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***Deliverable D41*: Stakeholder management plan - outline of a stakeholder management strategy that allows the efficient implementation of PSS-concept and health platform (associated with task T 9.7).**

Abstract: In REACH, stakeholder management states a facilitator of the following process: (1) identification and analysis of the relevant stakeholders, (2) determination of stakeholders' goals concerning REACH, and based on this (3) the establishment of the stakeholder relationship management process. Stakeholder management creates a feedback loop between individual project activities and the stakeholder network. One of the key goals of stakeholder management in REACH is the alignment of REACH's objectives and the objectives of specific stakeholders in order to facilitate the exploitation of project outcomes. In this deliverable report, first, the general task of stakeholder management in REACH and the background/environment in which it will be used is outlined. Second the role of stakeholder management is detailed by providing REACH adapted key definitions for important terms, outlining the stakeholder management mission statement and success factors, explaining the role of stakeholder management with regard to the leveraging of additional financial investment, explaining the relation and interaction of stakeholder management with other activities in REACH, and providing a framework for an integrated, generic stakeholder perspective. Third, the RAECH stakeholder management methodology is introduced, and fourth, a detailed REACH stakeholder management roadmap is presented.

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Tasks of the involved partners with respect to the deliverable (and respective tasks) presented in this report:

Partner	Short task description
TUM	Structure/ strategy; development of sections 2, 3, and 4; integration an finalization
TU/e	Inputs regarding terminology, stakeholder perspectives, and stakeholder value proposition; deliverable review
Fraunhofer	Inputs regarding stakeholder network perspectives and roadmap, support with alignment of project goals and the partners' goals
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SC	Support with alignment of project goals and the partners' goals
HUG	Support with alignment of project goals and the partners' goals

Table of Contents

Table of Contents 4

Key expressions 5

List of tables 8

List of figures 9

1 Introduction: Background and task description 10
1.1 Structure of this document 11
1.2 Review of general methodological approaches and use contexts 11
1.2.1 Stakeholder analysis/management in the context of business model development 11
1.2.2 Stakeholder analysis/management in the context of project management 11
1.2.3 Stakeholder analysis and requirements engineering 12
1.2.4 Stakeholder analysis and engagement in the context of ethics, privacy, and Data Management 12
1.2.5 Stakeholder analysis/management in the health care context: 12
1.2.6 Stakeholder analysis/management in the context of EU and H2020 guidelines: 12
1.3 Stakeholder network perspectives in REACH 13
1.3.1 Prevention and health care process perspective: T1.1/T1.2 13
1.3.2 Co-creation and requirements engineering perspective: T 1.3 15
1.3.3 System-architecture and development perspectives: T1.3/T1.4 17
1.3.4 Business model perspective: WP8 18
1.3.5 Dissemination and communication activities perspective: WP9 20
1.3.6 Project management perspective: WP9 22

2 The role of stakeholder management in REACH 23
2.1 Terminology and Definitions 23
2.2 Stakeholder management mission statement 25
2.3 Stakeholder management success indicators 26
2.4 Interaction of stakeholder management with other work packages/ tasks 28
2.5 Stakeholder management as a facilitator of the investment of additional resources into REACH 28
2.6 Development of an integrated, generic stakeholder perspective 32

3 REACH Stakeholder management methodology 33
3.1 General approach 33
3.2 Adopt & adapt – Business Model Canvas 34
3.3 Adopt & adapt – Balanced Score Card (Norton) 34
3.4 Adopt & adapt – Customer relationship mean, measures and tool 35

4 REACH Stakeholder management roadmap 37
4.1 Roadmap 37
4.2 Continuation and update of stakeholder management plan 39

5 Conclusion 40

6 References 41

Key expressions

Abbreviations for partners:

AH: ArjoHuntleigh
AM: Alreh Medical
CU: University of Kopenhagen
DTU: Technical University of Denmark
EPFL: École Polytechnique Fédérale of Lausanne, Switzerland
HUG: Hôpitaux Universitaires Genève
PSS: Product Service System
SC: SmartCardia
SK: Schön Klinik
TU/e: Eindhoven University of Technology
TUM: Technical University of Munich
ZZ: ZuidZorg

Activity system/ Value network: "A value network is defined as a value creating system in which all involved stakeholders co-produce value" (**Normann and Ramirez, 1993**).

Audience: specific persons/stakeholders that are the target of communication/ dissemination activities.

Business model canvas: was initially proposed by Alexander Osterwalder, and represents a set of key aspects to consider and analyze when developing a business model.

Business Model: "a business model describes how an organization creates, delivers, and captures value" (**Osterwalder and Pigneur, 2010**).

Customer Relationship Management (CRM): one can view CRM from several perspectives (**Payne & Frow, 2005**): a strategy development process, a value creation process, a multichannel integration process, an information management process, and a performance assessment process. We can consider to choose the perspective of value creation process because of the REACH network innovation focus.

Engine concept: a REACH Engine concept refers to a cloud-based digital platform/back end that supports health and behavioural data analysis, creates different user profiles and provides personalized motivation and real time feedback to both the user and their caregivers.

Key stakeholders: key stakeholders do usually not belong to the group of the primary or secondary stakeholders but have significant influence on the project/ outcomes (see also Deliverable **T1.2/D2; Section 2.1**).

Primary stakeholders: stakeholders directly influenced by an action, an intervention, a sociotechnical design, or a service (see also Deliverable **T1.2/D2; Section 2.1**).

Product Service System (PSS): REACH aims at integrating technical solutions with services to PSSs. Individual PSSs may be provided by stakeholders within and outside the consortium.

REACH-external stakeholders: StSEs or stakeholder groups clearly situated outside the REACH consortium.

REACH-internal stakeholders: REACH partners and sub-stakeholders/ StSEs under their direct control (e.g. employees or employee groups > e.g. care personnel in the case of a use case setting partner).

Secondary stakeholders: stakeholders indirectly affected by the action (see also Deliverable **T1.2/D2; Section 2.1**).

Stakeholder alliances: within a stakeholder network certain StSEs or stakeholder categories may form alliances to influence the REACH system and/or create value.

Stakeholder analysis: in depth analysis and description of a StSEs including its role, attitude, activities, value creation mechanisms in the context of REACH.

Stakeholder category: StSEs can be grouped and/or classified into categories (e.g. payers, providers, etc.).

Stakeholder communication: dissemination or communication activities that are aiming at addressing, influencing, and/or engaging a stakeholder entity, group, or category.

Stakeholder engagement: the active inclusion or communication with a stakeholder in order to engage him in developments, alliances, value creation process and/or influence his attitude or position in the stakeholder network.

Stakeholder identification: initial identification and description of a stakeholder entity (player, partners, person groups, company, institution) being relevant, impacted by or active in the context of REACH or any of its sub-aspects.

Stakeholder management plan (SMP): in REACH a SMP covers following elements: (1) identification of the relevant stakeholders and the manner they affect, or are affected by REACH (**Section 3.2**), (2) determination of stakeholders' targets concerning REACH (**Section 3.3**), and (3) establishment of the stakeholder relationship management.

Stakeholder management: refers to the processes, methods, and organisational activities used to mediate between the in the context of the concept of stakeholders relevant activities and steps (e.g. identification, analysis, communication, etc.). Stakeholder management creates a feedback loop between individual project activities (system development, communication and dissemination, business model development, etc.) and the stakeholder network (identified and detailed by stakeholder analysis, engagement, communication, etc.).

