

www.dessin-project.eu

D42.1 Market analysis (inside-out) for ESS software and solution packages

adelphi, February (2015)



The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement no. 619039

This publication reflects only the author's views and the European Union is not liable for any use that may be made of the information contained therein.

D42.1 Market analysis (inside-out) for ESS software and solution packages

SUMMARY

This report is part of DESSIN’s work package 42, the route to market. It was developed to inform technology-driven SMEs that provide ecosystem services (ESS)-relevant products or services in the water sector of the steps necessary to conduct a market analysis and market entry study. The starting point of this “inside-out report” approach is their own company and characteristics of their product/services and innovation capacities (inside) in view of market dynamics and market demand (outside).

The report follows three key steps:

1. Internal assessment (operating characteristics, core competencies and value proposition, readiness assessment);
2. Market analysis (understanding the customer landscape, defining the most promising market, analysing the micro-environment);
3. Market entry strategy (preparing for market entry, planning and strategy, implementation).

The inside-out approach is complemented by two outside-in reports or business environment reports that focus on the bigger picture and market conditions specific to the DESSIN context.

This report shows the general inside-out approach. It will be further detailed out with individual SMEs as part of WP42.2. Also, further integration of ESS and software aspects will be included as part of the practical application (WP42.2) once available.

DELIVERABLE NUMBER		WORK PACKAGE	
D42.1		WP 42	
LEAD BENEFICIARY		DELIVERABLE AUTHOR(S)	
adelphi		Anais Mangin Cosima Stahr Sibylle Kabisch	
QUALITY ASSURANCE			
Laura Ventura /Marta Hernandez Gerard van den Berg		CETaqua KWR	
PLANNED DELIVERY DATE		ACTUAL DELIVERY DATE	
31/12/2014		14/1/2015 (for QA) 28/2/2015 final	
DISSEMINATION LEVEL		<input type="checkbox"/> RE = Restricted to a group specified by the consortium.	

TABLE OF CONTENTS.....	2
LIST OF FIGURES	4
LIST OF TABLES.....	5
LIST OF ACRONYMS AND ABBREVIATIONS.....	7
DEFINITIONS	8
EXECUTIVE SUMMARY.....	10
0 INTRODUCTION OF THE DOCUMENT.....	11
0.1 Aim and target group of the document	11
0.2 Development process.....	11
0.3 Advice on using the document for conducting market analysis.....	13
STEP 1: INTERNAL ASSESSMENT	16
1 OPERATING CHARACTERISTICS OF THE TECHNICAL SOLUTION AND SOLUTION PACKAGE	17
1.1 Description of solution outside of local context	18
1.2 Description of the overall technology setup (owner/supporter/promoter)	20
1.3 Organisational resources	21
2 CORE COMPETENCIES AND VALUE PROPOSITION	22
2.1 Internal strengths and weaknesses assessment	22
2.2 Building a Value Proposition in view of ESS solution	23
3 READINESS ASSESSMENT.....	25
3.1 Product and company readiness.....	25
3.2 Description of overall situation necessary for transferring solution or solution package.....	26
STEP 2: MARKET ANALYSIS	29
4 UNDERSTANDING THE CUSTOMER LANDSCAPE	30
4.1 Identification of potential customers.....	30
4.2 Identifying an entry point to the customers.....	33
5 DEFINING THE MOST PROMISING MARKETS.....	36
5.1 Demand situation.....	36
5.2 Regional and sectorial analysis.....	37

5.3	<i>Market selection process</i>	38
6	ANALYSING THE MICRO-ENVIRONMENT	41
6.1	<i>Identifying customers</i>	41
6.2	<i>Competitor analysis</i>	42
6.3	<i>Other key stakeholders</i>	43
	STEP 3: MARKET ENTRY STRATEGY	45
7	PREPARING FOR MARKET ENTRY	46
7.1	<i>Product definition and business modelling</i>	46
7.2	<i>Financing requirements</i>	48
7.3	<i>Intellectual property issues</i>	49
8	PLANNING AND STRATEGY	52
8.1	<i>Needs assessment and necessary activities for transferring an ESS-relevant solution</i>	52
8.2	<i>Choice of entry mode</i>	53
8.3	<i>Partner identification and selection</i>	54
8.4	<i>Market entry plan</i>	55
9	IMPLEMENTATION	56
9.1	<i>Service provision process</i>	56
9.2	<i>Embedding the ESS approach</i>	57
	REFERENCES	59
	ANNEX A: FRAMEWORK FOR PESTEL ANALYSIS	61
	ANNEX B: MARKET ENTRY OPTIONS	63
	ANNEX C: LINKS TO MARKET INFORMATION AND SUPPORT OPPORTUNITIES	65

Figure 1: Inside-out vs. outside-in approach; adelphi (2014)	13
Figure 2: Structure of the inside-out report; adelphi (2014)	14
Figure 3: DESSIN solution package; adelphi (2014).....	17
Figure 4: Framework for building a value proposition.....	23
Figure 5: Exemplary variations of the DESSIN core solution; adelphi (2014)	28
Figure 6: Sample stakeholder visualisation for a public owned site (based on interviews with stakeholder of the Emscher Demo Site); adelphi (2014).....	34
Figure 7: Market selection process; adelphi (2014).....	38
Figure 8: Main factors of the micro-environment of technology providers; adelphi (2014).....	41
Figure 9: Main steps to implement a basic pricing and costing assessment; adelphi (2014).....	47
Figure 10: Financial issues according to the different development stages; adelphi (2014)	48
Figure 11: Main market entry modes according to the risks associated and the level of control; Innowater	53
Figure 12: Sample service provision process and relevant elements to consider for the integration of the ESS valuation approach (to be adapted in the course of the research advancements); adelphi (2014)	57

Table 1: Guiding questions for the description of the solution package outside of the local context; adelphi (2014)	18
Table 2: Guiding questions for the description of the overall technology setup; adelphi (2014)	20
Table 3: Guiding questions for the description of the organizational resources; adelphi (2014)	21
Table 4: Guiding questions for the identification of strengths and core competences; adelphi (2014).....	22
Table 5: Main steps for developing a value proposition; adelphi (2014)	23
Table 5: Guiding questions for the assessment of product and company readiness; adelphi (2014).....	25
Table 6: Guiding questions for the description of the overall situation necessary for transferring solution or solution package; adelphi (2014)	26
Table 10: Guiding questions for the identification of potential customers; adelphi (2014).....	30
Table 11: Potential customers for the solutions and the solution package for water quality or scarcity; adelphi (2014).....	31
Table 10: Guiding questions for finding an entry point to the customers; adelphi (2014)	33
Table 11: Guiding question for the definition of the demand situation; adelphi (2014).....	36
Table 12: Example of a Demand forecast for water quality technology in Germany; adelphi (Summary from outside-in report (2014)).....	36
Table 13: Guiding question for conducting a regional and sectorial analysis; adelphi (2014).....	37
Table 11: Matrix for country/sector benchmark; adelphi (2014)	39
Table 12: Example of matrix for multi-criteria analysis for market prioritisation and selection; adelphi (2014).....	40
Table 16: Guiding questions for the customer analysis; adelphi (2014).....	41
Table 17: Guiding questions for the competitor analysis; adelphi (2014).....	42
Table 18: Guiding questions for the analysis of other stakeholders; adelphi (2014)	43
Table 19: Guiding questions for product definition and business modelling; adelphi (2014).....	46
Table 20: Guiding questions for assessing financing requirements; adelphi (2014)	48
Table 17: Guiding questions for managing intellectual property (IP) issues; adelphi (2014)	49
Table 22: Guiding questions for the analysis of activities necessary for transferring an ESS-relevant solution; adelphi (2014)	52
Table 22: Guiding questions for the choice of market entry mode; adelphi (2014).....	53
Table 24: Guiding questions for planning the market entry; adelphi (2014).....	55
Table 25: Guiding questions related to the service provision; adelphi (2014)	56
Table 26: Guiding questions related to the embedment of the ESA; adelphi (2014).....	57

Table 27: Framework for PESTEL analysis and examples; adelphi (2014)	61
Table 28: Assessing benefits and challenges of market entry options	63
Table 29: Useful links to find additional market information and support opportunities; adelphi (2014).....	65

List of Acronyms and Abbreviations

ASR	aquifer storage recovery
CSO	combined sewer overflow
CSR	Corporate Social Responsibility
DESSIN	Demonstrate Ecosystem Services Enabling Innovation in the Water Sector
DWA	Deutsche Vereinigung für Wasserwirtschaft, Abwasser und Abfall e.V. (German Association for Water, Wastewater and Waste)
EEA	European Environment Agency
ESA	Ecosystem Services Approach
ESS	ecosystem services
ETV	Environmental Technology Verification
EU	European Union
FP7	European Union Seventh Framework Programme
NGO	non-governmental organisation
IP / IPR	intellectual property / intellectual property rights
PES	payments for ecosystem services
PPP	public-private-partnerships
R&D	research & development
RTC	real time control
SME	small and medium-sized enterprise
SWOT	strengths, weaknesses, opportunities, threats
TRL	European Commission Technology Readiness Level
WFD	Water Framework Directive

DESSIN Solution Package	A package comprising of a core solution and support services as depicted in figure 3. The core solution contains a technology module, an information module relating to modelling and monitoring, and a management module with the Ecosystem Services Approach (ESA). The support services aim to make the core solution applicable to an initial market and/or transferable to another market – they can also be linked to other DESSIN activities (e.g. such as the development of the DESSIN showcases). Depending on the case, the solution package can be adapted.
Ecosystem services (ESS)	Within the current state of research at DESSIN, ecosystem services (ESS) are regarded as the direct or indirect contributions that ecosystems make to human well-being (Ecologic (2014)).
Ecosystem services approach (ESA)	The ecosystem services approach (ESA) takes a holistic perspective that includes humans, their activities and the services that ecosystems provide to humans as an integral part of the ecosystem (Ecologic (2014)).
ESS valuation methodology	Ecologic Institute develops a toolkit to evaluate ecosystem services enhanced through certain water technologies and corresponding governance also taking into account the sustainability of those provided services.
Inside-out approach	A corporate strategy process that relies on the core competencies of the company to drive change, product development and innovation as opposed to external influences such as market, competition and customer preferences.
Macro-environment	External factors that are outside of the organisation’s control but can lead to changes in its micro-environment and therefore affect its utility. Such factors include economic factors; demographics; legal, political, and social conditions; technological changes; and natural forces. To be prepared for changes in the macro-environment, a company should continually monitor relevant factors applying to this definition, such as for example economic trends, changes in interest rates, climate conditions, government regulations or changes in cultural tastes.
Market entry strategy	Conditioning the organisation’s resources and marketing strategy to meet specific conditions when entering a new market for the first time. It takes into account specific market conditions, such as stakeholder landscape, legal framework, supply-demand-relations and specific infrastructure and resource conditions.

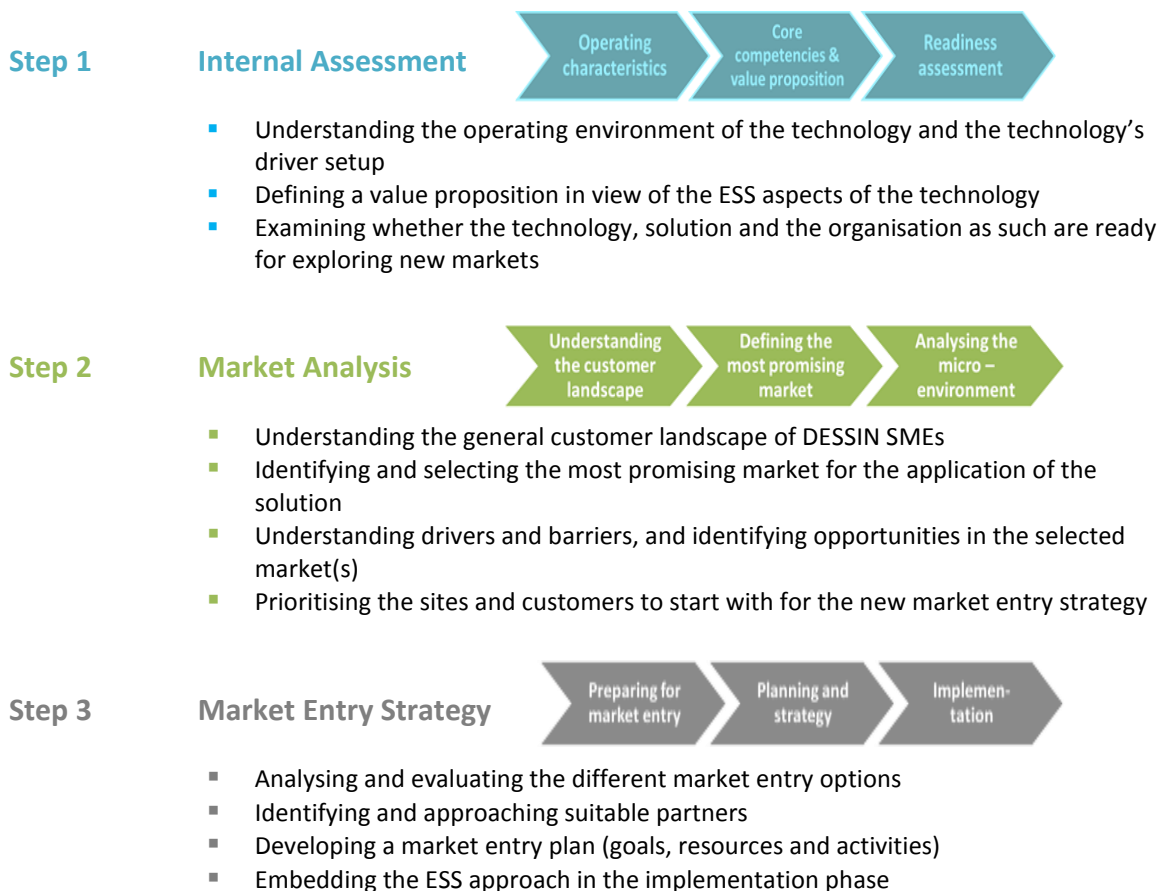
Micro-environment	Characteristics of an organization's immediate area of operations that affect its utility and should therefore be strategically assessed. Such factors can be directly influenceable by the organisation or they can be found outside of its strategic reach. Such factors include competitor landscape, customer preferences, distribution channels, suppliers, and the organisation's public image.
Value proposition	A business or marketing statement that summarizes why a consumer should buy a product or use a service, especially focussing on advantages of the particular good or service in comparison to offerings from competitors. Organisations rely on value propositions to target customers which benefit most from the offered good or service. The ideal value proposition is concise and appeals to the customer's strongest decision-making drivers.

This report has been compiled as part of the initial work of the DESSIN work area 42, the route to market. It follows an inside-out approach by looking at the SME key product characteristics and innovation capacities (inside) in view of market dynamics and market demand (outside). The inside-out approach is complemented by an outside-in report or business environment report that focuses on the bigger picture and market conditions specific to the DESSIN context.

The report provides a step-by-step approach and general guidance to support the market entry of water innovations linked to ESS. It focuses on the development of a market entry strategy and uses as a starting point an analysis of the core competencies and innovation capacities of a SME. The approach will be tested with different SMEs in the course of the next project phase (2015) so as to offer a practical guide that is applicable to all technology-driven SMES that provide ESS-relevant products or services in the water sector.

The primary target group of this report are technology-driven SMEs that provide ESS-relevant products or services in the water sector. The report is not written in a scientific manner but rather seeks to provide practical information and guidance to the SMEs related to DESSIN and beyond.

