complexity of a company, but the same does not apply to its willingness or ability to pay. Quantitative metrics that are related to the task to be solved are particularly suitable for this.

The following attributes / metrics have been identified in the interviews (with descending presence in the interviews):

- **Functionality** in terms of the ES-modules selected by the customer (each module might have an individual price)
- **Company size** (larger companies might have larger benefits and larger budgets than smaller companies)
- Number of used or monitored **servers**. E.g., the number of servers on which the software is installed
- Number of **interfaces** and APIs monitored or protected by EnergyShield. For the OT-Anomaly-Detection in EnergyShield, an equivalent metric could be the number of connected IOs (input/output connectors).
- Amount of **traffic** (e.g., in terms of Gbit/s; a common metric for hardware firewalls)
- Level of **support** needed (however, this might also only be part of the service and maintenance contract and not part of the license price calculation).

The answers indicated that it can be difficult to standardize the metrics over all tools, modules and the toolkit for a shared sales contract template. Additionally, some metrics might be difficult to measure, while others such as company size are easy to get.

It was considered an important point to have metrics in the concrete licensing model that enables potential customers to start with ES small and grow.

For price models to be accepted, they must be comprehensible for the customer. However, very simple license models could increase the importance of the price in procurement decisions; there are many reasons in B2B markets to prevent this. For instance, there is the danger that the cheapest price will be the decisive factor in the end. Therefore, it is probably best to combine several parameters. So that customers with different structures can be priced individually without losing the advantage of standard price lists.

5. SAAS, INSTALLATION AND PARTNERING

5.1. SAAS HOSTING AND INSTALLATION IN THE CLOUD

A modern way of operating IT infrastructures is the SaaS approach. It can reduce the customer's costs as it outsources the installation and maintenance of the software. This is a particular advantage for companies whose core business does not concern IT and thus developing and maintaining additional competencies in peripheral areas can be avoided.

It should be mentioned that especially large TSOs, DSOs and other operators of critical infrastructures in the energy sector are so far not using cloud services to any larger extent.

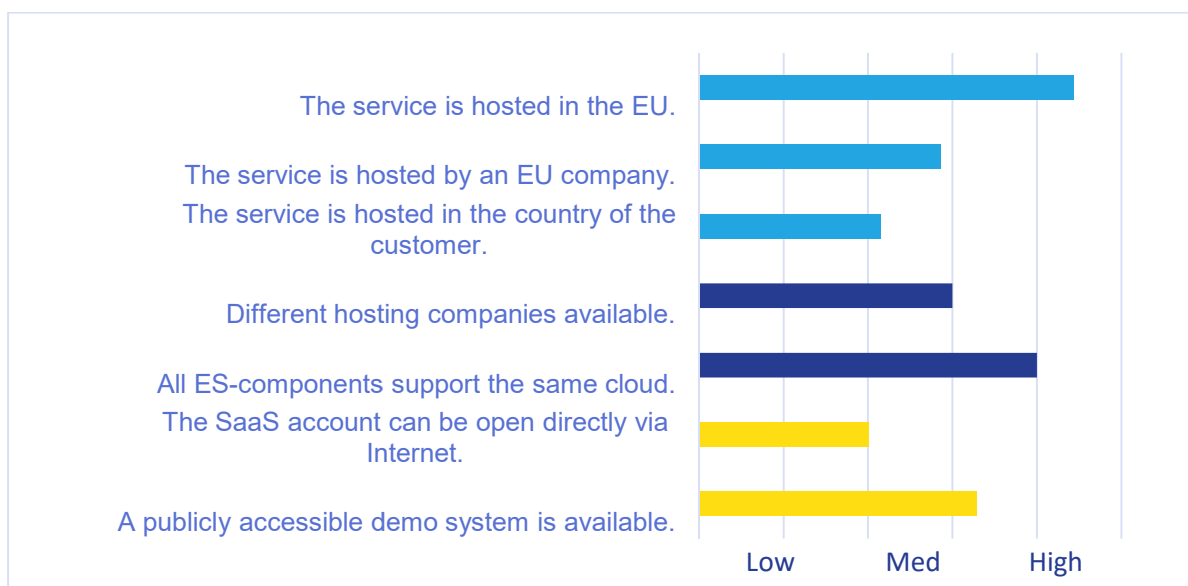


Figure 9: Expected importance of several SaaS aspects.

Table 4. Summary of answers the importance of different SaaS and could hosting aspects. (1=Low, 2=Medium, 3=High)

SaaS aspect	Mean	Median	Min.	Max.	Var.
The service is hosted in the EU.	2,7	3	1	3	0,49
The service is hosted by an EU company.	1,9	2	1	3	0,74
Service hosting in t. country of t. customer.	1,6	2	1	2	0,24
Different hosting companies available.	2,0	2	1	3	0,57
All ES-components support the same cloud.	2,5	3	1	3	0,50
The SaaS account can be open online.	1,5	1,5	1	2	0,25
An online demo system is available.	2,1	2	1	3	0,41

The results from the interviews are presented in Figure 9 and **Error! Reference source not found..**

There is a large agreement that it is of high importance that a potential cloud hosting (i.e., the data center) is in the European Union. International cloud hosting companies such as Microsoft's Azure and Amazon's AWS provide this option.