Stakeholder matrix: The Stakeholder matrix (e.g., (**Polonsky, 1996**); (**Mitchell, Agle, & Wood, 1997**) is a 2 by 2 matrix which indicates relative relations with possible communication strategies to stakeholders. The X-axis indicates the degree of power and influence while the Y-axis indicates the degree of interests in using the REACH system (see also (**Andersen, et al., 2016**)**/Deliverable T1.2/D2, Section 2**).

Stakeholder network perspective: As outlined in **Section 1.3** different stakeholder analysis and management perspectives (e.g. a business model oriented view) may be adopted in different activities. A certain perspective may in order to be efficient focus on certain part of the network only and or put a certain stakeholder or stakeholder category in the center of the analysis.

Stakeholder network: refers to the relations and interactions of StSEs or stakeholder categories and the resulting constellations as for example visualized by the “Actors Map” or “Onion Diagram” (see also **Section 1.3.1**).

Stakeholder relationship management: active mapping and influencing (e.g. through communication, engagement, co-creation, etc.) of the roles, attitudes, and relations a stakeholder entity has towards REACH and/or its partners and sub-systems.

Stakeholder subjects entity (StSE): single, inseparable stakeholder entity (e.g. an individual person or person-group, company, institution, or similar).

Stakeholder value proposition: “Value proposition describes the benefits that your customers can expect from your products and services” (**Osterwalder, Pigneur, & Smith, 2010**). A stakeholder value proposition relates the value proposition to certain stakeholder entity, group, or network.

Stakeholders: In REACH we refer with the term “stakeholders” to the entire network and the diversity of players, partners, shareholders, stakeholders, end users, organizations, companies, institutions, and others that relate to, act in, are impacted by, and/or are interested in the activities, developments, and goals of the project.

T: Task defined in the project proposal.

Touchpoint/Touchpoint cluster: Touchpoint refers to each form of interaction that your customers have with your products and services. It includes any physical, communication, human and sensory interactions with and within your organizations (**Brigman, 2013**). Touchpoint cluster in this report refers to those touchpoint concepts that share common purposes such as touchpoint concepts for mobility services or similar technology platform such as touchpoint concepts based on wearable technologies.

WP: Work package defined in the project proposal.

List of tables

Table 1-1: Stakeholder List Lyngby (adopted from (Andersen, et al., 2016)/Deliverable T1.2/D2) 13
Table 1-2: REACH touchpoint concepts, their key characteristics and development (adopted from (Lu, et al., 2016)/Deliverable T1.3/D3/Chapter 8) 17
Table 1-3: Communication messages, means, and languages for different stakeholder groups 21
Table 2-1: Stakeholder dependent investment scenarios for REACH 29
Table 2-2: Definition of search fields regarding investment potentials and motivations 31
Table 4-1: Stakeholder management roadmap 37

List of figures

Figure 1-1: Onion Diagram Lyngby (adopted from (Andersen, et al., 2016)/Deliverable T1.2/D2) 15
Figure 1-2: Stakeholder Matrix Lyngby (adopted from (Andersen, et al., 2016)/Deliverable T1.2/D2) 15
Figure 1-3: Stakeholder workshops examples, in various ideation groups, end users, care givers, insurance providers, payers, governmental bodies, system developers/suppliers, etc. were brought together for co-creation (adopted from (Lu, et al., 2016)/Deliverable T1.3/D3) 16
Figure 1-4: Example of Lyngby experience mapping for an idea discussed in Lyngby (adopted from (Lu, et al., 2016)/Deliverable T1.3/D3) 17
Figure 1-5: The template for identifying and mapping the REACH relevant stakeholders 19
Figure 1-6: The template for REACH definition and value proposition 19
Figure 1-7: The business model canvas 20
Figure 1-8: REACH preliminary target groups and stakeholder categories 20
Figure 2-1: REACH success indicators closely linked to the concept of stakeholders and a stakeholder value proposition. 27
Figure 2-2: Stakeholder management establishes feedback loops and interactions between selected project activities and stakeholder related activities (analysis, engagement, etc.). 28
Figure 2-3: A generic view integrates the sub-views (stakeholder network perspectives) outlined in section 1.3. 32
Figure 3-1: The REACH stakeholder management strategy 33
Figure 3-2: The Stakeholder Management Canvas (Image: based on (Osterwalder, Pigneur, & Smith, 2010)) 34
Figure 3-3: Use of Balanced Score Card in REACH (Image: own interpretation and partly adopted from (Kaplan & Norton, 1996)) 35
Figure 3-4: Stakeholder Relationship Management (SRM) in REACH (Image: own interpretation and partly adopted from (SAP, 2017)) 36

1 Introduction: Background and task description

In REACH we refer with the term “stakeholders” to the entire network and the diversity of players, partners, shareholders, stakeholders, end users, organizations, companies, institutions, and others that relate to, act in, are impacted by, and/or are interested in the activities, developments, and goals of the project.

The identification, analysis, and management of stakeholders and their roles in the REACH context is used as “tool” in several activities and work packages:

1. In the context of **WP1** (system architecture detailing) the stakeholder analysis and system co-creation with stakeholders is used as part of a requirements engineering process
2. in the context of **WP8** (innovative business models) stakeholders are identified and analyzed in order to inform the development of new value clusters or chains as part of a business strategy development;
3. Stakeholder analysis is used in REACH also in the context of “corporate responsibility” and “system acceptance”, e.g. in the context of **WP10** (ethics, privacy, Data Management) and **WP7** (usability, personalization, acceptability)
4. In the context of project management and steering (**WP9**, Steering Committee, General Assembly, Project Coordination, etc.), stakeholder identification/analysis is required to guarantee a success of the project on various levels (EU, the public, health industry etc.).

Stakeholder analysis and management is key for REACH, since the project shall be implemented both on technical level (see (**Lu, et al., 2016**)**/Deliverable T1.3/D3**) and in terms of fostering business models (see (**Lingegard, et al., 2017**)**/Deliverable DT8.1/D33**) enabled by platform approaches. Multisided platforms need to consider and to address broad networks of potential stakeholders to achieve vast acceptance and extend viable scalability. By implementing an impact effective and at the same time cost-efficient platform strategy, the REACH solutions can be translated into a variety of different (but nevertheless unique) value propositions for various kinds of stakeholder groups. Through this, both the scope and the intensity of potential market penetration through REACH solutions is increased. Likewise, a broad stakeholder perspective allows the depicting of more facets of distinctive use cases, and the REACH system will become more adjusted towards an “optimal configuration” and achieve higher acceptance.

Furthermore, as discussed in (**Linner, et al., 2016**)**/Deliverable T10.1/D43**, REACH touches with “sensing/ monitoring/ data storage” and “predictive approaches” areas that are extremely controversially discussed both in research and in public and thus warrant a thorough identification and consideration of the supporters and opponents of these concepts.

The role of stakeholder management in REACH is to coordinate and mediate, in light of the previously mentioned points, between the different stakeholder identifications, analyses, and views produced in different project activities and synthesize/prioritize stakeholders (and expectations and requirements related to them), define strategies how to handle and engage them, and finally facilitate target oriented communication and dissemination strategies (outlined in more detail in (**Linner, et al., 2016**)**/Deliverable T9.8/D42**)).