The report follows a step-by-step approach and is divided into three main parts:



0.1 Aim and target group of the document

This document was developed to inform technology-driven SMEs that provide **ecosystem services (ESS)**-relevant products or services in the water sector of the steps necessary to conduct a **market analysis and market entry study**. The starting point of this “inside-out report” approach is their own company and characteristics of their product/services and innovation capacities (inside) in view of market dynamics and market demand (outside). Our understanding of the terminology “inside-out” can be summarised as “identifying a firm’s capabilities and then creating and selling offerings that use these capabilities in ways other firms cannot match.”^{1,2}

Development of this inside-out methodology as laid out here is a key milestone for the promotional aspect of the European DESSIN project. This FP7 project seeks to demonstrate and promote innovative solutions for water scarcity and water quality related challenges and develops a methodology for the valuation of ESS. The SMEs that partake in DESSIN offer a wide range of ecosystem relevant products and services with regard to water scarcity and quality. Further development and promotion of these products and services is part of the project objectives. As all technologies are of ESS relevance, the ESS valuation approach developed under the project seeks to strengthen their selling points in this regard.

The DESSIN SMEs are interested in reaching beyond their current market segments, which are predominantly local due to their early development status or confined to their national market. Therefore, in addition to their strengthened sales proposition with regard to ESS valuation and further technology development, this report seeks to demonstrate ways in which **to analyse new markets, plan for market entry, and successfully implement the market entry**.

As DESSIN is a research project, the approach delineated here is not limited to the DESSIN SMEs. Rather, it seeks to demonstrate a methodology that is applicable to all technology-driven SMEs that provide ESS-relevant products or services in the water sector.

0.2 Development process

This methodology has been developed on the basis of desktop research and first interviews with DESSIN SMEs. It aims at providing a sample step-by-step approach for exploring new market entry opportunities specifically for technology-driven SMEs in the water sector.

The approach is modelled onto the specific challenges and opportunities of the water sector, and seeks to integrate ESS considerations. These were established by first interviews with a number of

¹ “Inside out or outside in?” CMA Magazine, July/August 2012

² By way of a more comprehensive explanation, for the purpose of this document and the outside-in report in this regard our focus lies not on marketing/branding alone, but rather on business strategy, which is not limited to marketing (product, place, price, promotion) but also includes long-term decisions including innovation and R&D as well as long-term market dynamics observation and anticipation. Equally, the inside-out logic as understood in this document is not limited to creating (organisational) efficiency, but rather seeks to assess what value proposition is the most optimal for a specific company in a specific market.

DESSIN SMEs³. The resulting report seeks to be able to function as a blueprint for devising a route to market strategy for water technology solutions. As there are a wide variety of SMEs among the project, while generally applicable, the specific questions and prompts are not necessarily fitting or complete for all SMEs. It would therefore need to be further customised in order to be used within advisory engagements with SMEs, taking their specific products and services, as well as their customers, into account.

An “inside-out” methodology can be described as reliant “on the core competencies of the company to drive change, product development and innovation as opposed to external influences such as market, competition and customer preferences.”⁴ However, due to the demand-driven nature of the European water market, this strategy is only valid if a company’s core competencies are taken rather as a starting point, and not as the focus, for this assessment. The consideration of market characteristics is a necessary second step, given that the demand side shapes the European market for water quality and water scarcity solutions.

In addition to this approach, adelphi also develops sample “outside-in” methodologies for water quality and scarcity challenges. Here, the assessment of the European demand situation as shaped by legal frameworks on the European and national levels are in particular focus. The combination of both logics is recommended to thoroughly assess the market potential for ESS relevant water scarcity or quality technology developers. As depicted by below graphic, general reports are developed as step one (DESSIN task T42.1 for inside-out; T42.3 for outside-in approach). As a second step, these are then implemented with individual SMEs as part of the sample commercialisation process (T42.2) with a deliverable in month 48 (D42.2).

³ At the time of development of this document, the research team received input from a limited number of SMEs. Examples from other SMEs will be added throughout the research project (WP 42.2) to further illustrate the approach.

⁴ Business Dictionary - <http://www.businessdictionary.com/definition/inside-out-strategy.html>

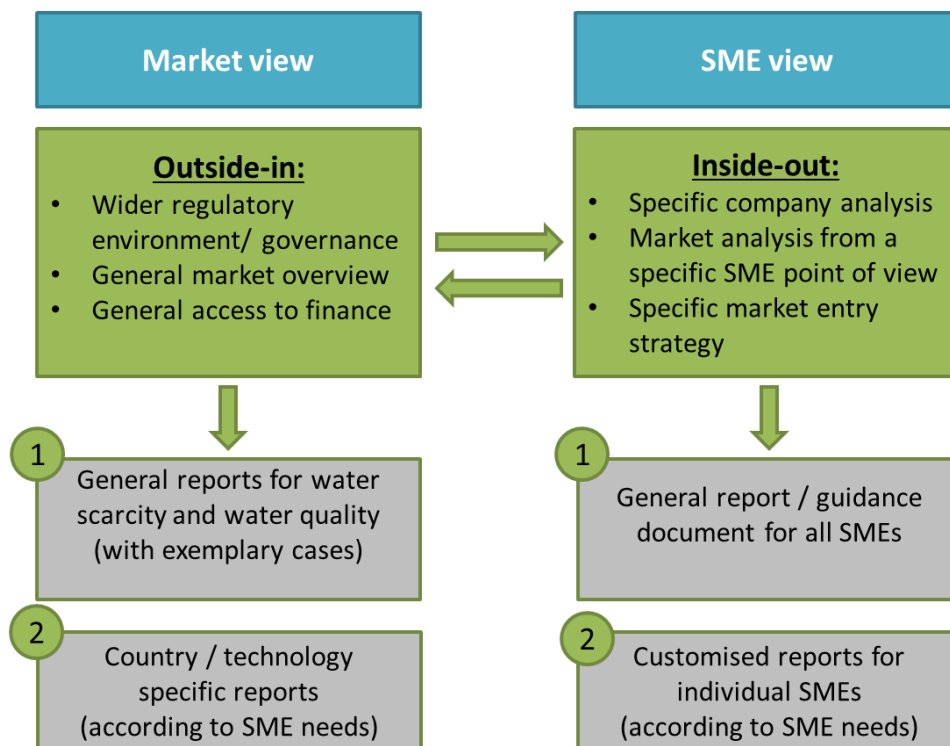


Figure 1: Inside-out vs. outside-in approach; adelphi (2014)

The starting point for the development of this document is the observation that technology-driven SMEs that provide **ESS**-relevant products or services in the water sector oftentimes focus on the development and advancement of their technology, often in a specific (local) context. While this strategic approach is in itself valid, most of the companies we interviewed voiced their interest in scaling up their business, including by entering new local and national markets. In view of the fact that the key competencies of these enterprises lie in developing technical solutions and in consideration that the European water sector is highly complex, the “inside-out” report seeks to structure a strategic approach for technology-driven SMEs to assess their key strengths and how to connect these to new markets.

The approach will be tested in the next project phase (2015 - WP 42.2) with different SMEs of the DESSIN project which are interested in expanding their market outreach. The general methodology presented here can be further tailored to the specificities of the DESSIN solution in the advisory phase. Resulting from these test cases, the approach will be improved and illustrated by case examples. The development of the ESS valuation methodology under the DESSIN project will also provide additional elements that need to be integrated into the approach. The research team plans to review and adapt the report in the course of the research project to assure its practical applicability for technology-driven SMES that provide ESS-relevant products or services in the water sector.

0.3 Advice on using the document for conducting market analysis

By way of the step-by-step approach of the document, we seek to enable SMEs to conduct the inside-out assessment and develop a market entry strategy on their own. To this purpose, the document is structured in a way that supports companies in understanding why the different

sections are important and how they are interlinked. Targeted questions on capacities and resources within the company then build the basis for the assessment, which is combined with an analysis of the most important market variables to consider. An integral part of these considerations is how to promote the ESS relevance of the technology and (at a later stage) make use of the standardized ESS valuation method as developed under DESSIN. The answers to these questions allow for drawing conclusions on how to implement strategic decisions, including on innovation management, product development and market entry.

The document has the following structure:

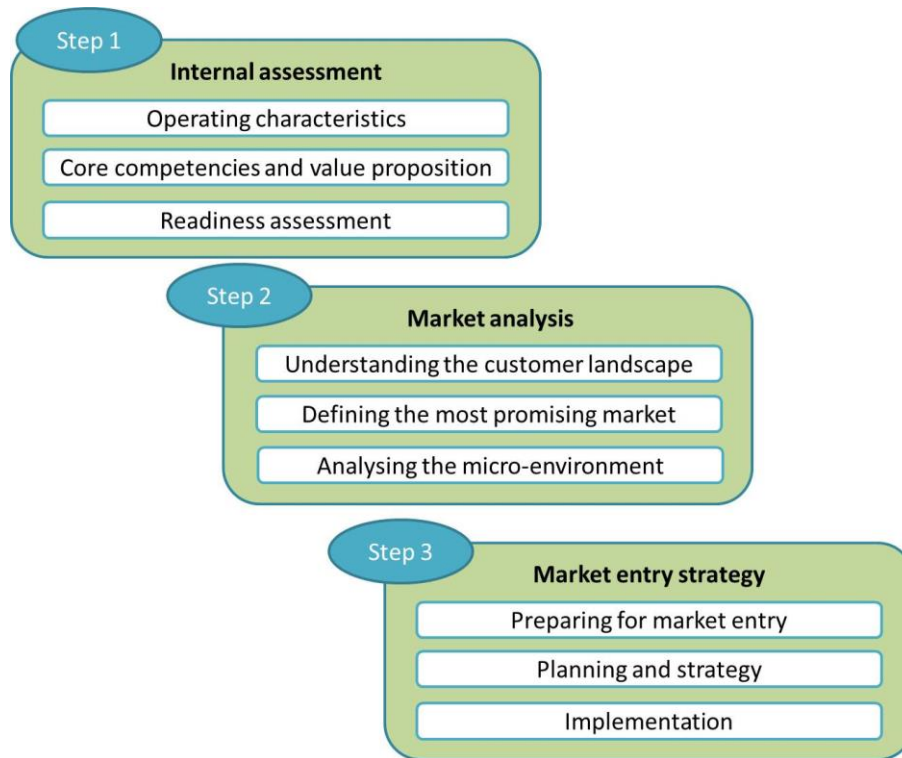



Figure 2: Structure of the inside-out report; adelphi (2014)

The chapters are structured according to the following points:

- Brief introduction to why the paragraph is important
- Guiding questions or recommended steps for companies
- Explanation of questions and background information, and suggestions for analysing/ making use of answers
- When appropriate, specific tools are suggested to help the users to conduct the different steps of the analysis. These tools are indicated by the following icon: 

In view of the variety of the SMEs and their technologies partaking in the DESSIN project, the report has been designed to be generally applicable, to address the most important issues of developing a market entry strategy. The structure also follows a modular approach in order to be able to offer a

tailored support to DESSIN SMEs in the next stages of the project. For example while some SMEs already have a clear idea about which markets they want to explore, other SMEs would need support for a more strategic market analysis before deciding which market to enter.

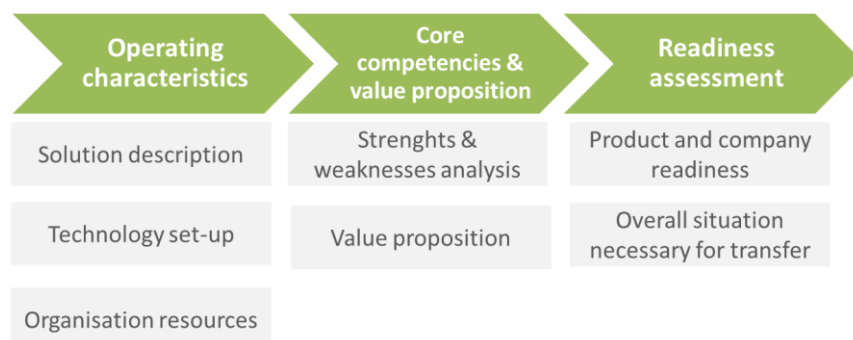
STEP 1: INTERNAL ASSESSMENT

Guiding questions for this step are:

- What are the operating characteristics of the solution and its technology set-up?
- What are the strengths and weaknesses of the SME?
- What are core competencies and the value proposition in view of ESS?
- Is the product and SME ready to enter a new market?

At the end of this step, users should be able to:

- Understand the operating environment of the SME
- Formulate a value proposition in view of the ESS aspect
- Assess if the technology, solution and the company is ready for exploring new markets.



1 Operating characteristics of the technical solution and solution package

Generally, innovative water technology is the most visible element of the DESSIN solution package. The entire package also comprises an *information element* related to modelling and monitoring and a *management element* related to the ESS valuation methodology and software as depicted in below graphic. The DESSIN support services facilitate the implementation and transfer of the core solution. As further detailed in section 1.1., depending on customer characteristics and needs, different elements of the solution package can be combined for market entry or specific technology-based products or services can be sold as a stand-alone solution (with its ESS co-benefits).



Figure 3: DESSIN solution package; adelphi (2014)

In a first step, it is important to clearly lay out what kind of water-related problem (e.g., quality/scarcity) the key element of the solution package, the technology, tackles or solves. Water-related problems are locally specific, and while technology can be transferrable to other locations, a new location (and potentially a new market) oftentimes also necessitates the adaptation of technology. In order to aptly analyse the setup in which the technology was developed, an analysis of the current owner/supporter and potential drivers of the technology is advisable. In some cases, technology may not be transferrable due to technical considerations. For example, a technology may be specific to a water quality problem in Combined Sewer Overflows (CSO), but many sewage systems in Europe have separate storm water and sewage water channels. Further, the setup of the site owner and decision-makers in the existing case(s) needs to be described. This can be used as a comparison for a stakeholder analysis in potential new locations (and markets).

As a second step, the existing partnership setup is analysed. For example, a scientific or technical approach may have been developed by a research institute, while its transfer into a marketable product or service was done in cooperation with a company. This company may have acted as sole

promoter of the technology. Analysing the existing setup and specific competencies enables a company to discern synergies and opportunities on implementing the technology in a new location.

After those main aspects of analysis are dealt with, a self-assessment of the organisation’s strengths and weaknesses is the next step. This includes its capability to successfully adapt its technology to other circumstances and to deal with stakeholders on a new site. Such an assessment can provide crucial insights on competitive advantages and issues to be addressed to position the company in a competitive market environment. Furthermore it reveals the added value a company provides and/or is depending on in a joint venture with other SMEs or service providers.

1.1 Description of solution outside of local context

Table 1: Guiding questions for the description of the solution package outside of the local context; adelphi (2014)

Areas	Guiding questions
Problem definition and Solution	<ul style="list-style-type: none"> • Which water-related or ESS-related problem does the technology tackle? • Which solution is offered? What is the objective of the innovative technology? Is it a standardized or custom-made solution? • What are the ESS that are expected to be influenced by the solution? • Are there currently other projects being designed / implemented on site that foster ESS and could create synergies?
Systemic Integration	<ul style="list-style-type: none"> • What target system is the technology designed for? Is the technology locally specific (e.g. climatic and geographical aspects, urban vs. rural areas etc.)? • What are local conditions needed for the technology or solution to work elsewhere? Can this only be found in certain regions/ countries/ climates or anywhere in Europe? Is the solution specific to a certain type of industry? • Does it require a certain technical setup or standard? • Is R&D or additional investment required to make it work in other local or national contexts?
Decision-making	<ul style="list-style-type: none"> • Does the solution profit from being offered as part of a “solution package” (synergy creation with other service providers, with ESS solution)? • What is the decision-making process relevant to the technology? Is opting for the technology as a solution a decision taken stand-alone by a single decision maker (site owner, contractor) or is it made collectively? • What are key considerations for selling the technology to decision-makers? • What are key variables in the decision-making process and can they be prioritised (e.g., cost, quality, time, etc.)? • Does the solution disrupt existing relationships between site owners and technology providers?