There was a significant amount of variance related to the question whether the cloud operator must be a European company. This resulted in a medium importance for this aspect. However, there should be the awareness that some companies that operate critical infrastructures might be allowed to use data centers that are operated by companies that are primarily subject to non-EU-legislation and that have to report to national security agencies of non-EU-countries. One interviewed partner pointed out that EU based server might be more expensive and maybe not better in terms of service.

A medium importance was identified for that potential customers might also require that the cloud data center is in the company of the customer. This might depend very much on the customer and on the availability of data centers in the country of the customer.

An online demo account is important, but the toolkit is a non-trivial software, and the demo account will be primarily used by experts / sales together with a customer. The customer will not use the demo account should not use a demo account for the toolkit alone. With SaaS solutions, also the supply of a demo system is always suitable for the sales support. This does not have to be publicly accessible, however, but it is enough if it can be used in the context of a classical selling project.

5.2. METHODS OF INSTALLATION

Directly in connection with the supplier is the question of who carries out the implementation project for the ES modules. The range extends from the customers taking full responsibility to the complete handling by a turnkey supplier.

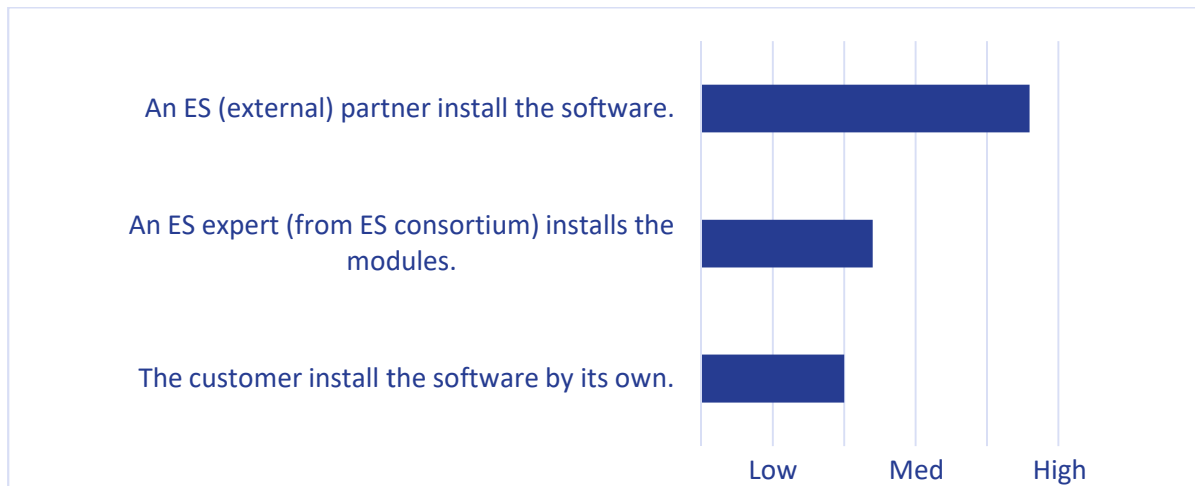


Figure 10: Preferred methods of system installation

Figure 10 shows how the interviewed partners set the priorities for installation by external partners, by EnergyShield-internal experts or by the customer themselves.

Nearly all interviewees prefer to focus on (project consortium external) specific partner who takes over the overall implementation of the security concept.

This does not mean that the industry partners of the consortium are not suitable parties for performing implementation projects. However, it is of highest importance to enable the vast majority of potential partners that are not part of the EnergyShield project consortium, and which have therefore much less knowledge about the EnergyShield project.

Support for DIY installations by customers is only of low importance. However, some customers might want to understand every detail about how to install and integrate EnergyShield into their infrastructure, before they allow the installation by somebody else.

5.3. ENABLING THE TOOLKIT FOR PARTNER ACTIVITIES

An important question for the product management is whether the ES modules should be sold and supported directly by the manufacturers or whether this should also be done by third parties (also called “partners” in the following text). In the second case it is necessary that the toolkit and related services must be partner-capable, which entails a clearly higher development expenditure for the tool manufacturers.

The following results show how important it is that the EnergyShield tools and toolkit support partners regarding several tasks ranging from pure sales partnerships to the possibility to extend the modules with functionality.