1.1 Structure of this document

In this deliverable report, first in **Chapter 1** the general task of stakeholder management in REACH and the background/environment (including relevant literature and methodological approaches, the different stakeholder network perspectives REACH uses, etc.) in which stakeholder management will be used is briefly outlined. Second, in **Chapter 2** the role of stakeholder management is detailed by providing REACH adapted key definitions for important terms, outlining the stakeholder management mission statement and success factors, explaining the role of stakeholder management with regard to the leveraging of additional financial investment, explaining the relation and interaction of stakeholder management with other activities in REACH, and providing a framework for an integrated, generic stakeholder perspective. Third; in **Chapter 3**, the REACH stakeholder management methodology is explained and established as a guide for the involved partners. Fourth, in **Chapter 4**, the REACH stakeholder management roadmap is presented specifying the key activities of the stakeholder management and their relation with specific project phases and activities. In **Chapter 5**, the contents and outcomes from the work presented in this deliverable report are summarized and set in context to upcoming tasks.

1.2 Review of general methodological approaches and use contexts

The concept of “stakeholder” analysis and management was developed in the 1960s to emphasize that with regard to projects and companies not only the “stockholders” matter, but rather a broad array of players shall be taken into consideration, to set the directions for sustainable and long-lasting success (**Goodplaster, 1991**).Until then the concept was used and taken further as method/tool in several different professional and academic contexts, and gains more and more importance in recent years with the increasing complexity and scale of research and innovation projects. There are today many different definitions of stakeholders available in the literature (e.g. (**Mitchell, Agle, & Wood, 1997**); (**Freeman, 2010**).

In the following the use contexts that are considered as most relevant for REACH are briefly reviewed:

1.2.1 Stakeholder analysis/management in the context of business model development

Stakeholder analysis and management are considered as important tools in the context of the development of business models and strategies (**Osterwalder, Pigneur, & Smith, 2010**); see also **Deliverable T8.1/D33**: in the context of REACH business model development an adapted version of the method proposed by Osterwalder & Pigneur will be applied, to facilitate a more comprehensive view on the market and business environment with more appropriate regard to the in situ stakeholder value system. In particular platform based business models that rely on complex interactions between many players and sides (as foreseen for REACH) require dedicated analysis and appropriate understanding of the stakeholder network (**Parker, Van Alstyne, & Coudary, 2016**).

1.2.2 Stakeholder analysis/management in the context of project management

Stakeholder analysis/management is increasingly used as a tool in project management. Hitherto it allows generating a comprehensive understanding on all extrinsic and intrinsic stimuli, affects or impacts and as a result will facilitate strategic decision making (**Freeman, 2010**). Stakeholder analysis shall be key to identify all stakeholders, the potential supporters and the real opponents of a project (**Thompson**). Stakeholder management shall support

actively building partnerships with and contribute to successful project accomplishment by achieving compliance ex ante among different stakeholders' perceptions which is considered key with regard to achieving a project's targets and finally make lasting innovation happen (**Sharma, 2013**).

1.2.3 Stakeholder analysis and requirements engineering

Stakeholder analysis is often utilized as a tool in the context of systematic and methodical requirements engineering (see, for example, (**Ebert, 2014**); (**Robertson & Robertson, 2012**). Through the identification and analysis of stakeholders and their needs, attitudes, and perception with regard to a specific system, 'hidden' system requirements can be derived from their views. Furthermore, in this context, stakeholders can be involved in the process of prioritizing and selecting value added requirements. Nowadays stakeholders, are increasingly involved at early stages of project phases as part of a "co-creation" process (**Atasoy, Bekker, Lu, Brombacher, & Eggen, 2016**); for further information, see also, (**Lu, et al., 2016**)**/Deliverable T1.3/D3, Section 2**).

1.2.4 Stakeholder analysis and engagement in the context of ethics, privacy, and Data Management

Stakeholder analysis and engagement plays increasingly a role in the context of corporate responsibility, in particular with regard to topics such as ethics, privacy, and data management. For example, stakeholder analysis is required as part of the establishment the appropriate corporate responsibility strategy in tune with (**ISO 26000:2010 - Guidance on social responsibility, 2010**). Also in the context of Data Management both stakeholder analysis and management are tools that shall help to identify, address, and communicate the use, value, and relevance of collected data with all relevant players (**Briney, 2015**): For whom the collected data are important? How are the data distributed? Why the data are shared? Who gets access to the data? How and what data can re-used? How to ensure privacy? What entities need to give their approval? Who may have objections?

1.2.5 Stakeholder analysis/management in the health care context:

Stakeholder analysis and management play an important role in the context of the health care system, since health care usually is delivered in a complex environment (environment of the providers) as well as a multitude of other players, influencers, governmental and legislative bodies, and miscellaneous subject matter entities with viable interest or reach-out (e.g. investors, political will, etc.). Stakeholder analysis and management in this context can take a more political (e.g. (**Schmeer, 2000**), a more value chain oriented (**Burns, 2002**) or a more care process oriented perspective (see, for example, the stakeholder analysis conducted as part of (**Andersen, et al., 2016**)**/Deliverable T1.2/D2, Chapter 2**).

1.2.6 Stakeholder analysis/management in the context of EU and H2020 guidelines:

Stakeholder analysis and management are an important contribution in light of the imperative for "responsible research and innovation" (**Responsible research & innovation**) in Horizon 2020. Public engagement is considered as key for the success, uptake, and achievement of sustainable innovation from research (**PE2020**). Therefore, projects of Horizon 2020 need to identify relevant stakeholders and stakeholder categories and tailor the communication of their results and impacts to the value propositions related to them (**European Commision, 2014**); see also (**Linner, et al., 2016**)**/Deliverable T9.8/D42, Chapter 4**).

1.3 Stakeholder network perspectives in REACH

In this section the different stakeholder analysis and management perspectives utilized in REACH are briefly reviewed. For each perspective and respectively utilization of the stakeholder concept, the key tools/methods and (intermediate) outcomes are summarized.

1.3.1 Prevention and health care process perspective: T1.1/T1.2

The stakeholder analysis conducted as part of **T1.2** (Stakeholders, Motivational Strategies, Sensor Technologies, and Early User Involvement) analyzed the stakeholder network from the perspective of the REACH crucial prevention and health care processes. The analysis followed an initial stakeholder identification done in **T1.2** (Analysis of use case settings), placed the elderly end user and the actors and processes organized directly around him in the center of the analysis: for the REACH personalized prevention and intervention system aimed at 65+ seniors, it is important to identify and characterize their influencing relations (family, friends, caregivers) who may have power to aid and persuade the elderly, and who may have an interest in care and assistive technologies for both altruistic and selfish reasons - to be identified through the stakeholder analysis **(Andersen, et al., 2016**)**/Deliverable T1.2/D2**). It utilized the following methods: (a) the list of stakeholder characteristics (according to e.g. (**Schmeer, 2000**) (b) onion diagram (according to e.g. (**Bourne, 2015**) and (c) the stakeholder matrix (according to e.g. (**Mitchell, Agle, & Wood, 1997**). The analysis was able to identify and thoroughly outline societal differences and treatment stage differences between the use cases, and clarified amongst others the roles values of formal and informal care. The stakeholder analysis was conducted separately for each of the four use case settings (SK, HUG, ZZ, Lyngby). In the following the stakeholder analysis core part for Lyngby is shown as an example of the method used.