Technology and ESS

Stating technological features and dispositions succinctly provides clarity on the technology’s objective and main characteristics. This helps to articulate the added value the technology provides for its target systems, compared to alternative solutions. In addition, characteristics like the level of

complexity of a solution have consequences for considering new locations or market entry, as high adaptation costs may be involved. For example introducing a technology into a national market with considerable lower purchasing power and production costs could result in rethinking the whole business model. A custom-made technology replicated in another region could require high additional R&D costs to make it work in a new context.

Within the current state of research at DESSIN, ESS are regarded as the direct or indirect contributions that ecosystems make to human well-being. A specific enquiry of the related ESS, the solution affects, could be conducted alongside the Common Classification of Ecosystem Services (CICES) developed from the work on environmental accounting undertaken by the European Environment Agency (EEA) and which is used in the DESSIN context. Such a systemised approach can be helpful as the DESSIN Llobregat Case shows, where various relevant ESS could be identified. This will be further detailed out during the course of the DESSIN project and described in the respective DESSIN work areas.

The outside-in reports for water quality and water scarcity technologies offer a product description of the DESSIN solution in each context that could be useful for this section.

Systemic Integration

In order to properly investigate the possibilities of systemic integration of a solution and its underlying technology into a target system, a thorough enquiry of the technology's systemic requirements is necessary. This requires a good understanding of the technology outside of its context. As technologies under DESSIN are operated to enhance water quality or fight water scarcity and enhancing ESS, ecological as well as technological adaptability should be given top priority. Climatic, geographic, economic and demographic conditions as well as technical specifics are key variables to consider for transferring DESSIN technologies and/or DESSIN solution package. For example, the DESSIN Llobregat Case exemplifies the question of climatic setup requirements, as injecting water into the aquifer for later usage makes sense in areas where a water buffer is needed, i.e., there is excess of water during one season (rainy season) and then demand for this water during a later period (dry season). Also, the aquifer would need to have enough permeability to construct a well and to inject into it; the aquifer must also be safe from pollution in order to maintain the water quality. Ideal would be a site where a reverse well is already installed. Generally, the method does not only work in large cities/metropolitan areas, as for the Llobregat case, but also in rural areas. Another example for technological as well as climatic conditions is the DESSIN Emscher Case, where a combined solution package addresses the issue of CSO discharges into water bodies as a result of strong rainfalls that are overburdening the sewage system. Thus, to be relevant as a solution package for water quality, the status of the water body that is being discharged into is of interest, i.e., the improvement of water quality obviously needs to be an issue locally. The key issue from a managerial perspective should be: "Do I need to make additional investments to make my technology applicable to the target system, and if so, when do potential profits outweigh these investments?" Derived from such an analysis, the need to adapt a technology to a specific site can also be the starting point of developing a more generally applicable technology, thus creating a more easily scalable solution.

Decision-making

The exploitation of potential synergies is not only of interest with regard to projects at specific sites, but is especially worthwhile when it comes to the establishment of long-term partnerships

with other technology SMEs. A jointly implemented solution can serve as the basis for a new business model and help each party involved to effectively increase its market reach.

Offering solutions jointly within the DESSIN solution package would be especially advisable when a) a joint offer creates tangible synergies (technical, financial, etc.) b) there is demonstrable experience and a successful track record in doing so and c) the ESS relevance as demonstrated by the ESS valuation methodology and software is strengthened. Also, SMEs could choose to become part of a new consortium (in case of DESSIN SMEs, thus outside of their demo site partners). A compelling reason for creating a “solution package” outside of an existing demo site would be if the technology decision is taken not at site-owner level, but rather at a lower level, for example by a service provision company. In this case, the SME would need to address this (oftentimes also locally/nationally specific) company to become part of the “solution package” offered to site-owners. References for the added value of operating in a “DESSIN solution package” for technology SMEs were discussed in the course of interviews with involved technology SMEs, conducted by adelphi in 2014.



Both options – stand-alone offering or within a DESSIN solution package of various sizes – present risks and opportunities at the same time. It is recommended to conduct a qualitative analysis (pros/cons) of the options to identify potential synergies and benefits for the SMEs.

1.2 Description of the overall technology setup (owner/supporter/promoter)

Table 2: Guiding questions for the description of the overall technology setup; adelphi (2014)

Areas	Guiding questions
Overall setup	<ul style="list-style-type: none"> • What organisations (e.g., service providers/SMEs, universities, research institutes, site owners) took part in the technology development? • What are their respective roles and responsibilities? • Who owns the IPR on the technology? • What are current challenges in the overall setup?
Promoters	<ul style="list-style-type: none"> • Are all parties interested in broadening the market reach of the products? • If the solution package is sold, who is responsible for the commercialisation? Is a new legal entity required for selling the solution? • Who are (potential) promoters of the solution? Which organisation is best placed to follow through with promoting the technology elsewhere? • What support organisations are needed to establish the technology in the target market?

Setup description

An important question to be asked before accessing a new target system is which other parties were involved in the technology development in order to avoid potential conflict between initial partners. This is important with regard to issues of intellectual property rights (IPRs) or responsibilities in the course of entering a new market. Sometimes the technology is developed by

a different entity than the promoter/service provider (e.g., technologies developed by research institutions), and the ownership issue can involve competition between initial partners. Furthermore, a good understanding of the overall setup gives opportunities to prepare solution approaches together beforehand, taking the specific know-how of involved actors into account.



Eventually, a detailed stakeholder map of a particular solution, showing the interconnections between the different organisations (primary and secondary stakeholders) and their responsibilities is a crucial device to have at hand when assessing the local setup.

Promoters

To have as many and as powerful drivers as possible to promote an innovative solution is a key factor for a successful implementation and increase of market reach. Therefore, a company should identify key actors in the existing DESSIN consortium who could drive and promote the transfer of the solution to other sites. When promoting the whole DESSIN solution package, it is also important to identify a leading organisation – one of the SMEs or the site owner - who can promote the technology elsewhere. Here, alignment of goals and clear description of benefits between all involved partners is a key success factor.

1.3 Organisational resources

Table 3: Guiding questions for the description of the organizational resources; adelphi (2014)

Guiding questions
<ul style="list-style-type: none"> • Does the company have the technical and managerial capacity required to transfer the solution and explore new markets (e.g. R&D, Business Development, Marketing and Sales capabilities)? • Does the company have the financial resources necessary for promoting, transferring and implementing the solution? • Does the company have the capacity to estimate the value of its ESS-provision?

At the core of the inside-out assessment is a thorough analysis of the internal capabilities and strengths of a company. A market entry process can be a costly investment and requires a range of business and managerial skills. Defining the key strengths of the company in the context of the DESSIN solution package enables also to rethink about the positioning of the company and to understand the market opportunities resulting from offering additional ESS benefits.

The central questions mentioned above eventually result in detecting the company's main strengths and weaknesses concerning the promotion of the technology into further target sites or even new markets. Weaknesses concerning managerial capacity, lacks in R&D capacities and also the ability to evaluate ESS provision of the solution technology could all be addressed through new partnerships if internal capacity building is too costly. The DESSIN ESS valuation methodology which is currently developed shall enable SMEs to conduct their own ESS valuation, providing them with an additional selling point when offering the DESSIN solution package. Financial constraints could be resolved by finding other sources of funding which are focusing on environmental and ecosystem aspects.

2 Core competencies and value proposition

The process of defining a company's core competencies and value proposition is critical when bringing a novel idea to the market. It is also an essential part of an inside-out assessment. Whereas a traditional outside-in approach places the external environment at the starting point of the strategy process, this model builds on the assumption that an organisation's tangible and intangible assets are fundamental to its competitive advantage.

By integrating an ESS valuation approach, DESSIN SMEs can strengthen their ESS relevance and benefit from new market opportunities. However using ESS as a selling point may necessitate a different market approach, and thus requires a review of the company's current value proposition. In a first step it is recommended to conduct a strengths and weaknesses analysis in order to define core competencies of the company. Thinking about the core competencies and benefits of the solution will lay the foundation to build a compelling value proposition in a second step.

2.1 Internal strengths and weaknesses assessment

Table 4: Guiding questions for the identification of strengths and core competences; adelphi (2014)

Areas	Guiding questions
Develop a list of strengths & weaknesses	<ul style="list-style-type: none"> • What are the key strengths of the company and technology setup? • What are additional strengths and capabilities in the context of the DESSIN solution? • What are the weaknesses of the company and current technology setup? • What do people in the market see as main strengths/weaknesses?
Identify core competencies	<ul style="list-style-type: none"> • What are the company's core competencies in the current market? • What may be the company's unique competencies in potential markets? • How do the company's core competencies relate to the ESS relevance of its technology?

The starting point is to conduct a brief strengths and weaknesses analysis, which means looking at the internal or system-related factors that present an advantage (or disadvantage) to market uptake. The factors may include characteristics which are focusing on the overall organisation (e.g., Image, Know-how and expertise, Level of Innovation, R&D, Management System, Customer Relationship, Environmental and Social impacts), on production and value chain aspects (production capacities, cost structure, efficiency of processes, supplier and distributor networks, sales and after sales services) or market related aspects (e.g. competitive advantage, market size, product portfolio, marketing strategy, networks). Although strength and weakness are rather internal qualities, perspectives of the customers and partners outside the core organisation can also provide critical insights on a company's assets

In case a large version of the DESSIN solution package is offered, involving several technology providers, the analysis should also focus on the overall consortium. The applicability of the DESSIN

solution is still in its test phase, and a number of challenges have to be overcome for marketization e.g. clarity of IPR issues, determination of owner and promoter of the solution, early-stage of development of the ESS valuation tool. This strengths and weaknesses analysis will be useful for the next steps of the analysis and planning of the market entry.

The next step is the definition of the core competencies both in existing and potential markets.. The process of defining core competencies helps to determine the unique assets that can be used to create and offer value to customers. As DESSIN SMEs are all of ESS relevance, their core competencies with regard to ESS should also be stated. This will encourage the promoter of the solution to consider strengths and capabilities that set the ESS relevant solution apart from competitors.

2.2 Building a Value Proposition in view of ESS solution

Table 5: Main steps for developing a value proposition; adelphi (2014)

Main steps for building a value proposition
<ul style="list-style-type: none"> • Define the solution in the context of the ESS • Identify the benefits / values created to the users • Understand the needs of the users and what problem needs to be solved • Assess the value proposition along the 4C approach

The value proposition is a positioning statement that describes the problem solved, why the solution is distinctly better than the alternatives and reveals the added-value of the solution to the customers. Building a value proposition is important because it helps to understand what advantages a company has over its competitors and helps communicating to customers and partners. To develop a compelling value proposition, it is wise to engage a broad-based discussion including both individuals from within the company (for example, senior management and technical experts) as well as partners.

For building the value proposition the following logical framework is suggested (based on other “C” approaches in marketing):

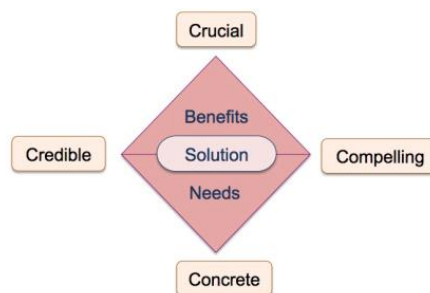


Figure 4: Framework for building a value proposition; adelphi/SEED (2013)

Solution: The product/service should help the customer overcome his or her problem.

- How does the solution overcome the problems it aims to solve?
- What ecosystem related problem does the solution solve?
- Does the solution bring an innovative approach into existing processes?

Benefits refer to how the customers gain value from the solution. Benefits are the advantages that a product/service offers to a client.

- Does the solution meet customers' expectations?
- Does it save them money or time?
- Does it imitate or outperform existing solutions?
- Does it make the life or job of your customers easier?
- Does it affect your customers' reputation?
- Does it have social or environmental impacts?

Needs refer to how the solution satisfies your customers' desires.

- Does the solution reduce customers' fears or risks?
- Does it fix underperforming solutions?
- Does it solve your customers' challenges?

After identifying the solution in the context of its needs and benefits, it is important to check how strong the value proposition is. Here, a "4C" approach is helpful: how crucial, compelling, concrete and credible is the value proposition?

Crucial: Is the value proposition vitally important for customers?

Compelling: Is it emotionally engaging or motivating?

Concrete: Is it tangible and practical?

Credible: Is it credible, i.e. do you have the necessary authority?

During these reflections, special attention should be given on how ESS and the DESSIN approach is enhancing the value proposition/offering of the water technology providers. By adopting the ESS solution, water management organisations will be better prepared to face future regulatory changes in the water sector (e.g. WFD, new procurement standards etc.). SMEs will also benefit from a standardised approach for the valuation of ecosystem services (ESS) of water bodies, including a monetary evaluation which makes a direct comparison of measures possible and generates arguments for market uptake.

3 Readiness assessment

DESSIN generally focuses on solutions that are advanced beyond Technology introduction and uptake are very complex and resource intensive processes. Before exploring new market opportunities an analysis of the maturity and applicability of the solution, and current capabilities organisation is critical to success. This stage involves conducting a brief product and company readiness and describes the overall situation that is necessary for transferring the solution to a new site or client.

3.1 Product and company readiness

Table 6: Guiding questions for the assessment of product and company readiness; adelphi (2014)

Areas	Guiding questions
Product readiness	<ul style="list-style-type: none"> • Has the technical performance of the product been assessed and documented? • Are the product specifications for compliance of the solution with rules and regulations documented? • Have the price of the product and its operation and maintenance been assessed and documented? • Are the advantages of the product in comparison to other standard solution with respect to socially, ecologically or economically perceived values documented?
Company/consortium readiness	<ul style="list-style-type: none"> • Is there a committed leader (within the company or consortium) in place to drive the ESS solution package transfer? • Does the company/consortium have the required managerial skills and organisational resources to explore new markets? • Does the company/consortium have sufficient financial resources? If not, does the company/consortium have the required knowledge and contacts for achieving the financing/investments that are needed? • Is the company/consortium well positioned to enter the market? What is its competitive advantage and value proposition?

Product readiness

From the learnings of the previous chapters the solution provider can check its market readiness on the basis of these questions: First, it is important to assure that the product is innovative, performs according to its specifications, is compliant with regulation and is economically feasible. It is essential that any new product complies with the current technical rules (often checked by responsible water authorities). The technical performance should be certified by accredited bodies and the technical and ESS related specifications documented to enable a compliance check with rules and regulations. Another important aspect is the availability of data on the costs of the product and the expenses for operation and maintenance. Such information will be necessary for exploring suitable financing options, or in case the business model needs to be adapted.



A number of evaluation frameworks with a technology and/or environment focus are available for SMEs in order to assess the performance of their product⁵ e.g. standard life cycle assessment and cost-benefit analysis, the European Commission Technology Readiness Level (TRL) or Environmental Technology Verification (ETV) tools. Through the DESSIN project SMEs will also have access to an ESS valuation framework which can assess the technological performance in regards to the impact on the ecosystem services⁶.

Company readiness

Moreover it is recommended to do a self-assessment to see if the company has the capacity and required organisational and financial resources to explore new markets. The findings from Chapter 2 provide answers to conduct this self-assessment in terms of capacity and competitive advantage. Identifying a leader which has the business skills and networks for bringing a new technology to a market is also a key factor to ensure a successful market entry. If there is an interest to promote the DESSIN solution as a package a lead organisation needs to be identified. This could be done by the technology owner or the site owner (if interested and allowed in making profit elsewhere).

3.2 Description of overall situation necessary for transferring solution or solution package

Table 7: Guiding questions for the description of the overall situation necessary for transferring solution or solution package; adelphi (2014)

Areas	Guiding questions
Regulatory and policy framework	<ul style="list-style-type: none"> • What regulations and policy element incentivize the application of the technology or would incentivize it elsewhere?
Local setting	<ul style="list-style-type: none"> • What are site and technology specifics that need to be taken into account for the solution to work?
Willingness to pay	<ul style="list-style-type: none"> • What would be some prerequisites for people to be willing to pay for the technology or solution?
Modular approach	<ul style="list-style-type: none"> • To what extend would the DESSIN solution package modules have to be adapted for a new client/site? How could this be done?