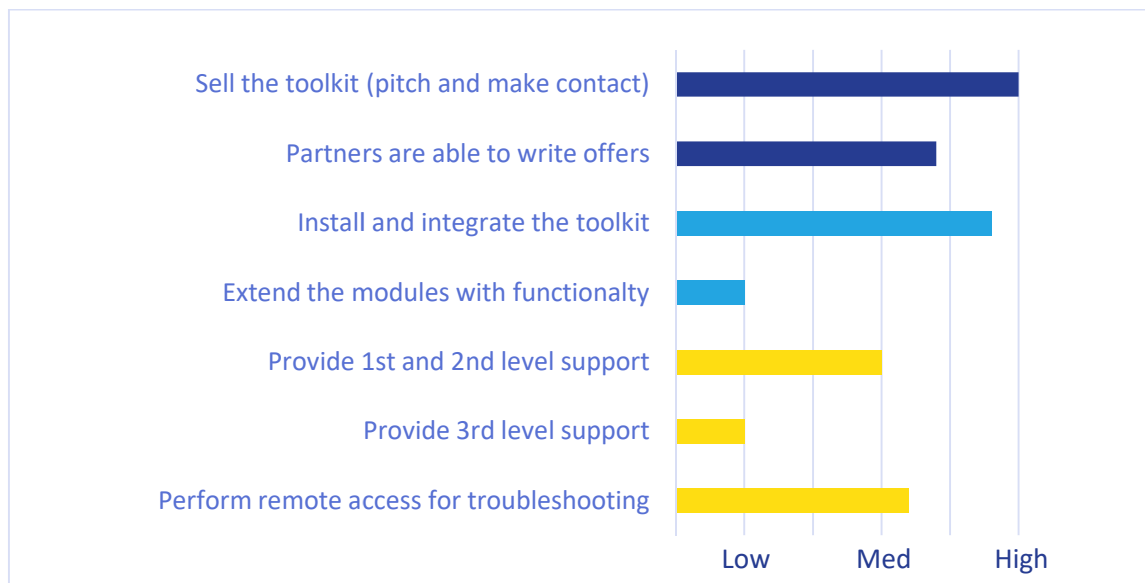


Figure 11: Importance that the tool supports and enables certain partner activities.

Table 5. Summary of answers the importance that the tool supports and enables certain partner activities. (1=Low, 2=Medium, 3=High)

Toolkit enabling for partners	Mean	Median	Min.	Max.	Var.
Sell the toolkit (pitch and make contact)	3	3	3	3	0
Partners are able to write offers	2,4	2	2	3	0,24
Install and integrate the toolkit	2,8	3	2	3	0,16
Provide 1st and 2nd level support	2	2	1	3	0,4
Provide 3rd level support	1	1	1	1	0
Perform remote access for troubleshooting	2,2	2	1	3	0,56
Extend the modules with functionality	1	1	1	1	0

The interview results in Figure 11 and **Error! Reference source not found.** show that there was a strong agreement on a high importance that third parties are able to sell the toolkit and also to write offers. This could include that these partners are able to demonstrate the tool and that they have a good understanding of the functionality and limitation.

The third and fourth row in Figure 11 and **Error! Reference source not found.** see a still high importance that third parties are able to install and integrate EnergyShield components. This is very important in order to satisfy a large number of potential customers, as it will be very difficult to satisfy a strong rise in demand with own employees and some of the EnergyShield technology providers want to focus their business model on software development instead of executing installation and integration projects.

It was considered of low importance that partners can integrate own functionality into the modules.

There was no clear agreement on whether partners should be able to perform first and second level support and whether partners should be able to perform remote access to a customer installation for troubleshooting. Some argued that larger customers will have their own IT department or their default IT partner for 1st and 2nd level support and that these need to be enabled for basic support tasks. However, there was a strong agreement that in the next few years, there should be a low priority on enabling the partners to perform 3rd level support (e.g., removing bugs from the software by software development).

One interview partner made it clear that not every partner might have all skills: some partners might be specialized on sales, others might be able to install and integrate modules partners.

6. SERVICE, MAINTENANCE AND CUSTOMERS SUPPORT

6.1. VALUE WITHOUT SERVICE AND SUPPORT CONTRACTS

To determine the importance of service and support contracts for the customers, selected partners (mainly technology providers) were asked to estimate how much value the ES toolkit (or its modules) will be to the customers without service and support contract. In other words, would customers use the ES toolkit and tools without a maintenance contract? For some products such as traditional virus scanners, there is little value in using the software without a contract that provides regular access to up-to-date virus pattern databases.

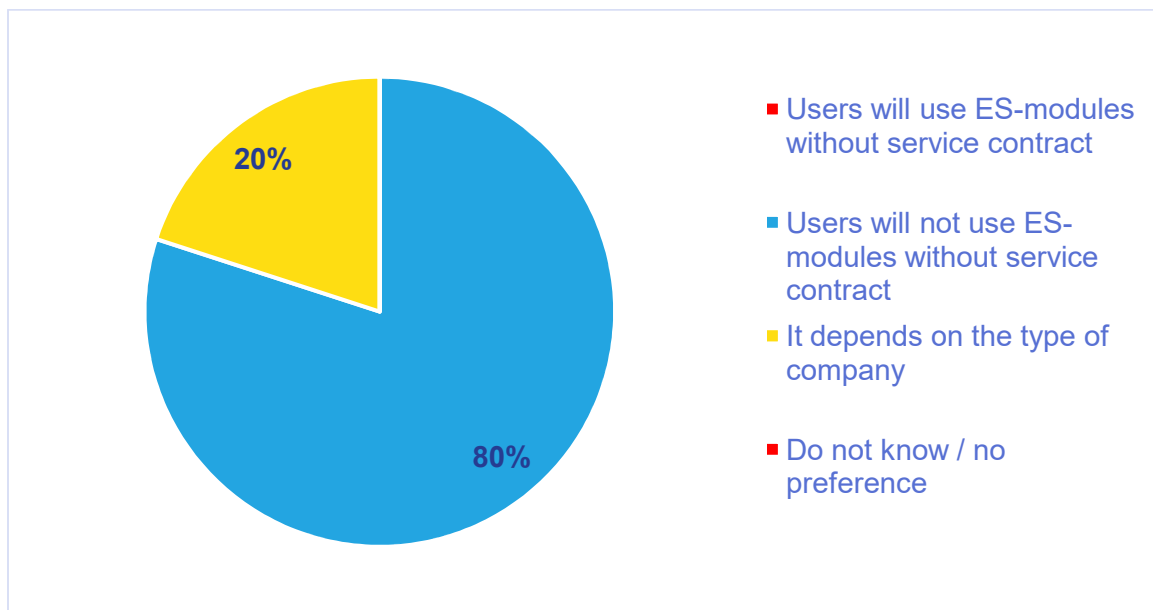


Figure 12: Value of the EnergyShield software without support contracts.