Table 1-1: Stakeholder List Lyngby (adopted from (Andersen, et al., 2016)/Deliverable T1.2/D2)

	S1: Senior	S2: Primary informal care giver	S3: Professional caregiver	S4: Municipality	S5: GP	S6: System provider
Characteristics	Citizens 65+, living at home.	Relatives and friends.	SOSU, Professional care givers who has 1-2.5 years professional education.	Municipality is the strategic top management and take leadership on planning, and overall responsibility	General Practitioners.	REACH System provider.
Role	End User.	Supporter for the use in daily life.	Daily operations. Supporter for the use in daily life.	Strategic leadership. Finance provider.	Data users.	System configuration, technical support. Consulting.
Interests	Independence, feeling secure (Tryghed) and Healthy life.	Easier support for my relatives (wife/husband, mother/ father).	Better and more service provision.	Increased citizens' quality of life. Reduce/control costs.	Better understanding on patients. Conduct correct	Cooperation with other companies, services and software.

					medication treatment.	
Knowledge needs	Supports for use of technology.	Occasional technical support.	Training & occasional technical support.	Understand benefits.	Reliability on nature of data.	Understanding about REACH patient's needs.
Expectations	Easy to use, usefulness for my daily life.	Less worries about my relative. Better daily/weekly/frequent overview. (Don't feel guilty due to number of visits and care).	Less work and safety feeling on seniors.	Improved quality of life on senior citizens.	Better understanding on patients.	-
Influence uptake	10	Score 7-8	Score 8-9	2 (In introduction period influence 8-9)	2	2
Tangible incentives	Less anxiety, less burdens on caregivers.	Better overview. Save time (Fewer travels).	Less continuous presence. Work time reduction on one patients (one stay, frequency).	Saved expenses.	Less readmission, less treatments.	Good relations.
Intangible incentives	Feeling comfortable, feeling safe.	Reduce worries. Feeling comfortable, feeling safe.	Less burden on tasks, better treatment on seniors by understanding outlier incidence.	Reputations, pride.	Better understanding on patients, and better treatment for recovery.	Better understanding on patients, and better use of IT.
Risks	Private data disclosure. Stress with new technology.	Private data disclosure of my relatives.	My client data disclosure. Stress with new technology.	Private data protection, resistance from seniors and relatives.	Negative impact on using technology; burden, psychological pressure.	Usability problem, system problems.

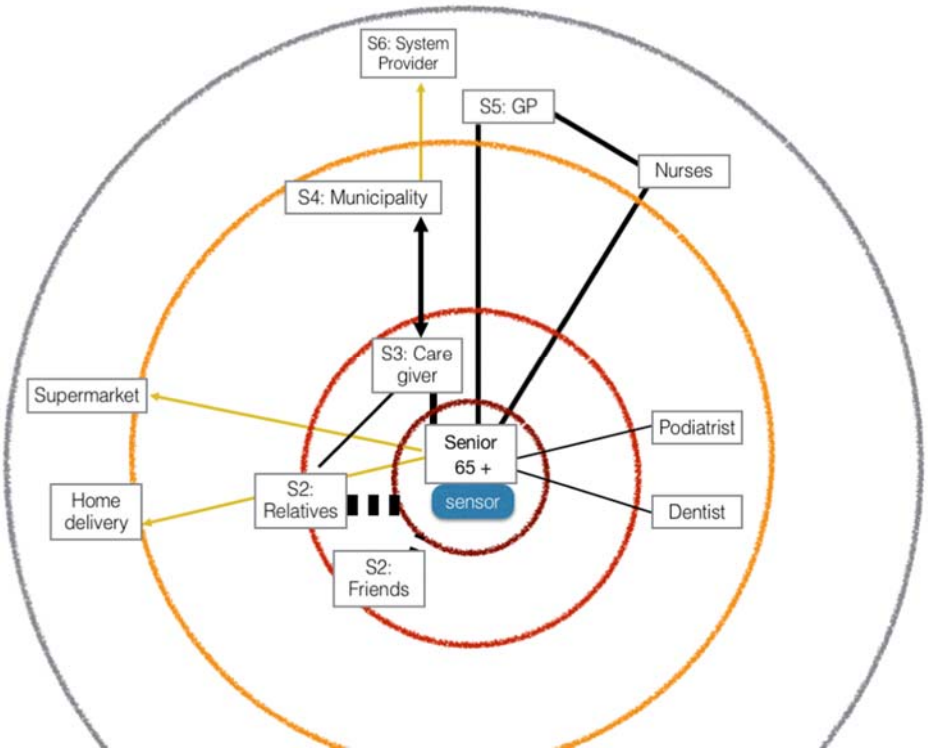


Figure 1-1: Onion Diagram Lyngby (adopted from (Andersen, et al., 2016)/Deliverable T1.2/D2)

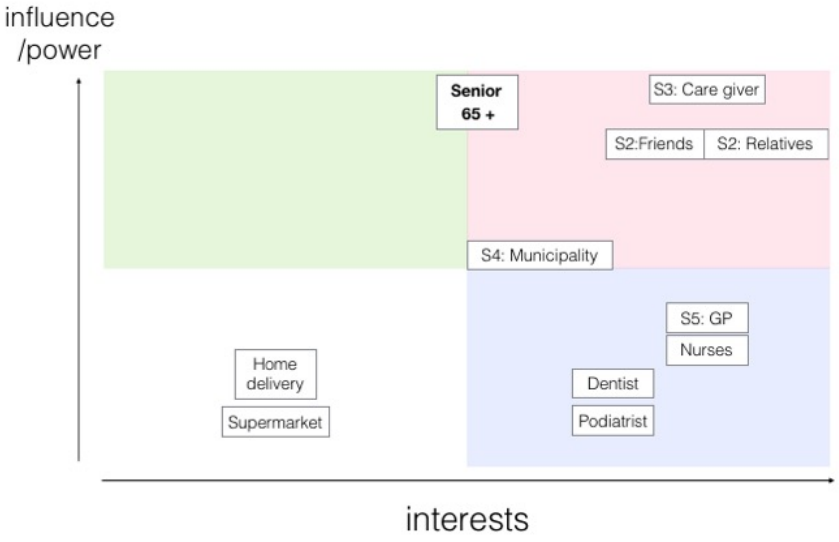


Figure 1-2: Stakeholder Matrix Lyngby (adopted from (Andersen, et al., 2016)/Deliverable T1.2/D2)

1.3.2 Co-creation and requirements engineering perspective: T 1.3

As part of T1.3 the co-creation method, according to (**Atasoy, Bekker, Lu, Brombacher, & Eggen, 2016**), was used to establish together with the key stakeholders identified in the in parallel running task T1.2, the use scenarios, requirements, and key system architecture elements for the REACH system (for further information, see (**Lu, et al., 2016**)**/Deliverable T1.3/D3**). At each use case site 2 day workshops where held for which the identified key stakeholders (consortium internal and consortium external ones) were invited to work

intensely on detailing the REACH vision and requirements for each use case setting. As part of the co-creation “Experience Flow Mapping” and “Service Blueprints” (see (**Lu, et al., 2016**)**/Deliverable T1.3/D3/Appendix**) were used to map jointly with the stakeholders (including the end-users) present and future situation and use cases.