Next to the “soft” factors surrounding potential clients, a set of “hard” factors need to be considered for the transfer of the DESSIN solution package and its modules. The selection of these factors is based on the research findings from the outside-in reports.

Legal and regulatory framework

⁵ Recommendations based on the findings from our research for the development of an M&E system “M&E system for innovation - Approach and outline of indicator system”

⁶ In the course of the research project, once the ESS Valuation Methodology is designed, a standardized assessment of technology based on the ESA can be developed and included to this methodology.

Generally speaking, the EU water market is rather mature and innovation is taking place step-by-step, oftentimes when new legislation is ratified. The development and application of solutions thus needs a suitable regulatory and policy framework which provides incentives for their implementation. European countries where water resources management regulations are in line with the WFD and other countries with similar legislation are especially suitable for replication of the DESSIN solutions. Such favourable regulations shall include key elements like water quality targets, users paying for their water, participatory approaches, integrated approaches, and management at the basin scale. Also the attitude and activities of state water authority can be a driver to incentivize the application of the DESSIN solution package including its additional ESS benefits. With respect to the DESSIN solution package, a strong driver for the technology elements are technical guidelines – e.g., for the Emscher case in Germany the technical solutions have to be mentioned in the German Association for Water, Wastewater and Waste (DWA) recommendations or at least have to be certified as equivalent or state of the art.

The Emscher case is overall a successful example of the application of the WFD. The introduction of the WFD in the year 2000 provided the legislative support for the rehabilitation of the Emscher River. It thus became mandatory for the federal state government to improve the river's ecological and hydromorphological status by the year 2015. The WFD also provided new funding opportunities from the European Commission for the restoration of the Emscher River and proved to be a crucial factor in the adoption of sustainable practices in the region. In addition, the strong engagement of local stakeholders, the master plan as the central cooperation instrument, as well as the combination of diverse funding mechanisms, positively influenced the effectiveness of governance in the case of the Emscher.

Proper local setting

DESSIN technologies have been developed to answer a particular water quality or scarcity problem and are often site-specific. Their application depends on a number of geographic, hydrologic and technical features. It is important to define which are the site and technical prerequisites when screening for other locations or sites. For example, both technologies of the Emscher case (RTCs and lamella settlers) work in bigger cities with combined sewer networks where challenges are faced with overflows into the local surface water bodies during heavy rainfall events. Prerequisites for the application of these technologies can include some of the following criteria: 1) City has a CSO which discharges into a surface water; 2) pollution in surface water body has an impact on its usage; 3) options for refitting separate sewer systems are technically not given or comparably more expensive; 4) sewage data availability.

Willingness to pay

Water management authorities will be interested in adopting new technologies if they need to comply with new regulations, for cost reasons or if the water services are at risk. When looking for other sites, it is important to assess this willingness to pay which is strongly influenced by the legal and policy environment. For example the willingness to pay for a new water quantity solution, e.g., flexible ASR systems, will be higher in areas where water supply is at risk and where water is expensive. The willingness to pay for a new water quality technology, e.g., ADESBA application, will be higher in a setup where incentives for reducing the pollution load to the river are existing (e.g., by enforcing effluent discharge standards and by punishing non-compliance or by paying for treatment performance).

Using a modular approach

Generally, the DESSIN solution package follows a modular approach with the core solution containing a technology, information and a management approach related to ESS. Depending on the specific client and site, modules can be taken out or reduced in complexity. For example, for the Emscher case SEGNO might decide to offer the RTC in the technology module without the lamella settler from UFT in the solution package (and vice versa). And the information module might even be left out for some projects. Regarding the DESSIN support services, these would obviously also need to match the respective client situation.

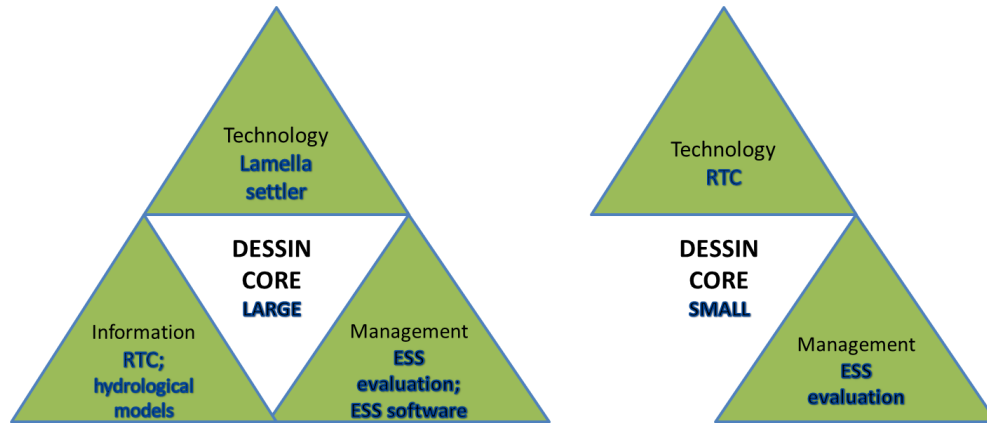


Figure 5: Exemplary variations of the DESSIN core solution; adelphi (2014)

STEP 2: MARKET ANALYSIS

Guiding questions for this step are:

- What are the different types of customers and their characteristics? How to find an entry to these customers?
- What are the most promising markets for the solution? How to select the most attractive markets?
- What are potential sites and who are potential customers in the selected markets? Which factors from the micro-environment are influencing the decision for market entry?

At the end of this step, users should be able to:

- Understand the general customer landscape before starting the research for potential markets
- Identify and select the most promising market for the solution
- Understand drivers and barriers, and identify opportunities in the selected markets
- Prioritize the sites and customers to start with for the new market entry strategy



4 Understanding the customer landscape

In this chapter, the customers of the technology and DESSIN solution package are described in general and their operating environment is analysed. Most of the supply and treatment setup in the water sector is in public hands (with a gradual shift towards more private sector involvement), but a variety of other actors from the private sector and civil society are involved. In addition, there are also public/private hybrids active in water supply, such as publicly-owned private companies. In this complex decision-making setup it is sometimes difficult for companies willing to enter a new market to find the right entry point. This is further complicated by the fact that customer assessment is often not seen as a priority for SMEs which have limited resources for conducting comprehensive market research. However, a good understanding of the customers segments and the environment they are operating in is crucial before conducting any subsequent market analysis. It also provides valuable insights for innovation, product development and marketing.

This section is complementary to the customer analysis included in the outside-in reports which helps to answer some of the questions.

4.1 Identification of potential customers

Table 8: Guiding questions for the identification of potential customers; adelphi (2014)

Areas	Guiding questions
Type of customers / users	<ul style="list-style-type: none"> • Who are potential customers or what are potential customer categories of the technology and DESSIN solution package? • What other type of end-user might be faced with similar problems for which the DESSIN solution provides an answer?
Customers' characteristics	<ul style="list-style-type: none"> • What are customers' needs? Which water or ecosystem services related problem do they face? • What are customers' interests and key characteristics? • How price sensitive are the customers and what are their investment capabilities? • What is the state of technology operated by the customer (is it outdated)? • Are customers willing to pay for technologies that impact ecosystem services? Is there an interest in setting up payments for ecosystem services (PES) scheme? Are there important investment plans for the next years which would limit or enhance the interest of the user?
Customers' perception	<ul style="list-style-type: none"> • Is the potential customer aware of the problem situation? Is there a willingness or political interest to take ESS aspects into account when selecting a new technology? • Would the customer have an interest in choosing the DESSIN solution package? • Which value and benefits does the user see from the offering?

Types of customers / users

In most European countries the municipal authorities are responsible for waste water and sanitation and for local water supply. However there are also several private and public-private operators. In England, France and Spain the water services and waste water sectors are dominated by the private or semi-private operators.

As the DESSIN solutions have an additional ESS value, they particularly apply to public institutions that have an interest in preserving ESS as a public good or are bound to improvement of ESS by law or regulation. But also private companies can be interested in an ESS-relevant solution, either by being subject to the same regulations or because ESS-improvement or preservation is made relevant to their company strategy or bottom line.

Potential customers for the solutions and the solution package for water quality or scarcity thus can be divided into public site owners or private and public-private companies. Further categories are stated in the table below.

Table 9: Potential customers for the solutions and the solution package for water quality or scarcity; adelphi (2014)

Public site owners	Private and public-private companies
<ul style="list-style-type: none">• Communities/ municipalities• Public works departments• River basin organisations• All decision makers in public infrastructure planning bodies who are in charge of sewerage and surface water management	<ul style="list-style-type: none">• Water supply companies• Waste water corporations / treatment plants• Large industrial companies

As described in the outside-in report for water quality (Emscher case), customers for the DESSIN solution package for water quality are mainly urban areas with CSO systems in place. In addition, some technologies may be relevant for waste water treatment of companies, mainly in the manufacturing industry. According to the outside-in report for water scarcity (Llobregat case), the following other target markets can be considered for water scarcity related technologies: agro-industry, desalination companies, bottled water companies, golf courses, spas, hotels and tourist facilities.

For identifying potential customers it may be useful to detach the technology from its previous application context. Abstracting what the solution is actually doing in a technical and physical way can help finding new ideas for possible implementation of the solutions. Especially interesting for any of the DESSIN solutions are large industrial sites or other technology providers interested in using a part of the SME's solution or an element of the DESSIN solution package in a different application context. Companies for example in the agriculture, mining or metallurgical industries could have an interest in these solutions. Customers deciding on the grounds of the ESS valuation would most likely be public institutions opting for the solution due to regulations. Private players may make use of ESS relevance of the DESSIN technologies as part of their services for public institutions or for selling credits generated through a PES scheme.

As in all industries, it is important to segment the target market because customer groups have different wants and needs. Moreover a good understanding about the roles of customers, users and end-users is useful as buyers/customers of the water technologies are not necessarily the end users.

Customers' characteristics

Understanding the water related problem faced by the users and potential customers and their needs is the starting point of the customer analysis. It provides key insights to offer the “right” solution. Moreover a range of financial, environmental, and operational aspects are influencing the purchasing decision of the buyers. This can include ESS valuation considerations.

Water quality and water availability risks, regulatory compliance and cost efficiency are among the most important motivations for investing in innovative water technologies.⁷ Water utilities are rather risk averse because failures can have significant impacts on human health and the environment for which they could be held liable. Technology innovations must therefore be safe to meet their expectations (EPEC (2011)). Also the EU water market is rather mature and innovation is taking place incrementally, oftentimes as new legislation is put in place. Moreover, as market drivers for water technologies in Europe are oftentimes stricter regulations for water treatment, and energy costs are an important factor therein, a focus has been on innovative applications that can produce higher quality water at lower costs (ibid.).

Environmental considerations and ESS relevance are becoming an important issue in view of regulatory changes and potential financial incentives for ESS provision. Users have differing interests in ESS-compliance and should be targeted accordingly.

Customers' and users' perception

It is vital for successful market entry that a SME's solution offers the potential end-users a significant benefit as opposed to keeping the current solution in place or opting for a competitor's solution. Therefore, a company needs to align its offer and sales pitch to the end users' objectives and requirements. . If the SME has solved a particular difficulty for the end-user or its solution adds particular value to existing processes then the potential customer needs to be supported in the recognition this achievement. Generally the high transparency of the relatively small European market for water-technology should allow for an effective analysis of the target-customer's characteristics in order to develop a strong value proposition tailored to the respective customer. The SME needs to avoid focusing strictly on the technical aspects of the offering but should pay close attention to all customer characteristics identified and stress especially the ESS-relevant aspects of the solution to create added value for the end-users.



Understanding the different type of customers and their characteristics is a necessary step for identify customer segments. A customer segment consists of a group of customers that share similar characteristics. Customer Segmentation can be a powerful means to identify unmet customer needs and will help to identify appropriate marketing channels.

⁷ Conclusions based on the outside in report findings on water quality and water quantity. Figure 11 in the Llobregat case report and Figure 10 in the Emscher case report “Top investment motivations by buyer sector in 2013 (Benett/Caroll (2014))” of watershed investors illustrates the benefits that the different customers could be looking for.

4.2 Identifying an entry point to the customers

Table 10: Guiding questions for finding an entry point to the customers; adelphi (2014)

Areas	Guiding questions
Stakeholder mapping	<ul style="list-style-type: none"> • Who are the different stakeholders of the targeted site? What are their roles and responsibilities? Who are the decision makers, buyers/customers, users, end-users etc.? • Who has the decision-making power concerning the organisation of the water services? Who is responsible for compliance with legal/regulatory requirement for the solution? • Who makes the general investment decision for infrastructure, equipment and R&D? Who has the authority to negotiate conditions and choose a supplier? • Which other actors are directly or indirectly involved (tender agents, consumer association etc.)?
Decision making and purchasing process	<ul style="list-style-type: none"> • How does the process of decision-making and purchasing work? Who is involved? What are tendering procedures and where are tenders announced? • Who might influence the process? How well can they influence the decision? • Whose opinion/input is the decision maker or buyer bound to? • What partnerships / additional resources will help reach the new market / decision-makers? • What support organisations are needed to establish the technology in the target market?

Stakeholder mapping

The water market involves a range of actors with different roles, as determined by the national legal framework and water management setup as well as regional specificities. Potential customers of the DESSIN solution package operate in a complex environment of public, private and civil organisations, which are all directly or indirectly influencing the investment decision for new technologies. Generally in Europe, municipalities (often the site owners) tend to have the most important decision-making power with regard to the organisation of the water services and pricing, e.g., of water consumption and water treatment. In most countries the decision about new investments and the way to finance them, however, tends to be the responsibility of the national (regional) water services. Responsibilities concerning water service operation, electromechanical renewal, existing infrastructure renewal, infrastructure extension and R&D may be transferred to private operators (Urban Water Consortium (2013)). The customers also have structures and processes in place for expenditure planning, information-gathering and purchase decision-making (Backhaus/Voeth (2014), p.45).

Identifying the different stakeholders and the existing interactions between them is the starting point to analyse the target market. The following general graph illustrates the main stakeholders and their relationships. It was developed on the basis of the first discussions conducted with

DESSIN SMEs and aims to give an indication about general structures in place for a better understanding of the local setup.