As shown in Figure 12, it is expected by the interviewed partners that customer will not be able (or not want) to use the EnergyShield software without service and support contracts. It can be concluded that there is no strong need for license enforcement, such as software protection dongles and that service, and that support contracts are a good possibility for negotiation for the EnergyShield partners.

Only a minority of the interviewed partners imagine that customers would use security solutions without a maintenance contract. The answer to this question appears to depend on the EnergyShield module. For the EnergyShield modules that are not continuously operating, such as the Security Behavior Analysis Tool, a larger share of customers might accept to use the tool without a support or service contract. For other tools that continuously operate in critical areas of the OT-network, such as the Anomaly Detection Tools, it might be even not allowed by internal guidelines to install the software in the production environment, without an active service and support contract, since a failure could stop critical processes.

6.2. MODULE SPECIFIC SERVICE CONTRACTS

One major question on service contracts for the EnergyShield toolkit is about uniform service contracts for all ES modules. This could be desirable or required from a customer's point of view but there might be also a risk that the modules and tools are too different for uniform maintenance contracts, so that individual contracts are more suitable.

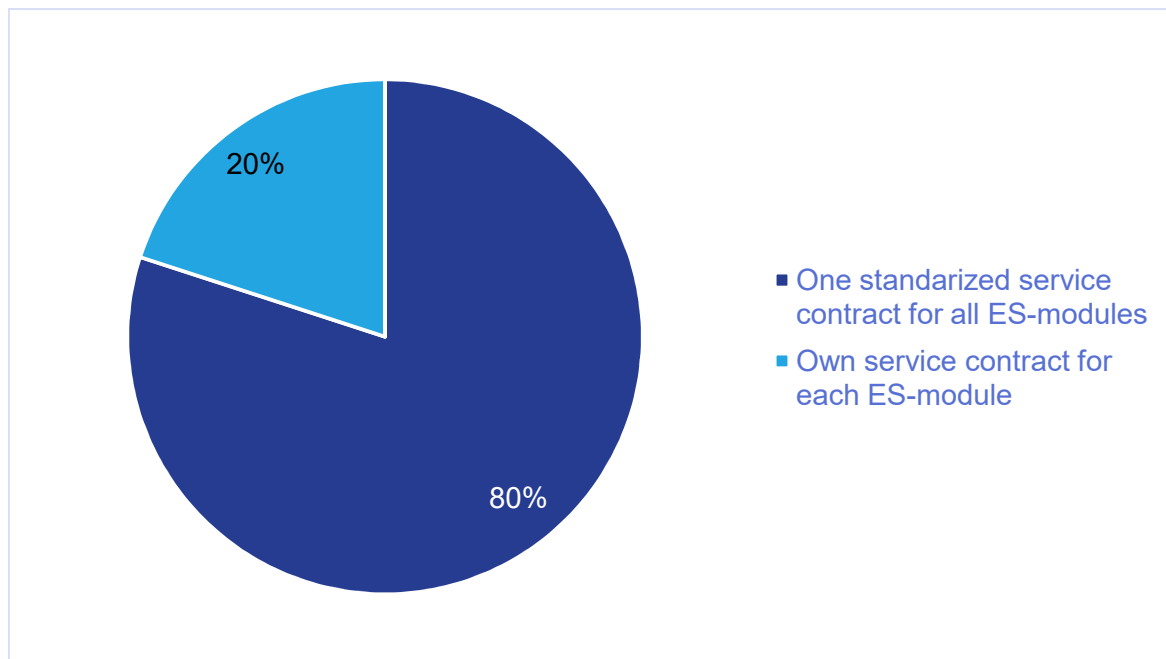


Figure 13: Unified service contracts.

As shown in Figure 13, the interviewed partners almost unanimously support the approach of uniform maintenance contracts in order not to create additional usage hurdles for the customers. One interview partner pointed out that this might be complicated, but it should be closely investigated since it would be important for the customers to have standardized contracts and SLAs.

6.3. FREE SERVICE PERIOD INCLUDED

This question deals with the extent to which further support services are already included in the initial licenses. This concerns maintenance services that go beyond the statutory warranties.