Figure 1-3: Stakeholder workshops examples, in various ideation groups, end users, care givers, insurance providers, payers, governmental bodies, system developers/suppliers, etc. were brought together for co-creation (adopted from (Lu, et al., 2016)/Deliverable T1.3/D3)

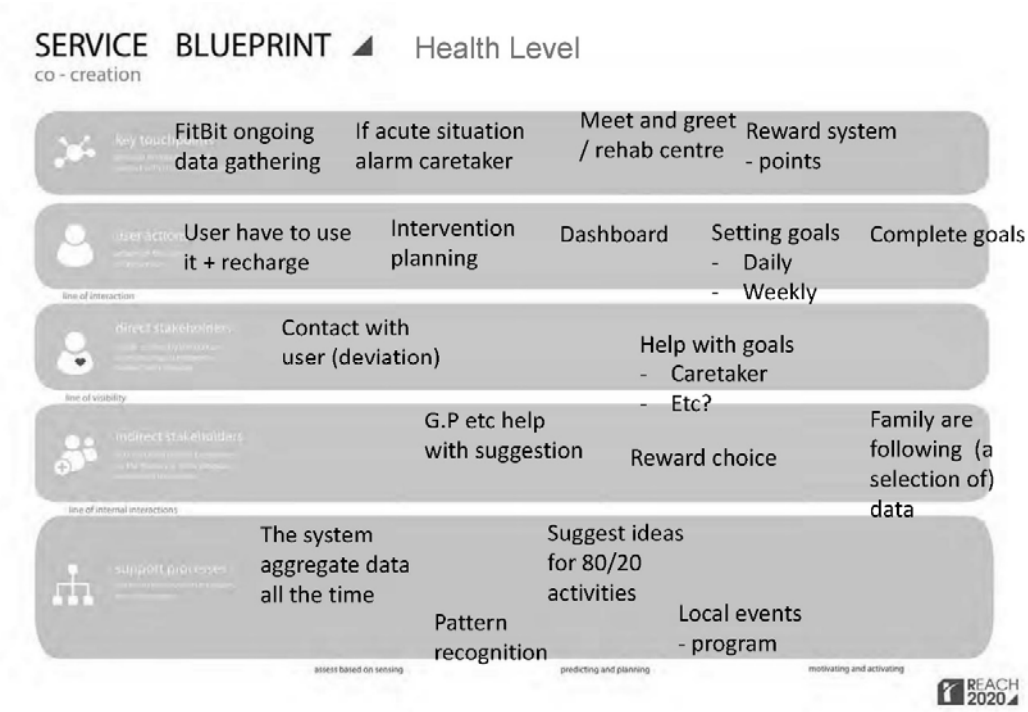


Figure 1-4: Example of Lyngby experience mapping for an idea discussed in Lyngby (adopted from (Lu, et al., 2016)/Deliverable T1.3/D3)

1.3.3 System-architecture and development perspectives: T1.3/T1.4

In **T1.4/D4** the in **T1.3** developed Touchpoint/Engine concept is taken further (see also (**Lu, et al., 2016**)**/Deliverable T1.3/D3/ Chapter 8**). Based on the Touchpoint/Engine concept the "development teams" organized around the 5 "Touchpoint clusters" and "the Engine" are formed which will detail the functionality and continue with and continuous engagement of the relevant stakeholders for each cluster to detail requirements and functions. Each "Touchpoint cluster" is based on a specific core product or innovation of a REACH partner and tailored to one or more of the REACH use case settings.

Table 1-2: REACH touchpoint concepts, their key characteristics and development (adopted from (Lu, et al., 2016)/Deliverable T1.3/D3/Chapter 8)

Primary stakeholder network and use case	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital
Core concept name	Out & Active	Re-habit	Out & Active	Re-habit	Out & Active	Re-habit	Out & Active	Re-habit	Out & Active	Re-habit
Touchpoint clusters	Personal Mobility Device		Active Environment (key elements: Bed, Mobility, Bathroom)		Nutritional Monitoring and Intervention (including Table, Chairs/Cushions, smart Cups, etc.)		Gaming & Training System		Wearables	
Touchpoint concepts	Walk Star (HUG), Dynamic stander (HUG)		Incontinency Prevention (SK), Active environment (SK),		Nutritional intervention / Food intake program (HUG)		Cardio physiology work out (HUG), Playware (HUG)		Take me home bracelet (HUG), Howdy? (ZZ), Walk Button (Lyngby), Health	

										Level (Lyngby) etc.
Key need addressed	Patients need to be as mobile/active as possible in a safe and confident way, without placing additional burden on staff.		Staff and patients need a safe way to mobilize, as to prevent decubitus and support training. (Not sure how incontinency fits in here).		Social activities and eating as part of that, are considered key in motivating people to stay active. Any innovation that supports those is important.		Most rehab and activity exercising equipment delivers tedious and repetitive training. More motivating and engaging activity tools may increase activity and training compliance.		For various use cases (incontinence, dementia/wandering, training planning) it is relevant to know the location of an individual. The absence of the data currently means loss of confidence and searching staff.	
Concept premise - what it does primarily	provide personalized support when walking and standing up		prevent incontinency, support stand up, getting out of bed, going to bath room, doing exercises while sitting and etc.		Patients can self-report on food behaviour through engaging interface. Food interventions can be provided. Food order and reported intake is tracked and stored in REACH cloud.		The concept provides clinically valid training exercises in a more engaging and motivating way. Coaching is provided as to increase intrinsic motivation.		A location device provides the data to the REACH cloud. It works indoors and outdoors, and is equipped with a panic button.	
Initial use case setting(s)	Lyngby & ZZ	HUG & SK	Lyngby & ZZ	HUG & SK	Lyngby & ZZ	HUG & SK	Lyngby & ZZ	HUG & SK	Lyngby & ZZ	HUG & SK
Initial personas	Personas 1, 2, 3		Personas 1, 2, 3		all		all		all	
Initial product base	AM's walker/stander		AH's equipment (beds, chairs, bathroom/toilet furniture, etc.)		TU/e' & TUM's prototypes, Biozoons customized food, etc.		Playware Tiles, AM's gaming system, large interface TU/e + TUM, TU/e prototypes, etc., Ahs first rehab developments		SC's sensor	
Development Leader proposal	AM		AH/TUM		Bio Zoon		TU/e, Philips, DTU		SC	
Development Team proposal (mainly)	AM, TUM, HUG, SC, Philips?		AH, TUM, AM, SK, Philips?		TU/e, TUM, Biozoon, SC, Philips		DTU, AM, AH, TUM, TU/e, Philips		SC, TUM, TU/e, SK, DTU, HUG, Lnygby	

1.3.4 Business model perspective: WP8

As part of **WP8** the stakeholder network is analysed from a health care market perspective (see (**Lingegard, et al., 2017**)**/Deliverable 8.1/D33** for further information). The method for developing a business model regarding the deployment of REACH in the four different use case countries was based on four steps. The first step was a preliminary analysis of the care

market in EU, as well as specifically in the four use case countries, considering such aspects as demographics, health in the old age, healthcare system, long-term care system, as well as existing products and solutions that are potential competitors. The other three steps were performed during a Market Strategy Workshop in Eindhoven, the Netherlands. First, all the relevant stakeholders per each market have been identified and mapped, as well as placed in a certain category (see
Figure 1-5). Second, considering the stakeholders, a value proposition has been identified, as well as the next bold steps into achieving the REACH acceptance and deployment have been discussed, along with the possible challenges and supporting matters (see **Figure 1-6**). In the end, the business model canvas has been filled in, as well as a general presentation of the business vision and strategy was analysed and discussed per each country (see **Figure** 1-7).