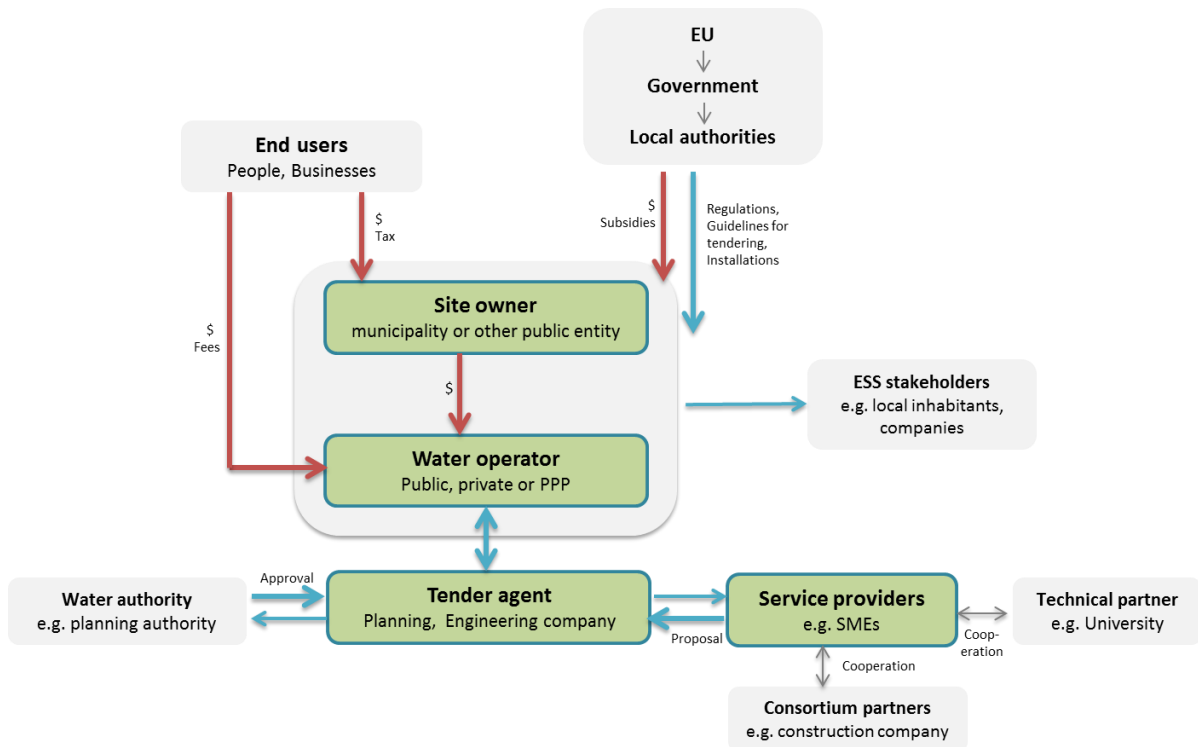


Figure 6: Sample stakeholder visualisation for a public owned site (partly based on interviews with stakeholders of the Emscher Demo Site); adelphi (2014)



A detailed stakeholder map of the target market, showing the interconnections between the different organisations (primary and secondary stakeholders) and the type of the relationships (and their characteristics), is crucial information for assessing the target market.

Purchasing process

Once the key stakeholders have been identified an analysis of their power in the decision making process for new investments will help to identify the right entry point to the customers. This aspect is often underestimated, although it is especially relevant in public service sectors. The following roles can be identified (Backhaus/Voeth (2014) p. 52f.):

- **Buyer** – those who have the authority to choose a supplier, negotiate conditions and finalize a purchase. Generally, the **municipality/site-owner or operator** decides on the general investment and will choose a supplier with regard to user’s and planner’s referral.
- **User** – the members of the organisation who will be operating the solution. Most of the time **water operators** will set operational and technical requirements.
- **Recommender** – members or stakeholder of the purchasing-decision who determine through their position of power or assistance in options-evaluation what the buyer’s decision will be. The **tendering, planning, engineering or consultancy firm** will be following

financial and operational guidelines but often recommends the technology supplier. Cooperating **research institutions or universities** might help evaluating different options.

- **Influencer** – external stakeholders who are not formally involved but determine the purchasing decision by imposing legal norms or technical standards. The **water authority or other national entities** assess compliance with waste water regulation or imposes public procurement regulations
- **Gatekeeper** – anybody who has the possibility to filter or direct the flow of relevant information to or within the process and its stakeholders. The **planning, engineering or consultancy firm** (or institute) pre-select potential suppliers. Water Associations play also an important consultative role and represent the interest of the consumers.

This categorization shows how the different stakeholders might influence the decision for the SMEs or a competitor’s solution. The nature and number of stakeholders involved will differ depending on the area of the water-sector and if the site-owner is a public or private entity.

The stakeholders can be prioritised in terms of importance for the market entry process, for example according to their decision-making power. The decision makers will have different interests and behaviours in the decision (political and strategic, objective or subjective decision criteria). This will help to decide who needs to receive which degree of attention and which type of sales arguments and marketing instruments.

The same type of analysis of the purchasing process can also be done at the organisation level. For a specific client, a variety of people from different positions and departments can be involved in the decision making process.



An analysis of the decision makers in the purchasing process is recommended at the system level and organisation level. This can be done through the following steps (Niedereichholz, Unternehmensberatung (2008), p. 161):

List the decision makers	Define their Role in the decision making process	Estimate their % share in the decision making process	% share Objective	% share Subjective	% share Political
--------------------------	--	---	-------------------	--------------------	-------------------

5 Defining the most promising markets

The aim of this chapter is to support the user in finding the most promising markets for offering the DESSIN solutions addressing problems of water scarcity and/or quality. The DESSIN SMEs are interested in reaching beyond their current market segments, which are largely local due to their early development status, or confined to their national market. The following chapter offers a step-by-step approach to support them in exploring new market opportunities – new regions, new countries or new customer segment – and identifying priority markets. The business environment reports (outside-in reports) which comprise more general aspects of market analysis (e.g. general market, wider regulatory and governance framework, access to finance etc.) provide useful information and answers to conduct this step.

5.1 Demand situation

Table 11: Guiding question for the definition of the demand situation; adelphi (2014)

Guiding questions
<ul style="list-style-type: none"> • What is the demand situation regarding the technology and the DESSIN solution in a specific region, country or industry? • Which players in the market show demand for the technology and ESS?

In order to understand how much demand exists for the DESSIN solution and its modules and to help determine if the respective SME business operations can be enhanced through a market entry, a general demand analysis should be carried out. Here, input from practitioners, researchers and other experts in addition to corresponding data from public sources should provide enough inside to obtain an overview of potential beneficiaries of the technology which then allows for specific enquiries of the demand of those actors. Ideally, already identified potential clients can be addressed directly alongside with a needs-oriented presentation of the solution.



Potential future demand can be assessed in three stages including a macroeconomic forecast, an industry forecast and a specific product sales forecast (Kotler (2003), p.151). This methodology can be used for a specific country or market and to compare the general demand of different markets. A three-stage forecast for the demand for sustainable water technologies has in detail been carried out as part of the DESSIN outside-in report for water quality solutions and can be used as an example. At this stage it is also important to keep in mind the different application options of the technologies and the DESSIN solution package which evoke demand at different ends within certain markets.

Table 12: Example of a Demand forecast for water quality technology in Germany; adelphi (Summary from outside-in report (2014))

1. Macroeconomic forecast	2. Industry forecast	3. Specific solution forecast
The IfW Kiel expects <i>global output growth to strengthen in 2015 (moderate 3.7% increase) whilst the</i>	In Germany, the submarket for sustainable water technology solutions has the highest	Demand for the DESSIN solution package for water quality is likely to increase incrementally as

<p><i>world economy is still to remain sluggish and world trade is unusually low.</i> GDP growth in Germany is generally expected to rise in 2015: Between 2.2% (ifo Institute Munich) to 1.5% (IW Forecast Cologne) (BDA (2014), p.1) is expected by research organisations.</p>	<p>productivity growth levels of all of Germany's green technology lead markets according to a Roland Berger study (financed by BMUB) (GTAI (2014), p.1). Global markets for water ESS generally show increasing opportunities (Hill (no year), slide 8).</p>	<p>environmental laws have more stringent waste water discharge rules. The 3rd cycle of the WFD will be an upcoming driver for the RTC.</p>
---	---	--

5.2 Regional and sectorial analysis

Table 13: Guiding question for conducting a regional and sectorial analysis; adelphi (2014)

Guiding questions
<ul style="list-style-type: none"> • In which other regions or countries is there potential demand for the technology and DESSIN solution? • In which other sectors could the technology be transferred?

In order to identify suitable regions or industries where the solution could be applied - be it stand-alone or in combination with all other DESSIN components, two main options can be explored by DESSIN SMEs:

- **Regional analysis:** identifying most promising regions or countries for application of the solution
- **Sectorial analysis:** identifying most promising sectors for application of the solution.

These perspectives should not be seen as two separate analyses, but are complementary. The approach chosen will depend on the specific needs and interests of the SMEs. A regional analysis is applied when looking for suitable sites abroad which would be facing a similar water scarcity/quality challenge. The sectorial analysis will help to explore other customer segments or sectors where there could be a need for ESS Solution. DESSIN SMEs offer a variety of solutions for public and private water management organisations. Some might see opportunity to apply their solution in large industrial sites with important water-related challenges and where regulations for the private sector are becoming more restrictive too.

When assessing a new market for the ESS solution (wheter regional or sectorial approach), the starting point is to analyse the macro-environment in order to identify **market drivers** and **barriers**. This will lay the foundation for the market selection and prioritisation. As for every product launch or innovation process there are supportive or restrictive conditions for the successful dissemination and future application of water related technologies like the regulatory environment, geographic conditions, water infrastructure etc. For example, water scarcity technologies are more suitable in regions with hot climate, high urbanisation, desertification challenges, intense industrial and agricultural activity, vulnerable to climate change. Water quality technologies would especially focus on regions with high rain and overflow, with seasonable precipitations etc.

When assessing a market for DESSIN solutions, the following key market conditions need special attention⁸:

⁸ Summary of key market conditions based on the results of the business environment reports

- The **regulatory environment**, in particular the application of the WFD and further national or local regulations enhancing water quality and scarcity protection
- **Policy tools and incentives** that could strengthen the willingness to pay for ESS Solutions
- **Geographic**, climatic and hydrological conditions
- Current demand and future **demand for ESS Solutions** in a specific country or sector
- The wider **demographic environment**, in particular, with reference to the solution package, the degree and trend of **urbanisation** as some solutions have a higher demand in urban areas.
- The wider natural environment in terms of **status of water bodies and water ESS** to assess if an improvement of water-related ESS is of relevance.
- General **investments in infrastructure** to evaluate whether an improvement of (water) infrastructure and its related services is likely to be performed (“investment friendly”).
- Information on the **technological environment** and, particularly, on **competitors** in the same technology market to assess whether it is possible to enter as a new market player or established player with a new solution.
- Social aspects such as **consumption trends and environmental awareness levels**.



A widely used tool that helps companies understand the drivers and barriers is the PESTEL-analysis. It assesses **political, economic, social, technological, environmental and legal** factors that might have a critical influence on the success of a market entry. These categories could be used to identify drivers and barriers in each analysed markets. An example of PESTEL analysis tailored to the DESSIN context is provided in Annex A. The promoter of the technology should also think about sector specific factors and potential “soft factors” that could hinder its market entry e.g. geographic proximity, language and cultural barriers, quality of infrastructures or availability of skilled staff. During the analysis it is essential to keep in mind the unique feature of the ESS-evaluation elements.

Annex C offers also a list of relevant links to support SMEs in the market analysis.

5.3 Market selection process

The following main steps are suggested for the market selection process:



Figure 7: Market selection process; adelphi (2014)



This process can be applied for a regional analysis or sectorial analysis. The expected output is to shortlist 1 to 2 markets which offers the best opportunities for commercialising the solution - be it stand-alone or in combination with the ESS valuation tool.

1. The first step is to brainstorm and select 4 to 5 markets (countries or sectors) that would be of interest for the technology provider.
2. In the framework of an evaluation matrix, each market is analysed against key evaluation criteria. The PESTEL dimensions offer a good basis for developing a list of evaluation criteria. Additional soft factors and sector specific factors should also be considered. Examples of evaluation matrix for a regional and sectorial analysis are provided below. This qualitative analysis will offer a good picture about the opportunities, drivers and barriers in each target market.
3. A list of selection criteria should then be developed in order to benchmark and rank the different markets so they can easily be compared to each other.
4. A multi-criteria analysis can then be applied for the market prioritisation. The different markets are scored against the criteria for market selection. In the scoring process, the team discusses how each target market matches the different criteria and score them on a scale of for example 1 to 5. Depending on their importance, a multiplier could be applied to some criteria with more weight in the decision-making. To facilitate the exercise, individual scoring can be done in advance before the group assessment.

The selection of the criteria is a critical step in this exercise. As some of those criteria seem quite obvious and are generally accounted for long before a concrete decision process is initiated, some criteria might be harder to raise awareness for. Here, group brainstorming can be a helpful tool. Also keep in mind, that additional criteria might not only represent boundaries but can as well lead to locally specific opportunities, especially when offering a solution package fostering ESS.

Table 14: Matrix for country/sector benchmark; adelphi (2014)

	Country/ Sector A	Country/ Sector B	Country/ Sector C	Country/ Sector D
<i>PESTEL</i>				
Political				
Economic				
Social				
Technological				
Environmental				
Legal				
<i>Additional company and sector-specific criteria</i>				
Need for water ESS solutions				
Geographic-climatic conditions				
Customer density				
Competition intensity				
Additional criteria etc.				
Summary of main drivers and barriers				

Table 15: Example of matrix for multi-criteria analysis for market prioritisation and selection; adelphi (2014)

	Country/ Sector A	Country/ Sector B	Country/ Sector C	Country/ Sector D
Need for ESS solutions				
Conducive regulations				
Willingness to pay				
Competition intensity				
Geographic proximity				
Language barriers				
Company's current network				
Additional criteria etc.				
Sum of scores				

This analysis will enable the selection and prioritisation of the top 1-2 markets. These would then require an in-depth analysis of the micro-environment in order to identify potential customers to approach and analyse potential partners and the key players in the sector.

6 Analysing the micro-environment

Once the most promising markets have been identified, the next step is to conduct a more in-depth analysis of the micro-environment in these markets. This involves analysing factors or “elements in or immediately surrounding a business that can affect its performance including its internal environment, its suppliers, its marketing intermediaries, its customers, its competitors, and its community” (investorword.com). A thorough knowledge of the customers, competitors and other key players in the market is vital for a successful entry strategy. It will help to assess the competitive advantage and identify potential partners and customers.

In the context of DESSIN, the micro-environment of the technology providers can be summarized as below. Beyond traditional market players like customers and competitors, intermediaries need to be taken into account, e.g., planners and universities, and consultants as well as public stakeholders.

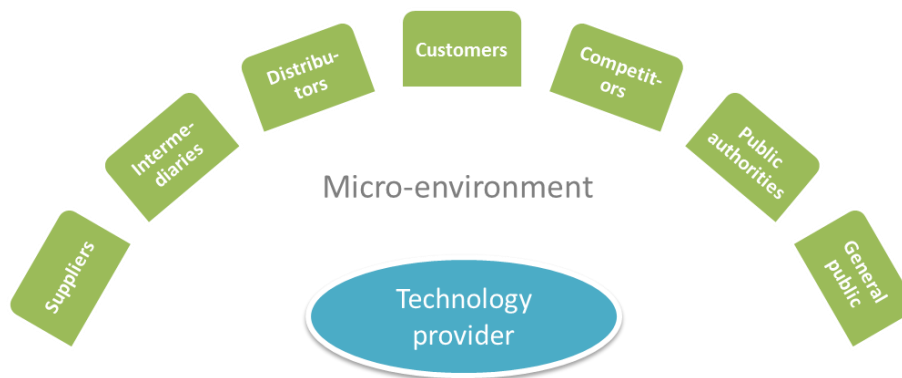


Figure 8: Main factors of the micro-environment of technology providers; adelphi (2014)

One of the key challenges when analysing the micro-environment is the access to relevant information. In addition to desk research, it is recommended to conduct interviews with industry experts and market intermediaries in the target market in order to gather enough information for strategic decisions.

6.1 Identifying customers

Table 16: Guiding questions for the customer analysis; adelphi (2014)

Guiding questions
<ul style="list-style-type: none">• Who are potential customers? What are their needs and interests in ESS solutions? Which water technology are they using today?• Is the market size sufficient? Is the number of potential customers sufficient and can they be identified in detail?• Is there a general interest from target customers for sustainability/ESS issues ?

The next step is a more comprehensive analysis of the existing customers. In the water sector, the variety of clients' and ownership structures demands a thorough analysis. To bring different customers with different demand settings together in a joint venture or a PPP could make a solution more appealing and affordable, particularly if an ESS solution package is offered that addresses different demands such as efficient water treatment and the enhancement of ESS. Analysing the clients' organisational setup can also reveal important information not only on how to meet existing demands, but also how to create demand, for example for the provision of ESS-solution packages, compared to previous market entries with a similar customer landscape.

For the customer analysis, please refer to the guidance provided in Chapter 4 "Understanding the customer landscape" which includes guiding questions for the analysis of customer characteristics.