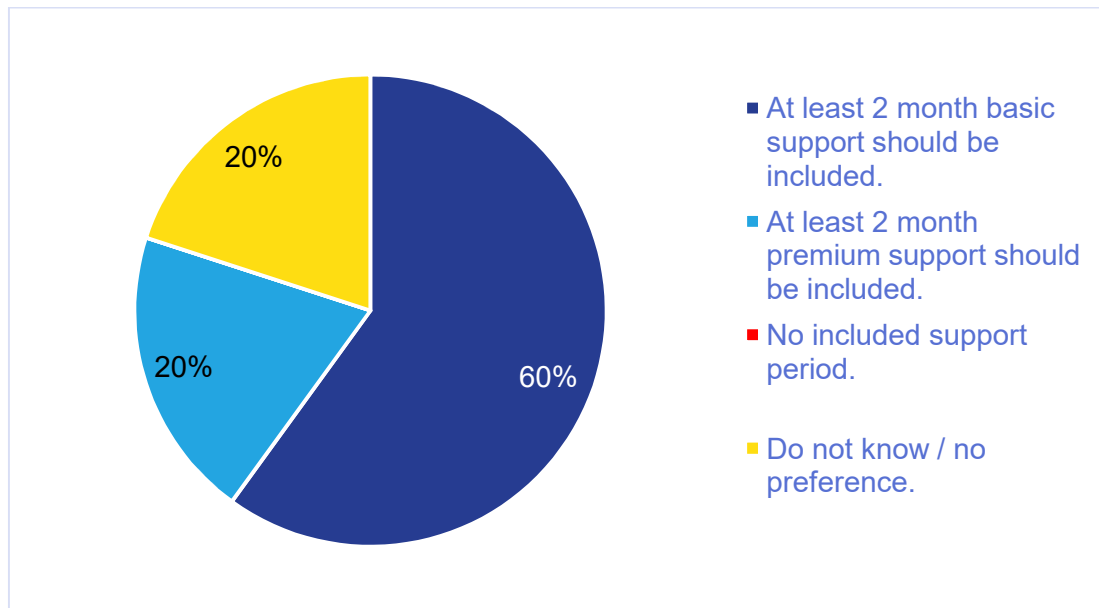


Figure 14: Some free support period should be included.

Figure 14 summarizes that a majority (60%+20%) of the interviewed partners requested that at least two month of at least free basic support services should already be part of the implementation projects or the initial licenses. Some of the interviewed partners even requested 6 months of free basic support included or that at least some period of premium support should be included. There could be a risk that all-inclusive prices weaken the negotiating position vis-à-vis the customer, since the content of the offer can then hardly be adapted to a lower willingness to pay.

6.4. UPGRADES INCLUDES

This question refers to whether the maintenance contracts by default should already include the upgrade for newer versions of each module.

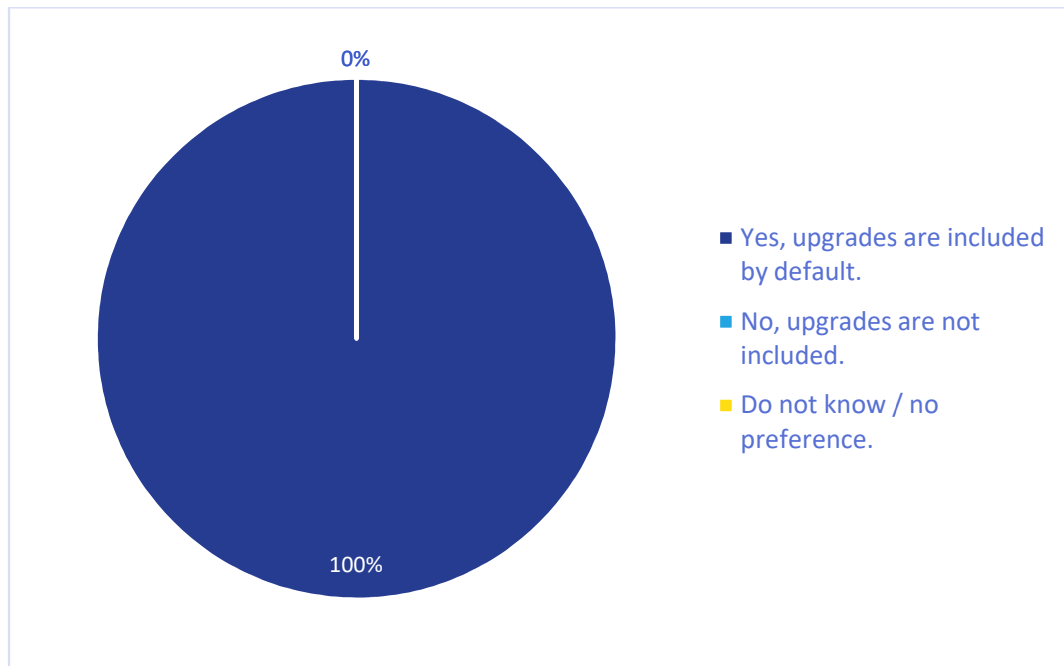


Figure 15: Should upgrades included in service contracts

As shown in Figure 15, the interviewed partners are unanimous in their opinion that the upgrade should be an integral part of the maintenance contracts. It was mentioned that this is also now common practice for major operating systems and helps in combination with subscription license contracts to continuously provide good software quality. However, this could weaken the negotiating position of EnergyShield, as it would increase price transparency (which would put additional pressure on the seller's prices) and restrict the possibilities for variation in the negotiations.

7. CONCLUSION

7.1. SUMMARY

This document provides commercial requirements for EnergyShield to be successful in 2022 – 2025. The requirements were estimated in interviews with cybersecurity experts and energy sector experts from the consortium. Together with other requirement documents, it will direct the design of the EnergyShield solution, including commercial aspects such as the license model, product definitions, contract templates and business modules.

The most suitable product placement is estimated to strongly focus on superior functionality resulting from connecting the single tools. A medium level price, amount & quality of services, software quality, and brand reputation should be sufficient. There was some variance in the opinions on the importance of quality and brand reputation.

A majority of the interviewed experts suggested to put a focus on a subscription-based licensing model for EnergyShield in the granularity of three modules. A significant effort is estimated for installing and integrating the product, which could create some pressure on the license fees. It was considered an important point to have metrics in the concrete licensing model that enables potential customers to start with ES small and grow over time with growing benefits and growing license fees. Some of the metrics are module-specific (e.g., amount of traffic analyzed, number of used or monitored servers).