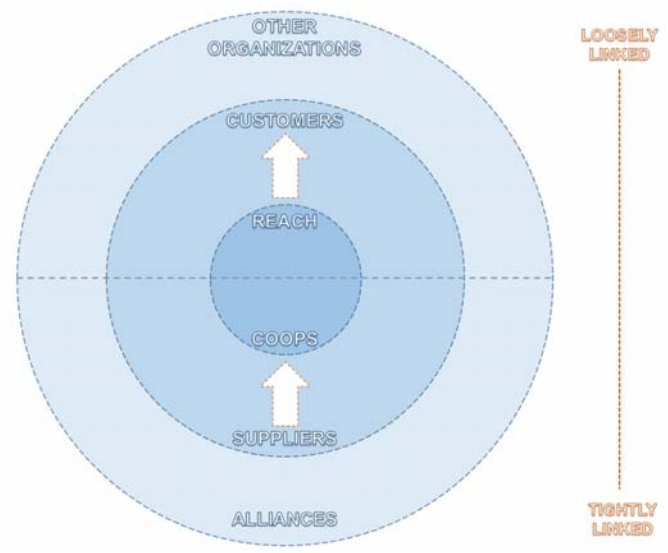


Figure 1-5: The template for identifying and mapping the REACH relevant stakeholders

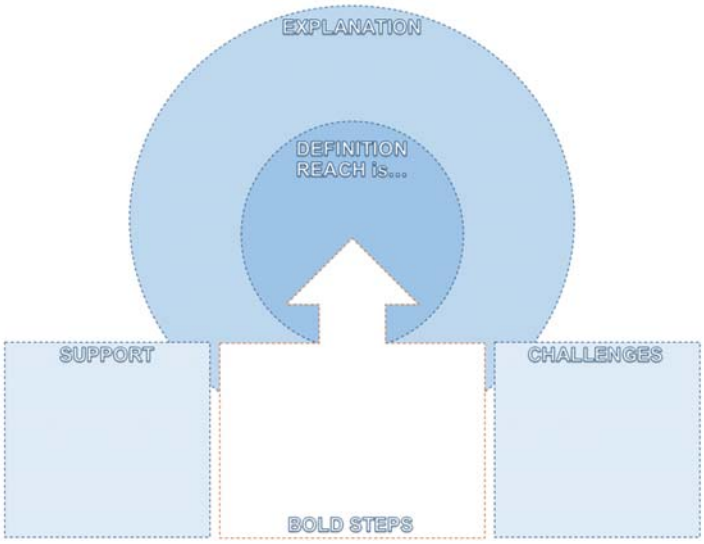


Figure 1-6: The template for REACH definition and value proposition

Figure 1-7: The business model canvas

1.3.5 Dissemination and communication activities perspective: WP9

As part of (**Linner, et al., 2016**)**/Deliverable D42-a** (REACH's communication and dissemination strategy) the broader stakeholder network around "REACH" (including the scientific community, public authorities, the EC, etc.) has been analysed. REACH's communication and dissemination strategy aims at the consistent communication of REACH's unique selling propositions and the project's outcomes towards the general public, end-users, key stakeholders, public authorities, technology developers and the scientific community. A key feature of the strategy shall be that it distinguishes key stakeholder categories (which are systematically derived, described, and updated throughout the project from items such as the projects impacts/outcomes and REACH's business and exploitation strategy) and tailors means, messages and languages to them. The analysis of stakeholders categories will be updated continuously, as well as its impact upon the changes in the dissemination/communication strategy will be assessed on a regular basis.

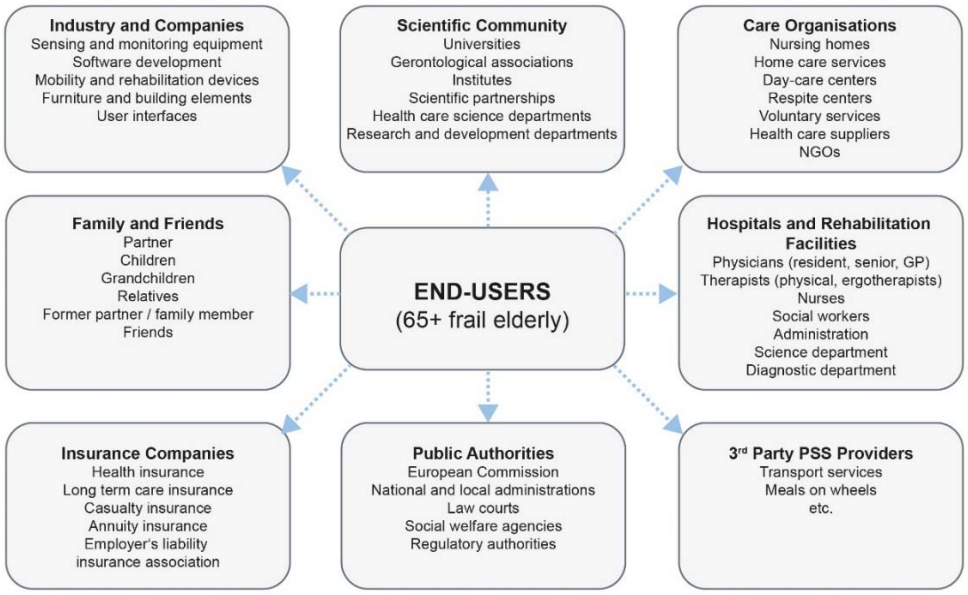


Figure 1-8: REACH preliminary target groups and stakeholder categories

Table 1-3: Communication messages, means, and languages for different stakeholder groups

Stakeholder category	Audience/ stakeholders	Message	Means	Language
Researchers	• Universities • Gerontological associations • Institutes • Scientific partnerships • Health care science departments • Research and development departments	Promote and share the REACH scientific research results with the scientific community.	• Scientific media (scientific papers with open access, articles in professional magazines and books) • Conferences, symposia and workshops • Pilot deployments in realistic use cases • Website updates • Project flyers, newsletters.	Scientific / technical language, mainly in English, or local official language(s).
Technology providers	• Sensing and monitoring equipment • Software development • Mobility and rehabilitation devices • Furniture and building elements • User interfaces • PSS	Share knowledge, provide consultancy and create innovation opportunities.	• Personal conversations • Pilot deployments in realistic use cases • Multi-stakeholders workshops • Website updates • Trade fairs • Short movies • Project flyers, newsletters and webinars • Standardization activities • Patents and registered trademarks.	Scientific / technical language, English or local official language(s).
PSS providers	• Transport services • Meals on wheels • Etc.	Share knowledge, stimulate, attract and offer collaboration opportunities to further stakeholders and 3rd parties for developing tailored PSSs.	• Personal conversations • Multi-stakeholders workshops • Trade fairs • Standardization activities • Establish connections with start-ups • Mainstream media / press (public media, twitter, newspapers etc.) • Project flyers, newsletters.	Formal language, English or local official language(s).
Solution operators Home Care Care Homes Rehab Clinics	• Nursing homes • Home care services • Day-care centers • Respite centers • Voluntary services • Health care suppliers • NGOs • Administration • Diagnostic departments	Demonstrate the advantages, expected improvements and reduced expenditures associated with upgrading and refurbishing of homes, care homes, rehabilitation facilities and clinics.	• Personal conversations • Pilot deployments in realistic use cases • Multi-stakeholders workshops • Website updates • Short movies • Standardization activities • Mainstream media / press (public media, twitter, newspapers etc.) • Project flyers, newsletters.	Simple conversations / texts in local official language(s) and dialects.
Care professionals	• Physicians • Therapists • Nurses • Social workers	Communicate the REACH progress, results and corresponding advantages to care professionals, raise awareness, increase the literacy regarding ICT based solutions, involve them into co-	• Personal conversations • Pilot deployments in realistic use cases • Multi-stakeholders workshops • Website updates • Short movies • Mainstream media / press (public media, twitter, newspapers etc.) • Project flyers, newsletters.	Simple conversations / texts in local official language(s) and dialects.