First, a long list of potential customers (per customer segment) with as much information as possible about their structure, water management practices and potential site challenges should be developed. Subsequently, the different customer options can be assessed according to the critical success factors⁹ for the application of the solution. This screening will help to establish a shortlist of customers.

6.2 Competitor analysis

Table 17: Guiding questions for the competitor analysis; adelphi (2014)

Guiding questions
<ul style="list-style-type: none"> • What does the competitive environment look like (fragmented, consolidated etc.)? • Who are direct and indirect competitors on the market? What are their strategies, the price of their product/Service? • How are the competitors performing? What are their strengths and weaknesses? What emphasis to they place on sustainability aspects? • Why do customers buy from them? • Which market requirements can be fulfilled by DESSIN solutions in comparison to competitors?

Although the competitor analysis is an essential component for strategic planning, oftentimes, SMEs do not conduct this type of analysis systematically. When formulating an entry strategy on a new market, it is crucial to observe the strategies of the competitors and analyse how they act or react on the market. It will provide important information about the market dynamics and at the same time helps to discover any weaknesses within the organisation and identify any external opportunities or threats. Moreover, the goal of carrying out a competitor analysis is ultimately to identify and increase a business competitive advantage.

Generally, the competition landscape in Europe for technology providers (software provider and water equipment manufacturer) is highly fragmented with a range of players at the national and international level. Most software company carry water management software as one product of a larger portfolio and create customary software for the different water services companies. Equipment providers tend to specialize in the water related markets but not limited to water

⁹ Screening for critical success factors is the methodology that is suggested in the outside-in report . The Critical Success Factors include: Proper Local Setting; Policy Mix; Willingness to Pay.

services, but also working with industrial applications and agriculture ((UrbanWater Consortium). Beyond these two market segments where substitute products to the DESSINS solutions could also be available, other important competitors to be considered are large (and global) water utilities e.g Suez, Veolia, SAUR, Agbar and RWE. Through the acquisition of technology companies, they are not only the main users of water and wastewater technologies but also leading suppliers. These industry majors often tend to win framework supply agreements with utilities. When conducting the competitor analysis, it is also important to take into consideration the ESS valuation tool part of the DESSIN solution package. There are already a number of environmental and ESS assessment tools available, but selling the technology with a customized ESS valuation tool can be a key competitive advantage in comparison to other competitors.

The outside-in reports for water quality and water scarcity provide information about the competition landscape in Germany and Spain.



The following steps are suggested for conducting a competitor analysis:

- Research and identification of most important competitors
- List of competitors and description of strengths and weaknesses
- Definition of key service provision criteria which are relevant to the technology promoter (market share, price strategy, innovation, network, distribution model etc.)
- Comparison of service provision with competitors against the list of criteria and qualitative analysis
- Strategic conclusions and improvement of market position

6.3 Other key stakeholders

Table 18: Guiding questions for the analysis of other stakeholders; adelphi (2014)

Areas	Guiding questions
Suppliers & distributors	<ul style="list-style-type: none"> • Who are potential suppliers and how are they performing? • Who are potential distributors and how are they performing?
Potential partners	<ul style="list-style-type: none"> • Which universities or research institutions are active in the market? • Which consultancies and planning agencies offer related services? • Which other technology or service providers, or infrastructure/building companies could be potential consortium partners in the target market?
Public authorities and associations	<ul style="list-style-type: none"> • Who are the relevant public water authorities, regulators? • What other key players are active in the water services sector? • Is there an influential water association active?

In addition to the customers and competitors, information about suppliers and distributors, market intermediaries and other stakeholders like public authorities e.g water regulators should also be collected at an early stage. For example, the selection of equipment suppliers, or consultants for the project development can have important consequences in the business and service quality if

they are not reliable enough. In the analysis of these additional stakeholders it is important to rate strengths and weaknesses of them.

The micro-environment analysis provides important additional information about factors which might directly or indirectly affect the company in a new market. This step can be concluded by a brief challenges and opportunities analysis for each market, based on the results from the internal assessment (Step 1) and the macro and micro-environment analyses (Step 2). This qualitative assessment combined with a cost-benefit analysis will also help to take strategic decisions on the best market to enter, given the actual goals and resources.

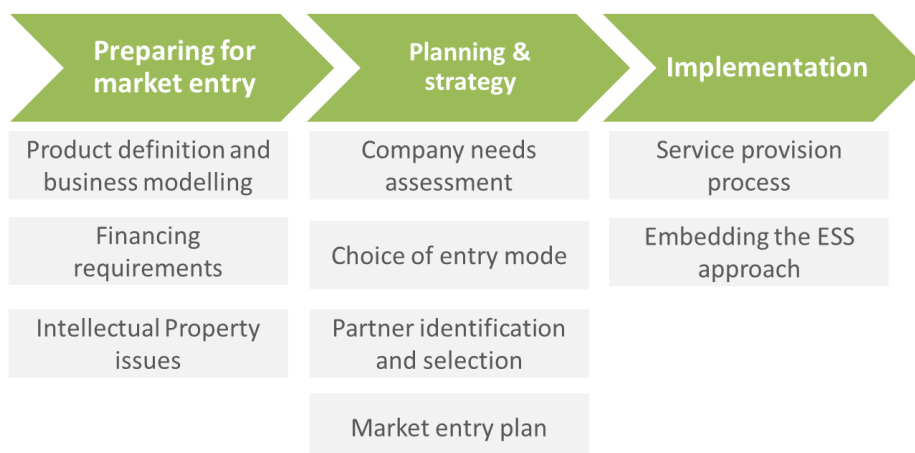
STEP 3: MARKET ENTRY STRATEGY

Guiding questions for this step are:

- What are the main steps of the market entry process?
- What are important issues to be considered in terms of financing, IPR or business model before entering a new market?
- What is the best way to enter the market considering goals and resources?
- Which support organisations/ partners are needed to transfer the solution to another site/client?
- How can the ESA be integrated into existing processes?

At the end of this step, users should be able to:

- Analyse and evaluate the different market entry options
- Develop a market entry plan (goals, resources and activities)
- Identify and approach suitable partners
- Embedded the ESA into the service provision process



7 Preparing for market entry

When a new market has been identified, the next step is to define whether the product can be marketed in its current form or whether changes are required in the technology and business model. To be well prepared for a market entry strategy, SMEs must also tackle further critical issues such as financing and IPR. Accessing a new market can be a costly endeavour which makes a clear funding strategy essential. Special attention must also be directed towards the issue of IPR which can represent a risk for technology based company with expansion ambitions.

7.1 Product definition and business modelling

Table 19: Guiding questions for product definition and business modelling; adelphi (2014)

Areas	Guiding questions
Product definition	<ul style="list-style-type: none"> • How should the technology or solution package be adjusted to meet the needs of the target users? • What legal requirements and technology standards need to be met? • Can the technology be marketed in its current form? Are potential variations and customisations required (adaptation)? Can changes be made to improve general marketability of the technology (standardization)? • Would the offering be stronger if sold together with other DESSIN technologies? • What ESS are of relevance that are influenced by the technology? • What are the necessary steps to make the product ready for final acceptance by the user (test, prototype, demonstration etc.)? Are further R&D investments required?
Business modelling (including price and cost structure, and revenue model)	<ul style="list-style-type: none"> • What is the business model for the service provision and technology delivery? Does it need adjustments in view of the new market characteristics? • What are the most important costs inherent to the product/service (development, production costs etc.)? Are there additional market specific costs (e.g., translation, trainings etc.)? • For what price/value are target users/site owners willing to pay/currently paying? • To be competitive, does the cost and price structure need to be adjusted? • What are the main revenue streams (e.g., sales, usage fee, licensing, etc.)? Is the revenue model adapted to the new offering or does it require adjustments?

Product definition

Often technology developers will need to adapt their products to some extent in order to meet the needs of the new customers, specificities of a new site, or to reflect the state of practice of a new national market. Water-related problems are often locally specific, and while technology is oftentimes transferrable to other locations, even standardized water solutions might need some adjustments. Whether and how to adapt the technology should be decided after considering necessary changes due to customers, regulations, technical provisions, cost considerations, etc. Adaptation may be related to a product but also to other processes and/or support and service functions (Innowater (2013)). However, adapting a product for a new market can be costly for an SME with limited resources. Therefore, partnership opportunities need to be explored and a funding strategy needs to be developed (see Steps 7.2 and 8.3).

With the modular approach of the DESSIN Solution, SMEs also have the opportunity to offer different types of packages to enhance their solutions and improve the ESS value proposition. Depending on the specific client and site, modules can be taken out or their complexity can be reduced.

Business modelling

To remain competitive and profitable, enterprises may also need to review or adapt their business model for service provision or technology delivery. For example, operating in a new location or foreign country involves developing a viable supply chain, working with new partners or using new distribution channels; changes which can imply additional costs and have an effect on the viability of a business case.

In this assessment, a focus should therefore lie on the cost structure and pricing strategy. Generally water technologies involve high development, production and maintenance costs (e.g., R&D, specific expertise required, single-manufactured product etc.). Now, entering a market with lower purchasing power or strong competitive forces can require the adaptation of the product pricing, making it essential to adapt the structure of costs accordingly to be competitive.

A basic pricing and costing assessment includes the following main steps:

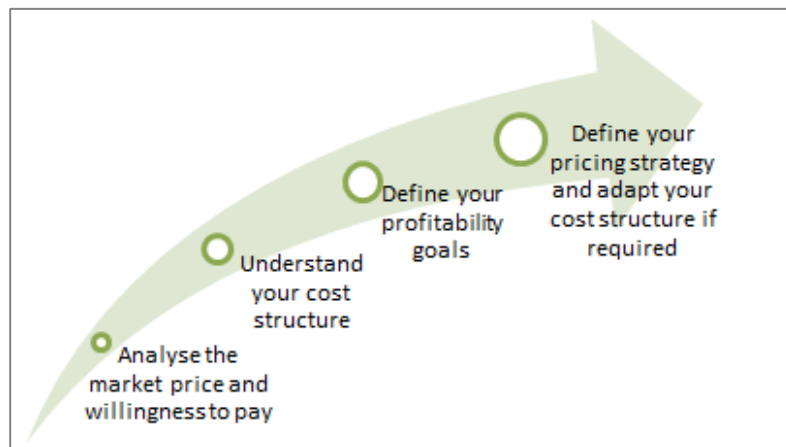


Figure 9: Main steps to implement a basic pricing and costing assessment; adelphi (2014)



A useful and easy tool to develop and review a business model is the Business Model Canvas - a strategic management tool and visual chart with elements describing a firm's value proposition, infrastructure, customers, and finances (A. Osterwalder, Business Model Generation).

7.2 Financing requirements

Table 20: Guiding questions for assessing financing requirements; adelphi (2014)

Areas	Guiding questions
Financial issues	<ul style="list-style-type: none"> • What are the main steps and primary activities for each step to reach successful market entry? What are the financing needs at each stage of the process? • How strong are the company's internal financial resources and what external funding opportunities are available? • Is there a funding strategy in place?

From concept development and piloting of a new offering to market entry every step involves different financing needs. It is important to assess the potential financing requirements for the implementation of primary activities, to screen the financing options and possible sources of funding available. The most common reasons for seeking finance are listed below, along with the most likely sources of finance for each:



Activities	-R&D -Feasibility study/ Business Plan -Prototyping	-further R&D -development of marketable solution -marketing & customer acquisition -building production and distribution capability	-full market entry -increasing market penetration -expansion of production capacities -expansion of distribution capability	-product diversification & differentiation - product redevelopment - company restructuring & expansion
Financing needs	Relatively low financial requirements (depending on intensity of R&D activity)	Substantial financial requirements for preparation of commercialisation	Growing financial requirements according to expansion success	Growing financial requirements according to expansion & competitive pressure
Type of finance	- own equity - friends, family contributions - public funding - business angel	- own equity - friends, family contributions - business angel - trade credit - public funding	-debt capital -venture capital -public funding	- debt capital - venture capital - public offering

Figure 10: Financial issues according to the different development stages; adelphi (2014)

Each development phase – from invention or business planning to market entry – has different financing needs. For start-up SMEs, own equity and contributions from friends and family are often the most important source of finance at the early stage of development. These firms tend to be highly risky with intangible assets and the prospect of years of negative earnings. These features make it extremely difficult to secure a loan from banks. In view of the higher risk associated with innovative technologies, public funding and innovation and research funds offer SMEs a good way to cover first activities like R&D, feasibility study and business planning. External finance is required with high investments in product development and commercialization. At the product development phase, further injection of capital to fund the growth of production and distribution capacity is needed. Business angels present an interesting source of finance at this stage, and can also contribute their expertise, knowledge and contacts. With progression of the development & marketization process the financing requirements grow quickly. At the market entry and expansion phases, SMEs become more attractive to venture capitalists and debt financing is to be considered.

As far as DESSIN SMEs are concerned, numerous funding opportunities targeted at highly innovative SMEs are available at the EU and national level. The instruments offered range from grants for feasibility assessments to innovation development or demonstration purposes and sometimes even include support offers like business coaching or facilitated access to venture capital investments. Due to the ESS-relevance of the DESSIN-technologies, the SMEs should also closely assess the options for grants and further public funding facilitating the development of ESS specific innovation.



Who offers finance? Suggestions for different financing options and sources of public funding are provided in the DESSIN Business Environment Reports.

7.3 Intellectual property issues

Table 21: Guiding questions for managing intellectual property (IP) issues; adelphi (2014)

Areas	Guiding questions
IP management	<ul style="list-style-type: none"> • Through which legal forms are IP rights (IPRs) secured (patents, copyrights, confidential information)? • What are the terms of the licensing process? • Is there a systematic approach in place to ensure compliance with the licensing agreements? • Does the company keep a record of the IP transfers to customers and business partners?
Technology transfer	<ul style="list-style-type: none"> • Is the technology / solution package secured through IP claims? • What kind of technology transfers are needed to implement the solution package at new sites (vertical vs. horizontal)? • Are IPs from other IP-creators (technology companies, universities, research institutions) a component of the package?
Competitive environment	<ul style="list-style-type: none"> • Are there specific legal regulations concerning IP-rights in the target markets (EU /non-EU market)? • How prone is the target market to counterfeiting and IP-fraud? • Are potential infringers of the IP identified? Are they small or large? Emerging actors or already established?

For a technology-based company like the DESSIN SMEs, special attention must be directed towards the issue of intellectual property rights. Under intellectual property laws, owners of intellectual property are granted certain exclusive rights. Some common types of intellectual property rights are copyright, patents, and industrial design rights.

IP management:

Companies need to treat their IP as a portfolio and manage it accordingly. IP management should be based on a policy document summarising all IP arrangement principles, in line with the company's business strategy. This policy will also serve as a reliable foundation for future partnerships and licensing agreements.

A thorough protection against IP fraud is a key aspect of IP management. Managers must keep in mind the two goals of IP management: protecting the company against IP infringements *and* preventing risk imposed on the company by infringing other parties' IPRs.

IPRs can bring certain competitive advantages. Detailed information on these is essential, including costs, coverage and validity. An audit may be necessary in order to compare the monetary benefit of IPRs with the direct and indirect costs of protecting them. Licensing methods and an overview of the interacting entities (private companies, public utility companies or public private partnerships (PPPs); site owners, site operators, drivers of innovation and technology development, financing institutions) need to be identified. Potential partnerships around technological innovations can be identified in this process.

Technology transfer:

The terms of technology transfer play a key part in the long-term benefits that the company can gain from these interactions. Vertical technology transfers imply the diffusion of a technology / solution package without sharing the underlying IP (for instance in product sales). Horizontal technology transfers meanwhile include the sharing and reciprocal transfer of IP, typically in joint ventures.