It is expected by the interviewed experts that the EnergyShield toolkit will have little value for potential customers without a service contract (e.g., due to internal regulations, or because of data model updates). This means that service and support are an important part of the EnergyShield solution. A majority of the interviewed experts suggest that at least two month of basic support service should be included in the initial project price. Additionally, upgrades should be part of the support service contract.

The availability of documentation and end-user training in English is of high importance, as well as 8/5 customer support. 24/7 customer support is estimated to be not required at the beginning. The majority expects low importance for customer support, training and documentation in the first language of the customer.

The interviews showed that there is a need for developing a more precise understanding what the “toolkit” exactly will be from a technical point of view and from the point of view of the customers. This will require some additional clarification during the project. At least, it appears to be relatively clear that it is important that the toolkit can be demonstrated together (modules connected via well-defined interfaces), that it has common branding, and shared contract templates (instead specific contracts for each module or tool). There should be no focus on synchronizing the release cycle of all tools.

A majority agreed on a high importance for hosting (optional) SaaS components of EnergyShield within the EU. For other SaaS related questions, there was still a large variance in the answers (e.g., whether that hosting by an EU company is important). Therefore, discussions with potential users are required during the further course of the project.

The interviews emphasized the high priority of external partners. It is expected that external partners will be of highest importance for installing and integrating EnergyShield. This does not mean that the consortium partners are not suitable parties for performing implementation projects, but these are a small group compared to the amount of partners that could be required for a large success of EnergyShield. Therefore, it is important to develop the toolkit for this purpose. It is expected (high priority) that potential customers will not want to install and integrate the solution themselves.

The statements and requirements are based on current expectations. These expectations are of uncertainty, especially because of two reasons. Firstly, statements about the future are always uncertain. Secondly, expectations on unknown and non-established markets are always subject to high uncertainty. Even a very extensive market analysis could come to incorrect conclusions and would not be able to remove major parts of the uncertainty.

7.2. OUTLOOK

During the further course of the project, the uncertainty can be reduced, in particular, by being able to discuss and adjust the requirements with a sufficiently large number of customers (e.g., in joint activities with WP7).

For several questions, a significant spread between the answers could be identified. In some cases this could be based on different viewpoints, opinions and preferences to achieve success. In other cases (e.g., hosting by non-EU-company), the high variance can be based on too little knowledge about the market niche of EnergyShield. Such questions should be discussed with potential customers during the further course of the project.

In the field trials (WP6, starting in Sep. 2020), the practitioners will in detail experience the Energy Shield solution. This could provide new insights that help to improve the commercial requirements.

An analysis of the targeted market segments and major competitors (WP8) will also provide insights that could change and complement the commercial requirements stated in this document.

8. REFERENCES

- [CMA07] M.A. Cusumano, The Changing Labyrinth of Software Pricing, Communications of the ACM, July 2007, ACM, doi: 10.1145/1272516.1272531
- [GAA19] EnergyShield Consortium, H2020 Grant Agreement No. 832907, 2019-05-29, Ref. ARES(2019)3513674
- [GAA19] EnergyShield Consortium, H2020 Grant Agreement No. 832907, 2019-05-29, Ref. ARES(2019)3513674
- [GAB19] EnergyShield Consortium, H2020 Grant Agreement No. 832907 PART B, 2019-05-29, Ref. ARES(2019)3513674
- [ERS19] Eurostat, Glossary: Enterprise size, Statistics Explained, Available Online [Last access 2019-11-11]: https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Enterprise_size
- [EPD19] EnergyShield Consortium, Deliverable 8.1 Exploitation Plan Draft, Dec. 2019, EU-H2020-Grant No. 832907
- [TRD19] EnergyShield Consortium, Deliverable 1.2 Technical Requirement Specification", Dec. 2019, EU-H2020-Grant No. 832907
- [CMA07] M.A. Cusumano, The Changing Labyrinth of Software Pricing, Communications of the ACM, July 2007, ACM, doi: 10.1145/1272516.1272531

9. ANNEX: SURVEY ON COMMERCIAL REQUIREMENTS

9.1. GENERAL REMARKS

This survey intends to create input for the deliverable D1.2 Commercial Requirement Specification. Together with other Technical Requirement Specification (D1.1) and Regulatory Requirement Specifications (D1.3) and the System Architecture (D1.4 and D1.5) it will guide the design and developments of the EnergyShield Toolkit and EnergyShield Modules.

Commercial requirements in context of EnergyShield are considered to be those requirements “that can influence the uptake of the EnergyShield solutions, such as licensing model, pricing, modularity, etc.” [GAA19GAB19]. This includes commercial aspects that are relevant for future partners involved in the EnergyShield ecosystem. The technical functional- and non-functional requirements not part of the commercial requirements in EnergyShield – these part of the task T1.1 and deliverable D1.1. A high-level definition of the functionality for the EnergyShield project is in the Grant Agreement [GAA19, GAB19] by the description of the cyber-security tools and the three EnergyShield modules.

The main purpose of this survey is to collect and combine knowledge from the partners on this category of requirements. The project EnergyShield is still at the beginning, and therefore the knowledge of several of the partners on the relevant commercial requirements in the domain of security solutions for the energy sector is expected to evolve during the project.

The partners that will offer parts or the complete solution to potential customers are supposed to answer this survey. These are mainly part of the group “Innovative SMEs” and the “Industrial Suppliers” (see Section 3.3, page 49 [GAB19]). Each partner that has received this survey should return one answered copy until 2019-11-19. A shorter variant (Survey B) of this survey (Survey A) will be used to reach additional partners. The results will be subject to discussion and refinement in a review process.