		creation activities, as well as train them into using and interacting with REACH advanced technologies.		
Relatives and friends	• Partner • Children • Grandchildren • Relatives • Former partner / family members • Friends	Communicate the REACH progress and results, raise awareness, increase the literacy regarding ICT based solutions of the general public, as well as to involve them into co-creation activities.	• Personal conversations • Pilot deployments in realistic use cases • Website updates • Short movies • Mainstream media / press (public media, twitter, newspapers etc.) • Project flyers, newsletters.	Simple conversations / texts in local official language(s) and dialects.
End-users (elderly)	• 65+ frail elderly	Test and optimize the REACH progress and results involving the end-users, as well as raise awareness and increase the literacy regarding ICT based solutions and their benefits.	• Personal conversations • Pilot deployments in realistic use cases • Multi-stakeholders workshops • Short movies • Project flyers, newsletters and webinars.	Simple conversations / texts in local official language(s) and dialects.
Insurances	• Health insurance • Long term care insurance • Casualty insurance • Annuity insurance • Employer's liability insurance association	Demonstrate the advantages, expected improvements and reduced expenditures associated with deployment of REACH advanced technologies and their implications on insurance models. Establish contact to start-up financiers.	• Pilot deployments in realistic use cases • Website updates • Project flyers, newsletters and webinars • Short movies • Mainstream media / press (public media, twitter, newspapers etc.).	Formal language, English or local official language(s).
Public bodies/ governments	• European Commission • National and local administrations • Law courts • Social welfare agencies • Regulatory authorities	Demonstrate the advantages, expected improvements and reduced expenditures associated with deployment of REACH advanced technologies and their implications on health care related policies and regulations.	• Pilot deployments in realistic use cases • Trade fairs • Website updates • Project flyers, newsletters and webinars • Short movies • Mainstream media / press (public media, twitter, newspapers etc.) • Standardization activities.	Formal language, English or local official language(s).

1.3.6 Project management perspective: WP9

As part of the project management an overall stakeholder perspective is necessary, and from the above outlined different views, the stakeholders most relevant for successfully implementing REACH and preparing later exploitation of project results have to be extracted addressed and engaged (see **Chapters 2 - 4** in this deliverable report).

2 The role of stakeholder management in REACH

In this chapter, the scope and role of stakeholder management in REACH is defined. Various applicable stakeholder management definitions and methods were outlined in **Section 1.2**. In REACH we follow the from this extractable common notion of stakeholder management being a facilitator of the following process: (1) identification of the relevant stakeholders and the manner they affect, or are affected by REACH, (2) determination of stakeholders' targets concerning REACH, and based on this (3) the establishment of the stakeholder relationship management (communication, influencing, etc.). As such stakeholder management creates a feedback loop between individual project activities and the stakeholder network. One of the key goals of stakeholder management in REACH is the facilitation of an alignment of REACH's objectives and goals and the objectives and goals of specific stakeholders in order to leverage the investment of resources into REACH and its sub-systems.

2.1 Terminology and Definitions

In this section, definitions for the key expressions and concepts used in the context of stakeholder analysis and management are provided. A consistent and with regard to all project activities unified terminology can be considered as the basis for the use and functioning of the stakeholder management toolkit outlined in this report. The definitions and the terminology in principle follows (with some REACH specific adaptations) the concepts and definitions extracted from the literature analysed and discussed in **Section 1.2**.

- **Stakeholders**: In REACH we refer with the term "stakeholders" to the entire network and the diversity of players, partners, shareholders, stakeholders, end users, organizations, companies, institutions, and others that relate to, act in, are impacted by, and/or are interested in the activities, developments, and goals of the project.

- **Stakeholder subjects entity (StSE):** single, inseparable stakeholder entity (e.g. an individual person or person-group, company, institution, or similar).

- **Stakeholder category**: *StSEs* can be grouped and/or classified into categories (e.g. payers, providers, etc.).

- **Stakeholder identification:** initial identification and description of a stakeholder entity (player, partners, person groups, company, institution) being relevant, impacted by or active in the context of REACH or any of its sub-aspects.

- **Stakeholder analysis:** in depth analysis and description of a *StSEs* including its role, attitude, activities, value creation mechanisms in the context of REACH.

- **Stakeholder network**: refers to the relations and interactions of *StSEs or* stakeholder categories and the resulting constellations as for example visualized by the "Actors Map" or "Onion Diagram" (see also **Section 1.3.1**).

- **Stakeholder network perspective**: As outlined in **Section 1.3** different stakeholder analysis and management perspectives (e.g. a business model oriented view) may be adopted in different activities. A certain perspective may in order to be efficient

focus on certain part of the network only and or put a certain stakeholder or stakeholder category in the center of the analysis.

- **Stakeholder alliances**: within a stakeholder network certain StSEs or stakeholder categories may form alliances to influence the REACH system and/or create value.

- **REACH-internal stakeholders**: REACH partners and sub-stakeholders/ StSEs under their direct control (e.g. employees or employee groups > e.g. care personnel in the case of a use case setting partner).

- **REACH-external stakeholders**: *StSEs* or stakeholder groups clearly situated outside the REACH consortium.

- **Stakeholder matrix:** The Stakeholder matrix (e.g. (**Mitchell, Agle, & Wood, 1997**) is a 2 by 2 matrix that indicates relative relations with possible communication strategies to stakeholders. The X-axis indicates the degree of power and influence while the Y-axis indicates the degree of interests in using the REACH system (see also (**Andersen, et al., 2016**)**/Deliverable T1.2/D2, Section 2**).

- **Primary stakeholders**: stakeholders directly influenced by an action, an intervention, a socio-technical design, or a service (see also (**Andersen, et al., 2016**)**/Deliverable T1.2/D2, Section 2.1**).

- **Secondary stakeholders**: stakeholders indirectly affected by the action (see also (**Andersen, et al., 2016**)**/Deliverable T1.2/D2, Section 2.1**).

- **Key stakeholders**: key stakeholders do usually not belong to the group of the *primary* or *secondary stakeholders* but have significant influence on the project/ outcomes (see also (**Andersen, et al., 2016**)**/Deliverable T1.2/D2, Section 2.1**).

- **Stakeholder value proposition**: “Value proposition describes the benefits that your customers can expect from your products and services” (**Osterwalder, Pigneur, & Smith, 2010)**. A stakeholder value proposition relates the value proposition to certain stakeholder entity, group, or network.

- **Stakeholder management**: refers to the processes, methods, and organisational activities used to mediate between the in the context of the concept of stakeholders relevant activities and steps (e.g. identification, analysis, communication, etc.). Stakeholder management creates a feedback loop between individual project activities (system development, communication and dissemination, business model development, etc.) and the stakeholder network (identified and detailed by stakeholder analysis, engagement, communication, etc.).

- **Stakeholder management plan** (SMP): IN REACH a SMP covers following elements: (1) identification of the relevant stakeholders and the manner they affect, or are affected by REACH (**Section 3.2**), (2) determination of stakeholders’ targets concerning REACH (**Section 3.3**), and (3) establishment of the stakeholder relationship management.

- **Stakeholder engagement:** the active inclusion or communication with a stakeholder in order to engage him in developments, alliances, value creation process and/or influence his attitude or position in the stakeholder network.

- **Stakeholder communication**: dissemination or communication activities that are aiming at addressing, influencing, and/or engaging a stakeholder entity, group, or category.

- **Stakeholder relationship management:** active mapping and influencing (e.g. through communication, engagement, co-creation, etc.) of the roles, attitudes, and relations a stakeholder entity has towards REACH and/or its partners and sub-systems.