Technology transfer decisions have to be made with regard to the long-term valuation of the technology's underlying IP. Synergies have to be fostered as they put the company in a position to continually build up additional know-how, increasing the IP-portfolio. Internal sensitisation for IP-related issues and a close connection between management, sales department and R&D are necessary. It is important that for any joint venture, the rights, responsibilities, contributions and especially the ownership of IP are clearly defined and documented, in order to avoid potential conflicts which could diminish the value of the partnership or lead to longsome legal conflicts. Such considerations would need to be addressed in the case of an internationalisation strategy but also in the context of the DESSIN consortium (if decision is taken to sell the whole DESSIN Solution).

Competitive environment:

A market analysis should focus on the possibility of IPR infringements and fraud. The key factors are the ability of competitors to infringe IPRs, requiring a proper IPR protection system, and having mechanisms protecting holders of IPRs. A monitoring system of compliance with licensing agreements and the corresponding license payments is crucial to deal properly with market competition, and needs to be adaptable to new contexts and changing stakeholder landscapes.

Suitable audits of licensing agreements are a good way to provide partners with the highest level of confidence and transparency. The examination of royalties and their compliance with the licensing agreements of both parties is recommended, in order to improve the clients' and partners' ability for on-site management of the technology or solution package and thereby reducing their risk (<http://www.ils-firm.com/royalty-examination.html>).

The aim of the following chapter is to determine the strategy and plan for a new market entry. It involves assessing the needs of the organisation at the internal level and in view of market forces, and determining the necessary actions and main steps for transferring the solution to another site or customer. This stage will help to define the best way to enter the market considering goals and resources of the organisation, and prepare a plan for the market entry strategy.

8.1 Needs assessment and necessary activities for transferring an ESS-relevant solution

Table 22: Guiding questions for the analysis of activities necessary for transferring an ESS-relevant solution; adelphi (2014)

Areas	Guiding questions
Assessment of company needs and market entry barriers	<ul style="list-style-type: none"> • What are the most important weaknesses/needs of the technology provider for transferring the ESS-relevant solution? • What are important constraints that hamper market entry? How to overcome them?
Necessary activities to transfer the solution	<ul style="list-style-type: none"> • What are necessary activities to transfer the a ESS-relevant solution to a) a public site owner; b) a private company? • Which activities are of high importance to enable the transfer of the ESS solution?

The previous sections allow an SME identifying appropriate interventions and activities for transferring the solution or entering a new market. Selling the ESS-relevance of their technology implies new considerations for the technology/service provider. SMEs face different challenges depending on the development level of their technology, their business experience and the target group. Indeed, the angle on ESS and therefore the approach taken will be different if the solution is sold to a public site owner or a private company and will ultimately depend on the individual requirements of a specific client.

The following dimensions can be considered for the needs assessment (selected examples):

- **Technological aspects:** manufacturing challenges, further R&D required, developing a viable supply chain, existing support mechanisms for upscaling the technology
- **Economic aspects:** financial resources required, profitability of the product, supportive financial mechanisms in place in the target market
- **Capacity & knowledge:** level of technical and business skills needed, capacity building costs involved, in house and external expertise required, knowledge of ESS
- **Marketing and communication:** promotion, market research costs, network development
- **Partnership:** existing network in target market, partnership management process in place
- **Legal aspects & IP issues:** knowledge of the legal regulation and requirements for registration, knowledge of new IP context

- **Environmental benefits** : proven ESS benefits, impact results and measurement tool in place

The next step is to identify **barriers to the market entry** and develop measures on how to overcome them. In addition to “soft factors” that can hinder the entry into a new market, other barriers in the target market that businesses face include (Fahri Karakaya (2002)): cost disadvantages and economies of scale by competitors, product differentiation, the degree of firm concentration, high capital requirements to enter a market, customers' cost of switching, access to distribution channels, government policies.

The combination of results from the needs assessment and the analysis of market entry barriers leads to a list of actions and activities for entering a new market – from technical and R&D aspects to organisational and financing aspects.

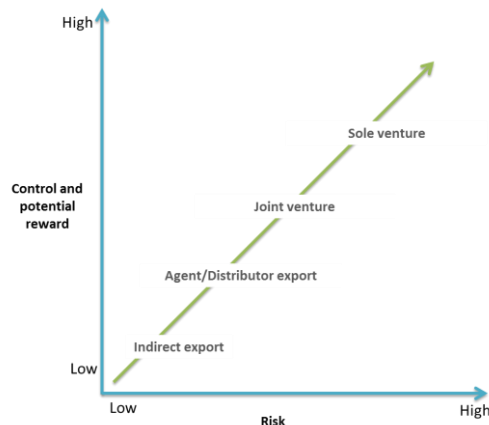
With regard to ESS considerations, additional thought should be given to awareness raising activities. Generally, ESS seen as a marketable service is a new concept for public leaders and businesses. Depending on the ESS relevance of the technology, it may pay off to invest resources into communicating about the benefits of ESS in water management. Awareness raising activities can include information dissemination (articles, reference reports, mailing actions etc.), participation in national and regional fairs, and implementation of road-shows. Participation in European forums and expert network offers also good opportunities for networking.

8.2 Choice of entry mode

Table 23: Guiding questions for the choice of market entry mode; adelphi (2014)

Guiding questions
<ul style="list-style-type: none"> • What are the company goals for business growth (short and long term view)? • What are different entry mode options available (direct approach or indirectly, through an intermediary or agent)? • What is the best way to enter the market considering goals and resources?

The choice of entry mode is especially important in the context of an internationalisation strategy. There are multiple channels of entry open to SMEs and it is crucial that the chosen strategy is aligned with the company’s long-term business objectives. The “Practical Guide for Water Innovation International” by Innwater identifies a spectrum of entry modes which are the most visible at the SME level; on opposing ends are:



- **Indirect Export:** product transferred to a foreign country via middlemen.
- **Investment entry mode (sole venture):** involves ownership and management control in the foreign country

In addition, there are various in-between modes (e.g., joint venture, agent export, etc)

Figure 11: Main market entry modes according to the risks associated and the level of control; Innwater

In practice, financial and management constraints make it difficult for SMEs to pursue an investment entry mode. SMEs will rather seek alliances ranging from simple purchase/supplier relationship to joint ventures. Strategic alliances allow companies to share the fixed costs and associated risks of developing new product or processes, bring together complementary skills and assets, and help to establish technology standards. The main motivation for seeking strategic alliances is to initiate a learning exchange which can reduce market entry costs. Allies can guide the company on issues like legislation, IP, and taxes. Other commonly used modes of market entry barriers are exports through agents (acts as a sales person and most of the time rewarded by sales commission) or distributors (independent merchant that takes title to the manufacturer's goods for resale). For a successful cooperation with such intermediaries, a suitable incentive structure is required.

There are a number of factors that will influence the choice of strategy, including, but not limited to, tariff rates, the degree of adaptation of the product required, marketing and transportation costs, skills needs, lack of market knowledge and know-how, resources available, etc. Thus an in depth analysis of the strengths and weaknesses of the different entry options in view of the goals and resources is essential.



Annex B provides a long list of market entry options including pros and cons of each model.

8.3 Partner identification and selection

Guiding questions

- Are there valuable partners on the target market?
- Is the participation to tenders possible there? What are the tender procedures in the target market? Are there potential collaborations with other players?
- What are the key criteria to select them?
- What experience do they have on this market? Do they have relationships with the competitors? Do they have the critical mass?
- What benefits can they get from cooperation?

The success of a market entry will largely depend on the selection of the partner, the partnership structure and the way the partnership is managed.

To set up the solution, DESSIN SMEs usually need a variety of support organisations with complementary expertise. In the Emscher case for example, the technology/service providers work in close cooperation with a local university and/or consultancy. Developing linkages with public authorities including public site owners is also important for accessing project tender opportunities. The application of the ESS valuation method may also require external support. Depending on the chosen strategy, the technology provider may also need to develop new collaborations with local suppliers and distributors.

A thorough partner analysis and selection should be carried out – whether it is for the selection of a new supplier or distributor, or while developing a strategic alliance. The micro-environment analysis (see chapter 6 “Analysing the micro-environment” already provides a long list of the different players in the target market, that can be used to identify potential partners. Successful

partnerships are win-win situations. In the partner selection process, each side must understand what competencies, resources and knowledge the other side brings to the partnership. To this end, organisations must first understand their own core competencies and their needs and be able to communicate them to potential partners (see Chapter 2 “Core Competencies and Value Proposition”).



Suggested steps in the partner selection process:

- Identify core competencies
- Identify needs and requirements
- List potential partners and their resources
- Assess potential partnerships and determine return services
- Develop an action plan to approach the different potential partners

8.4 Market entry plan

Table 24: Guiding questions for planning the market entry; adelphi (2014)

Guiding questions
<ul style="list-style-type: none"> • What goals are pursued in the new market entry strategy? • What action plan needs to be implemented? • What organisational changes are necessary? • Which resources are required to implement the strategy?

The final step is to summarize all outcomes from the previous section in a compelling strategy and to develop an action plan. The strategy determines the direction and scope of market entry, and how resources should be configured to meet these goals.



Contents of the market entry plan:

Contents	Key elements to address
Goals	<ul style="list-style-type: none"> ▪ Decide what customer needs will be fulfilled ▪ Decide the most suitable entry mode ▪ Set up a clear timeline for the implementation ▪ Define quantitative and qualitative performance indicators
Key activities	<ul style="list-style-type: none"> ▪ Adapt the product if needed ▪ Finalise the business model and pricing ▪ Choose a marketing and promotion strategy ▪ Select and contact partners if applicable
Internal organisation	<ul style="list-style-type: none"> ▪ Define the responsibilities for the new market entry (project owner, team,..) ▪ Establish a reporting structure on the evolution of the market entry process
Human Resources	<ul style="list-style-type: none"> ▪ What HR resources are available internally? Re-allocate staff or hire if needed ▪ Train existing staff and potential partners
Budget	<ul style="list-style-type: none"> ▪ Create a financial plan including external financing if necessary

Having decided which markets to enter, and how to enter the market, the next step is to implement the strategy and provide the solution to the new customers. The aim of this section is to address important issues technology providers should consider while commercialising ESS-relevant solutions. The application of the DESSIN solution package or elements of the solution involves reviewing some of the existing service provision processes of the technology providers. Moreover, in the implementation of the solution, special attention must also be directed on how technology providers can integrate the ESA approach into their strategy and to the communication of ESS benefits.

9.1 Service provision process

Table 25: Guiding questions related to the service provision; adelphi (2014)

Guiding questions
<ul style="list-style-type: none">• What are the main steps in the service provision process, from the product presentation to the test phase and final service deployment?• What will be the main steps of the ESS valuation Approach?• How can the ESS valuation approach be integrated into the current service provision process?

One of DESSIN's objectives is to operationalise the Ecosystem Services Approach (ESA) to enable an extended, standardised evaluation of impacts from water-sector innovations. E.g. for the Emscher case, first assumptions (based on the general thought that a better ES state leads to enhanced ESS) are that the DESSIN solution package has a positive impact on ESS as it contributes to water purification and biodiversity preservation and improvement. Indirect effects of the ESS could include the improvement of cultural services.

Integrating the ESA presents a unique opportunity for SMEs to assess the ecosystem benefits created by the implementation of their technology. It ultimately gives added value to their offering, provided that stronger regulations in the field of ecosystems protection are expected in the coming years. For a successful provision of the DESSIN solution, it is beneficial to review the current service provision process and think about ways to integrate the ESS valuation methodology. Due to the complexity of environmental valuation, the implementation of ESA will require specific expertise within the company and the development of a "process" for ensuring an appropriate and valid valuation. For example, data collection, stakeholder engagement and reporting procedures will need to be integrated into the current service deployment. ESA is at an early stage within DESSIN. This section will be updated in the course of the research project once the ESA has been designed and tested.

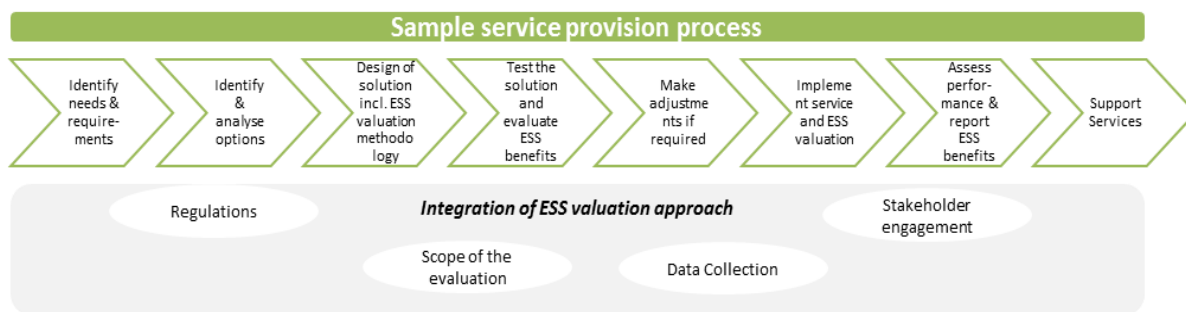

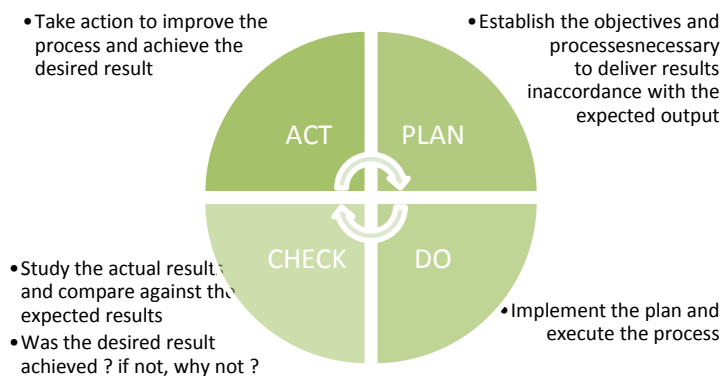


Figure 12: Sample service provision process and relevant elements to consider for the integration of the ESS valuation approach (to be adapted in the course of the research advancements); adelphi (2014)

 In order to ensure quality in the service provision, **the Plan Do Check Act (or Deming Cycle)** management method can help organisations to control and continuously improve their processes. It involves the following steps:



9.2 Embedding the ESA

Table 26: Guiding questions related to the embedment of the ESA; adelphi (2014)

Guiding questions
<ul style="list-style-type: none"> • How can the ESA be incorporated into the existing strategy? • Is additional expertise and capacity building required? • How to communicate ESS valuation results? Which stakeholders of the target system should be informed and how?

Embedding the ESA will require educating staff and developing expertise within the organisation. Depending on the resources available, the technology provider would need to invest in internal training and could also decide to set-up a resource team. Alternatively, it may be decided that the detailed skill set required is best outsourced (e.g., consultants or universities).

In case the solution is sold together with the “Management” element (ESS valuation methodology), the technology promoter should also think about ways to integrate ESA into its strategy and existing processes. This might involve some organisational changes.

Communicating the ESS results is also a crucial aspect, as to strengthen the selling point of the solution. This is relevant while approaching a new customer, but also in the implementation phase. As a general principle, the more simple and transparent the communication process and results, the more likely the results will be accepted and used by the customer and different stakeholders. A fundamental requirement is to make the results as clear and relevant as possible to the target stakeholder audience, using language they understand and can relate to (WBCSD 2011). A combination of different approaches and channels should be adopted to get the message across a variety of stakeholders (e.g., technical report, presentations, meetings, News stories, website etc).