Many of the questions expect that the answers are similar for more than one ES-module. In cases where a particular module needs very specific commercial requirements (e.g., a very special license model) this can be noted in the comments after each question.

The time horizon for the requirements is 2022 to 2025.

9.2. MODULARITY

The EnergyShield idea defines that 5 tools (VA, SBA, AD, DDM, and SIEM) are combined in 3 modules (assessment, monitoring & protection, learning & sharing) [1, Part B, Section 1.3.1, Page 8 of 109]. Some users might want to buy the

complete toolkit or large parts, for other users it might be important to have smaller parts.

What is the granularity in which the EnergyShield toolkit should be buyable for potential users (for an initial project of a new customer)?

Example answer from PSI:	
Select <u>one</u> option:	
<input type="checkbox"/>	The 3 modules of the GA should be the minimal buying granularity.
<input checked="" type="checkbox"/>	There should be smaller buyable packages about of the size of the 5 tools.
<input type="checkbox"/>	Even smaller packages than the 5 tools as smallest granularity to buy ES.
<input type="checkbox"/>	Do not know / no preference.
Comment (optional)	
Additionally, each component might have optional features & variations to buy.	

9.3. CUSTOMER SIZE

What is the size of the potential customers, which are the focus to be addressed by the ES-Toolkit? (Simplified categorization based on [ERS19])

Example answer from PSI:	
Select <u>multiple</u> options:	
<input type="checkbox"/>	The ES-Toolkit should "focus" on customers of every size.
<input type="checkbox"/>	Micro and small companies (< 50 employees)
<input checked="" type="checkbox"/>	Medium-sized companies (< 250 employees)
<input checked="" type="checkbox"/>	Large companies (> 250 employees)
<input type="checkbox"/>	Do not know / no preference.
Comment (optional)	
Companies of other sizes might be potential users for ES, however we expect it makes sense to first focus on the requirements of medium- und large companies and generalize later.	

9.4. SERVICES OFFERING

What is the relevance of the following services for an average customer of ES?

This question is limited on the tools and modules that are in continuous operation (i.e., not the audit tool, not the assessment tool).

Example PSI answer:

Please put in each row [High, Med, Low, ?]

High	Installation project available (for the software and sw & hw modules) (A company offers the installation project, so the customer has not to do the installation and integration alone)
Med	Documentation (Manual etc.) available
Low	Documentation in first language
High	End-user-training available
Med	End-user-training in first language
High	Customer support 8/5 available
Med	Customer support 24/7 available
High	Customer support in first language
Low	Consulting services (not from the tool manufacturer)
Low	Operation of the ES-module (e.g., outsourcing)
Comment (optional)	
There might be a strong variation in answers depending on the type of customer. English-only-services might be acceptable for some customers in the context of security, because IT-experts are more used this, in contrast to other departments of the customers.	

9.5. TOOLKIT CONVENTIONS

How important is it for the customers that the modules of the toolkit have...

Example PSI answer: *Please put in each row [High, Med, Low, ?]*

Med	common branding (e.g., ES-Logo on each user interface)
High	common infrastructure requirements (e.g., that not each module requires a different database management system or a different operation system)
Low	Same look and feel in every module
Med	Can be demonstrated together in an online environment

Low	Have a shared release cycle
Med	Have a shared contract template (instead of completely different contracts)
Med	That the modules interact via well-defined public interfaces.
Comment (optional)	
This question relates also to the technical requirements and technical design idea.	

TRADITIONAL VS. SUBSCRIPTION-BASED LICENSING

For those parts of the ES-toolkit that are installed on customer premises, what do you assume is the more attractive license model (see [CMA07] for details, if required) for energy sector customers?

PSI example answer: **Select one option:**

X	The customers purchases a traditional “perpetual” up-front license that is not expiring (but may have some other limitation terms such as #users). In addition, customers might purchase a service contract.
	The customer purchases a subscription-based license . This license will be most likely a combined license to use the product for some time (additional terms such as #user might exists) and a service contract.
	Both licenses need to be supported in general.
	Do not know / no preference.
Comment (optional)	
For on-premises tools, we expect that a traditional “perpetual” up-front license will be more preferred by many customers of security products in the energy sector.	

9.6. ROLE OF INITIAL INSTALLATION AND INTEGRATION EFFORT

For the tools that are installed on-premises: What is the relative price of an installation & integration project for a medium-sized customer for a production environment compared to a non-discounted non-time-limited upfront license fee? Exclude effort for user training and exclude customer support and maintenance.

(This question is about the effort of an installation in production environment, not a test installation.)

PSI example answer: **Select one option:**

X	Installation & integration costs are similar to the license fee
----------	---

	Installation & integration costs are typically higher than the license fee
	Installation & integration costs are typically less than the license fee
	Do not know / no preference.
Comment (optional)	
We expect that there will be no plug and play for the new security tools in this domain. However, maybe it will be possible (e.g., for the SIEM) to train the users, so that they can do a lot of the installation & integration on their own.	

9.7. LICENSE SCALING

What are good candidates for license scaling for the EnergyShield tools?

(e.g., ERP systems often vary the license fee based on the number of users)

PSI example answer: **Select multiple options (the most promising ones):**

	Number of users
	Number of Interfaces / APIs
	Number of used CPU-cores
X	Number of used Servers
X	Number of used ES-modules
X	Company size
	Amount of traffic
	Number of max. connections
X	One or more module-specific use-case-specific metrics
Comment (optional)	
We are a little bit unsure, which metrics could be used in general. The company size is easy to get. However, would be good to have also one metric in use that enables to start with ES small and grow.	