- adelphi (2014): Two business environment (outside-in) reports. Part A – Water Quantity Focus – Llobregat Case
- adelphi (2014): Two business environment (outside-in) reports. Part B - Water Quality Focus – Emscher Case
- van Assen et al. (2009): Key Management Models – the 60+ models every manager needs to know. Prentice Hall
- Backhaus; Voeth (2014): Industriegütermarketing, P. 45f. Vahlen
- Baker; Hart (2007): Product Strategy and Management. 2nd edition. Palgrave Macmillan
- BDA (2014): GDP forecasts for Germany 2014 and 2015. Available online at (last accessed 12.01.2015):
[http://www.arbeitgeber.de/www/arbeitgeber.nsf/res/GDP_CPI_Prod_Forecasts.pdf/\\$file/GDP_CPI_Prod_Forecasts.pdf#page=1&zoom=auto,44,-35](http://www.arbeitgeber.de/www/arbeitgeber.nsf/res/GDP_CPI_Prod_Forecasts.pdf/$file/GDP_CPI_Prod_Forecasts.pdf#page=1&zoom=auto,44,-35)
- Blattmann et al. (2008): Biotechnology Intellectual Property Management Manual. Spruson and Ferguson. Available online at (last accessed 12.01.2015):http://www.spruson.com/wp-content/uploads/2014/03/Biotechnology-IP-Management-Manual_Online.pdf
- Brombach, Hansjörg (2014): Under the focus of statistics: Sewerage and storm water treatment facilities in Germany. In: KA – Korrespondenz Abwasser, Abfall. International Special Edition 2014/2015, P. 5-14. Available online at (last accessed 12.01.2015): http://en.dwa.de/tl_files/_media/content/PDFs/Abteilung_KA/KA%20International/KA-ISE_2014-2015.pdf
- Civichino (2012): Inside-out or Outside-In? Choose the process that suits Your style. CMA Magazine July/August 2012. Available online at (last accessed 12.01.2015): <http://cmamagazine.dgtlpub.com/?i=2278>
- Ecologic (2014): D11.1 – Internal state of the art report on ecosystem services evaluation. Water status related changes in ESS, economic valuation and sustainability assessment of ESS DESSIN project.
- GTAI (2014): Sustainable Water Technology Solutions - the German Market. Available online at (last accessed 12.01.2015):
http://www.gtai.de/GTAI/Content/EN/Invest/_SharedDocs/Downloads/GTAI/Fact-sheets/Energy-environmental/fact-sheet-sustainable-water-technologies-en.pdf
- Hill (no year): Environmental Markets for Ecosystem Services in the UK: scope, opportunity and challenge. Available online at (last accessed 12.01.2015):
http://www.google.de/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0CDAQFjAB&url=http%3A%2F%2Fwww.environmentbank.com%2Fdocs%2FPES%2520Environmental%2520Markets%2520for%2520BES.ppt&ei=Fk6zVPLWNYsvUZS4gtAO&usg=AFQjCNGmlrv2UGmaTZg5PjmLmX_MdfwwjQ&bvm=bv.83339334,d.d24&cad=rja
- Innowater (no year): Practical Guide for Water Innovation International. Available online at (last accessed 12.01.2015):
<http://innowater.eu/wp-content/uploads/2013/03/INNOWATER-Practical-Guide-for-Water-Innovation-International.pdf>
- Kollmann (2009): Gabler Kompakt-Lexikon: Unternehmensgründung, Gabler
- Kotler (2003): Marketing Management. 11th edition. P. 151. Prentice Hall
- Lockwood; Smits (2011): Supporting Rural Water Supply. IRC. Available online at (last accessed 12.01.2015):
<http://www.aguaconsult.co.uk/assets/Uploads/Publications/BMGF-TripleS-Book-Supporting-Rural-WaterSupply-2012.pdf>

- Miller et al. (2013): Intellectual Property Management for the Engineering Team. Spruson and Ferguson. Available online at (last accessed 12.01.2015): <http://www.spruson.com/wp-content/uploads/2014/03/IP-Manual-for-Engineering-Team-Soft-Copy.pdf>
- Niedereichholz (2009): Unternehmensberatung Band 2, Auftragsdurchführung und Qualitätssicherung. Oldenbourg
- OECD (2004): Financing Innovative SMEs in a Global Economy. Available online at (last accessed 12.01.2015): <http://www.oecd.org/cfe/smes/31919231.pdf>
- PWC (2007): Asset management- Exploiting intellectual property in a complex world. Available online at (last accessed 12.01.2015): <http://de.scribd.com/doc/195296142/Exploiting-Intellectual-Property>
- Schilling (2010): Strategic Management of Technological Innovation, McGrawHillEducation
- UN Water (2007): Coping with water scarcity - Challenges of the twenty-first century. P. 4. Available online at (last accessed 12.01.2015): <http://www.fao.org/nr/water/docs/escarcity.pdf>
- WBCSD (2011): Guide to Corporate Ecosystem Valuation. Available online at (last accessed 12.01.2015): <http://www.wbcd.org/pages/edocument/edocumentdetails.aspx?id=104&nosearchcontextkey=true>
- Zürker et al. (2014): SEED Support Toolbox: Tools and training manuals for Social and Environmental Entreprises. SEED Initiative hosted at adelphi research gGmbH

Annex A: Framework for PESTEL analysis

Table 27: Framework for PESTEL analysis and examples; adelphi (2014)

Political	Economic
<ul style="list-style-type: none"> • grade of implementation of existing EU legislation • incentive systems for water quality / quantity issues (e.g. wastewater discharge fees) • working instruments of governance <u>water quality</u>: e. g. state supported river conversion initiatives <u>water quantity</u>: e. g. public-private research activities tackling water scarcity • attractive funding mechanisms <u>water quality</u>: e. g. EU and state funding through collection of wastewater charges and attractive lending conditions as well as industry contributions or compensation payments <u>water quantity</u>: e. g. formation of users' communities for overexploited aquifers • grade of influence of interest groups such as lobbyists or industrial associations for water-technology and environmental NGOs (e. g. DWA in Germany) • fostering of R&D efforts by effective incentives • political willingness at local level to take ESS aspects into account 	<ul style="list-style-type: none"> • efficiency and cost considerations <u>water quality</u>: e. g. monetary penalties for bad compliance with effluent guidelines <u>water quantity</u>: e. g. high water prices in areas affected with water scarcity • climate investment (country ranking) • water sector importance and size in the target country • general grade of technology focus of the target countries domestic economy • general import propensity for innovative technologies in the target countries domestic economy • Export activity of the of other players in the domestic industry and number and attractiveness of export markets within the EU • availability and accessibility of industry related surveys and statistics • good cost-performance ratio of newest technologies • barriers and tariffs • GDP growth
Social	Technological
<ul style="list-style-type: none"> • trend of urbanisation <u>water quality</u>: e. g. sewerage & storm water networks <u>water quantity</u>: e. g. demand for groundwater in and around urban areas • interest of the common public in ESS <u>water quality</u>: e.g. bathing water quality and recreation <u>water quantity</u>: e. g. groundwater availability and quality • general population growth and demographic trends • general populations attitude towards environmental issues 	<ul style="list-style-type: none"> • presence of suitable local infrastructure for implementation of the technology <u>water quality</u>: e. g. combined sewer networks or surface drainage systems <u>water quantity</u>: e. g. presence of an installed reverse well • presence of industries with water-quantity/-quality related challenges <u>water quality</u>: e. g. large industrial sites discharging wastewater of with in-house WWTP <u>water quantity</u>: e. g. agriculture or large industrial sites with high demand for ground water • all-over R&D activity in the country

Environmental	Legal
<ul style="list-style-type: none"> • local impact of climate change phenomena & general weather conditions <u>water quality</u>: strong rain events <u>water quantity</u>: strong fluctuation in intra-annual and inter-annual rainfall patterns • „conductive“ environmental condition <u>water quality</u>: e. g. pollution intensity of surface waterbodies <u>water quantity</u>: e. g. insufficient groundwater resources & local aquifer properties • national state of wastewater management 	<ul style="list-style-type: none"> • EU regulation “EU Water Framework Directive” <u>water quality</u>: e. g. WFD for chemical quality & ecological status <u>water quantity</u>: e. g. WFD Groundwater Directive sets groundwater quality standards • specific national regulations adopting and implementing EU legislation (e. g. WFD) • environmental standards in industry • competition and antitrust legislation is encouraging for new market entrants • sufficient protection of intellectual property rights for entrants technologies

Annex B: Market entry options

Table 28: Assessing benefits and challenges of market entry options

(Summary based on resources from Schilling (2010) p.159-161 and www.investopedia.com)

Options	Focus / brief description	Benefits	Challenges
Direct exporting / distributor network	Selling directly into foreign market using own resources. Once SME has established a sales program it can turn to agents and/or distributors to represent them further in the foreign market.	<ul style="list-style-type: none"> once network is established internal resources can be directed at additional markets local agents have good knowledge of foreign market and self-interest in high sales 	<ul style="list-style-type: none"> risk of choosing wrong partners as they become the face of the SME
Joint ventures	Two companies agree to work together in a particular market, either geographic or product, and create a third company to undertake this.	<ul style="list-style-type: none"> gain of beneficial competencies and missing resources reduction of time, cost and risk of development or market entry risks are shared 	<ul style="list-style-type: none"> risk of choosing wrong partner risk of loss of proprietary technologies or unique competencies
Strategic Alliance	An arrangement between two or more companies to share resources to undertake a specific project or market entry. Alliances are not permanent or limited to certain market or project. SMEs keep autonomy.	<ul style="list-style-type: none"> gain of beneficial competencies and missing resources reduction of time, cost and risk of development or market entry scale economies 	<ul style="list-style-type: none"> risk of choosing wrong partner risk of loss of proprietary technologies or unique competencies
Piggybacking	Selling products or solutions to large domestic firms involved in foreign markets. SMEs solution gets included in their inventory for international markets.	<ul style="list-style-type: none"> reduces risk and cost because SMEs are essentially selling domestically - larger firm is marketing solution internationally 	<ul style="list-style-type: none"> risk of choosing the wrong reseller and being connected with a potentially negative reputation

Turnkey projects	<p>Facilities built from the ground up and turned over to the client. Particular to market for environmental engineering, architecture etc. Clients are normally governments or large corporations.</p>	<ul style="list-style-type: none"> • low risk of payment defaults • good chance of local follow-up orders 	<ul style="list-style-type: none"> • difficult to receive order due to dominance of large contractor companies
Buying a company	<p>Acquiring a local business because the company has substantial market share or are a direct competitor to the SME.</p>	<ul style="list-style-type: none"> • -provides status of being a local company with customers and local government • -receiving local market knowledge • -obtaining established customer base 	<ul style="list-style-type: none"> • very high investment requirement • risk of determining the true value of the company
Greenfield investments	<p>Building a business and operating it on an ongoing basis in a foreign market due to unfavourable market conditions or government regulations for SMEs as a foreign company.</p>	<ul style="list-style-type: none"> • reduces transportation cost • ability to access technology or skilled labour. 	<ul style="list-style-type: none"> • very high investment requirements • risk of failure because of lacking familiarity with the foreign market and culture

Annex C: Links to market information and support opportunities

Table 29: Useful links to find additional market information and support opportunities; adelphi (2014)

European Support-Organisations Specific to Water Technology:		Links:
<u>EIP Water</u>	European Innovation Partnerships (EIP) supports the creation of market opportunities for water innovations, both inside and outside of Europe.	http://www.eip-water.eu http://www.eip-water.eu/about/funding-opportunities
<u>INNOWATER</u>	Innovation support tools and delivery mechanisms for innovative SMEs and first-user industries.	http://innowater.eu
<u>ACQUEAU</u>	Supports near water-market projects, in order to facilitate the development of innovative products, processes and systems in the water sector.	www.acqueau.eu
<u>ECO Web</u>	Listing of European eco-innovations, including technologies, applications, products, processes	http://www.ecoweb.info
Sources for relevant and useful facts and figures on European markets:		Links:
<u>UrbanWater, Document/Report:</u>	Description and Analysis of the European Water Sector. Including <ul style="list-style-type: none"> • List of key players • Application domains and their state-of-the-art • water market size at EU and national level 	http://urbanwater-ict.eu/wp-content/uploads/2014/08/URBANWATER-D1.1-The-European-Water-Market-Analysis.pdf
<u>EPEC, Document/Report:</u>	Assessment of the market potential, and demand for water technology. Including: <ul style="list-style-type: none"> • Filtration • Disinfection • Purification and membrane technologies • Desalination 	http://ec.europa.eu/environment/etv/pdf/ETV%20Final%20Report%20Market%20Annex.pdf
<u>European Commission</u>	Large source with reports and links to useful information and EU-initiatives on European markets, legal and environmental topics. Including:	http://ec.europa.eu/index_en.htm
	<u>European Small Business Portal</u> This portal gathers all information provided by the EU on and for SMEs, ranging from practical advice to policy issues, getting finance, finding partners or	http://ec.europa.eu/small-business/index_en.htm

	going international.	
	<u>WISE - Water Information System</u> Comprises a wide range of information on European water issues and offers data and information collected by EU institutions to serve several stakeholders.	http://water.europa.eu/
	<u>European IPR helpdesk</u> The official IP service initiative of the European Commission providing free-of-charge, first-line advice and information on Intellectual Property (IP) and Intellectual Property Rights (IPR).	https://www.iprhelpdesk.eu
<u>Eurostat:</u>	Broad comparable statistical information at European level on useful topics such as macro and micro economic figures, industrial landscape, demographics or environment.	http://ec.europa.eu/eurostat
<u>ifo Center for Economic Studies</u>	Database for economic studies from all sectors.	http://www.cesifo-group.de
<u>International Organisations in Support of Green Technology:</u>		<u>Links:</u>
<u>World Ressources Institute</u>	Mapping, measuring, and mitigating global water challenges	http://www.wri.org/
<u>WIPO GREEN</u>	Interactive marketplace that promotes innovation and diffusion of green technologies. It offers a database network connecting green technology providers and seekers.	https://webaccess.wipo.int/green/
<u>World Business Council for Sustainable Development (WBCSD)</u>	WBCSD is a global platform for sustainable business solutions. It provides tools and case studies on biodiversity and ecosystem services.	http://www.wbcd.org/Pages/EDocument/EDocumentDetails.aspx?ID=14923&NoSearchContextKey=true http://www.wbcd.org/bet.aspx
<u>Water Partnerships of Europe and some of the DESSIN-Countries:</u>		<u>Links:</u>
<u>European Water Partnership:</u>	Initiating, supporting and enhancing initiatives and projects, giving water a common voice in Europe.	http://www.ewp.eu
<u>German Water Partnership:</u>	Collects and coordinates information about innovations, activities and services of its members.	http://www.germanwaterpartnership.de/
<u>Netherlands Water Partnership:</u>	Initiates and coordinates projects, facilitates matchmaking and internationalization activities for its members.	http://www.nwp.nl/

<u>Catalan Water Partnership:</u>	Offers a platform where engineering and environmental consultancies, centers of knowledge, equipment manufacturers and other entities work for developing innovative & sustainable solutions to the water issues.	http://www.cwp.cat/en
<u>Export and Trade Support in DESSIN-Countries:</u>		<u>Links:</u>
<u>Germany Trade And Invest:</u>	Offers companies established in Germany up-to-date information on foreign markets, international tender opportunities, investment and development projects, legal information, customs regulations, as well as access to international business partners.	http://www.gtai.de/GTAI/Navigation/EN/trade.html
<u>Netherlands Enterprise Agency:</u>	Provides Dutch entrepreneurs with services and support for doing international business..	http://english.rvo.nl
<u>Nortrade, Norwegian Trade Portal</u>	Supporting international business to and from Norway. Database with market and company information.	http://www.nortrade.com/
<u>ICEX Invest in Spain</u>	Promoting the internationalization of Spanish companies to support their competitiveness offering Spanish companies temporary infrastructure and acting as incubators.	http://www.investinspain.org/invest/en/index.html
<u>Enterprise Greece</u>	Provides key investment and business information. Helps Greek businesses reach new markets, find new business partners, and become more competitive and attractive.	http://www.investingreece.gov.gr/?la=1



The research leading to these results has received funding from the European Union Seventh Framework Programme (FP7/2007-2013) under grant agreement no. 619039
This publication reflects only the author's views and the European Union is not liable for any use that may be made of the information contained therein.