9.8. PRODUCT POSITIONING SEGMENT

Typically, products target a certain market segment (e.g., premium, luxury or mass-market segment). The segments correlate to dimensions such as brand reputation, quality and prices correlated to market segments.

Would you see a particular positioning for the ES toolkit and its modules according to the following dimensions?

Example PSI answer: *Put in the priority for supporting each row [High, Med, Low, ?]:*

Med	Relative quality compared to competitors.
Med	Relative price positioning compared to competitors.
High	Functionality compared to competitors.
Med	Amount and quality of services (e.g., customer support) comp. to compet.
Med	Brand reputation (of EnergyShield) compared to others.

Comment (optional)

Currently there is no brand reputation for ES; it has to be established. The quality of the components will be not superior to existing competitors because the toolkit and the tools are new. The functionality will be superior to competitors because the combination of the tools in the toolkit provides new benefits.

9.9. INSTALLATION AND SERVICES BY PARTNERS

How important is it that the ES-software allows partners to:

Example PSI answer: *Please put in each row [High, Med, Low, ?]*

High	install and integrate modules and the toolkit.
High	sell the toolkit
Med	write an offer to a customer without support from the module developer
High	provide 1 st and 2 nd level support (e.g., restart)
Low	provide 3 rd level support (remove bugs)
High	perform remote access to troubleshoot on the module
Low	extend the modules (software development)

Comment (optional)

Not every partner might have all skills: some partners might be specialized on sales, others might be able to install and integrate modules partners.

9.10. HOW TO INSTALL

What are the supported ways to get the on-premises software running in 2022?

Example PSI answer: *Put in the priority for supporting each row [High, Med, Low, ?]:*

Med	The customer gets a copy (e.g., USB-Stick, download link) and the customer executes the installation.
High	A partner has a copy (e.g., USB-Stick, download link) and executes the installation.
Med	The customer provides remote access and an EnergyShield-internal expert installs the modules.
Med	The customer buys the software together with hardware. The hardware is preconfigured.
High	The module developer performs on-side installation.

Comment (optional)

In some cases, the customers might want to be in theory able to execute the installation, but he will want that his standard integration partner performs the installation and also provides operation and service for this software.

9.11. SAAS HOSTING AND INSTALLATION

For the SaaS components in ES: what is the priority of the following requirements?

Example PSI answer: *Put in the priority for supporting each row [High, Med, Low, ?]:*

High	The service is hosted in the EU.
Med	The service is hosted in the country of the customer.
High	The service is hosted by an EU company.
Med	The customer can choose between different hosting companies.
Med	All ES-SaaS-components support the same cloud hosting companies.
Low	The SaaS account can be open without manual human activity on side of EnergyShield.
Med	A SaaS demo account is available that can be used after registration by email (automatic email verification).

Comment (optional)

n/a

9.12. SUPPORT LEVELS

Which service level (including aspects such as maintenance, customer support, and troubleshooting) should be provided for the ES in the energy domain?

PSI example answer: **Select one option:**

- | | |
|----------|--|
| X | Three levels should be available: No support, basic and premium support. |
| | Two levels should be available: No support, premium support. |
| | Support contract content should customer-individual in period 2022 – 2025. |
| | Do not know / no preference. |

Comment (optional)

n/a

9.13. WITHOUT SERVICE & SUPPORT IN PRODUCTION

Do you expect that using the (licensed) on-premises-ES-modules are used by companies without service contracts? (This question is not about test and evaluation projects.)

PSI example answer: **Select one option:**

- | | |
|----------|--|
| | Yes, a significant group of users will also use the on-premises-ES-modules without service contract in production. |
| X | No, most for ES relevant companies in the EPES sector, it will be mandatory by internal regulation or internal culture to use only on-premises-ES-modules if they have service contract. |
| | It depends on the type of company. |
| | Do not know / no preference. |

Comment (optional)

It might be similar to a virus scanner – it would be weak solution without a contract for getting regularly get new virus patterns.

9.14. MODULE SPECIFIC SERVICE CONTRACTS

Should there be a standard ES-service contract? (Tailoring allowed, price might vary according to some metrics such as company size, #modules and #users).
Alternatively, each component could provide an own service contract.

PSI example answer: **Select one option and fill in a number:**

X	
	No, the differences between the components, the installations and the parties providing the service are too different for unified service contract templates.
	Do not know / no preference.
Comment (optional)	
n/a	

9.15. FREE SERVICE PERIOD INCLUDED

Should be a “free” service period be included in the initial license? (Some services such as free bug fixing might be anyhow required for some time because of warranty).

PSI example answer: **Select one option and fill in a number:**

X	Yes, a <u>6</u> month basic support should be included.
	Yes, a ____ month premium support should be included.
	No support should be part by default in the initial license.
	Do not know / no preference.
Comment (optional)	
n/a	

9.16. UPGRADES INCLUDED

Do you expect that customers require including upgrades for ES-on-premises-modules in the (basic) service contract?

PSI example answer: **Select one option:**

	Yes, upgrades are included by default.
X	No, upgrades are not included.
	Do not know / no preference.
Comment (optional)	
The “no” option is less complex and might be sufficient, if the upgrades are not too frequent.	

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