The stakeholder management core team (TUM and Tu/e) will facilitate the adoption of this terminology within the REACH project by all consortium partners. The list of definitions is considered as a live document that will be updated, modified, and extended by the consortium partners with the progress of work in REACH.

2.2 Stakeholder management mission statement

This deliverable report presents stakeholder management approach of REACH aiming at the support/facilitation of a variety of stakeholder dependent project activities (e.g. business strategy development in **WP8**, requirements engineering in **WP1**, dissemination and communication activities in **WP9**, etc.; see also **Section 1**).

The REACH stakeholder management approach is based on 4 elements that shall contribute to achieve 4 missions and shall be executed in the following order.

1. The first element covers a more thorough definition of stakeholder subjects (StSE) entity in the context of REACH. Target of the 1st element shall be the definition of the potential StSE.

2. The second element will allow carving out both the respective value added of the different StSE as well as the effort to reach out StSE efficiently. Target shall be to develop those StSe, which might have the most appropriate impact on achieving REACH right effective targets with most efficient means and measures.

3. The third element will help to develop – leveraging the Norton Balance Score Card principles – 4 dimensions of StSE perspectives (see **Section 3.2**). For each of the dimensions measurable targets (indicators) will be defined in order
    a. To benchmark/ sort out/ prioritize/ etc.
    b. To provide indicators for controlling and steering of the management, communication with, and modification of stakeholders and stakeholder networks (= of the most suitable or value added StSEs).

4. The fourth element will provide intelligence, support and service for managing the process of stakeholder management in operation. Applying the principles of Deming's

PDCA-loop (**Plan-Do-Check-Act;** see, for example, (**Deming, 1993**)) will reinforce that element. Target of this element is to provide in situ a common picture of operational awareness both with regard to the fulfilment of the processes of planning-operation-execution and the grade of achievements concerning selected StSEs (and the influencing and engagement targets set related to them).

In REACH stakeholder management is concerned with the processes, methods, and organisational activities used to mediate between the in the context of the concept of stakeholders relevant activities and steps (e.g. identification, analysis, communication, etc.) with the goal to ensure REACH's success and maximise its large-scale acceptance and capability to capitalise on its individual sub-systems as well as on its overall platform-based approach. Throughout all phases, stakeholder management will create feedback loops and interactions between project activities (including system development) and the stakeholder network. Stakeholder management in REACH also covers activities related to the alignment of goals of REACH internal stakeholder (=partners and their boards of management/ investors) with the REACH system architecture and the proposed system/service/product developments. REACH stakeholder management aims at identifying, analysing, communicating with, engaging and influencing stakeholders along the entire life cycle of the project and beyond.

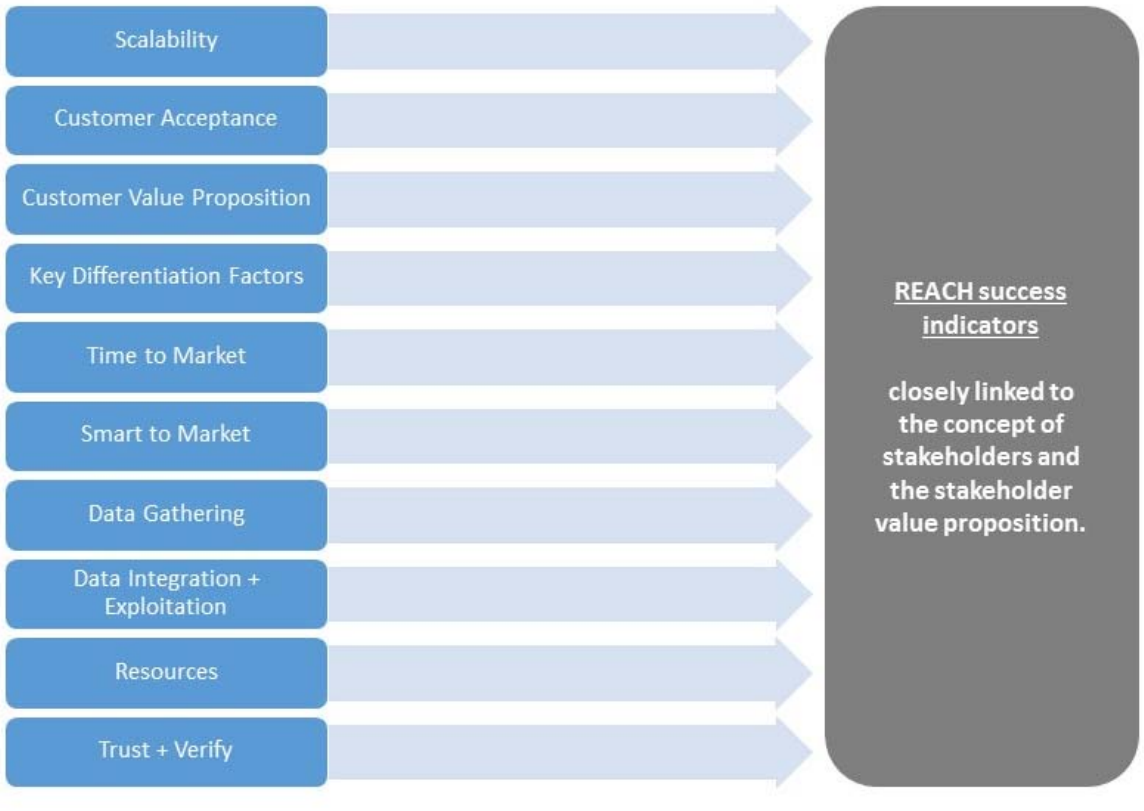
2.3 Stakeholder management success indicators

In order to pave the ground for the stakeholder management procedures outlined in this deliverable report, the REACH-internal stakeholder management task force (led by TUM and Tu/e) investigated REACH's vision and the respective strategies regarding the probabilities of leveraging impacts, regarding the achievability of expected targets of value, and regarding the feasibility of the investment of additional resources into the expected REACH outputs and fields of exploitation.

With regard to a target focused REACH stakeholder management approach and the optimum accomplishment of the REACH targets, REACH compliant structures, procedures, methodologies, terminology, terms, and REACH stakeholder management roadmap have been developed. With regard to this and also the outcome of other deliverables (e.g. **D1.3** on initial PSS value proposition, **D8.1** on REACH's platform-based business model strategy) a set of "lighthouse beacons, namely "success indicators" (see
Figure 2-1), have been heuristically developed with the goal in mind to utilize this indicators for the selection of those stakeholders useful or key for REACH system/sub-system piloting, marshalling, guiding, supporting, and/or provision of resources.

High level "success indicators" will strongly determine the motivation for the engagement of a specific stakeholder group or entity and the communication with and influencing of these stakeholder groups by REACH. The REACH PSS value proposition needs in that context to be translated into corresponding and value adding stakeholder dependent success indicators (REACH stakeholder management phase 1; see **Chapter 4**). Reflecting these indicators REACH has then to identify and analyse the stakeholders and their potential interest (e.g. financial and non-financial) and understand the motivation of stakeholders to invest their "resources" into the project (REACH stakeholder management phase 2, see **Chapter 4**). REACH can then address them in an appropriate manner and/or adjust the project's objectives (REACH stakeholder management phase 3, see **Chapter 4**), and finally

facilitate the formalisation and concretisation of alliances for project outcome exploitation (REACH stakeholder management phase 4, see **Chapter 4**).



Explanation of terminology:

- Scalability: Potentials regarding leveraging from horizontal and/or vertical re-/dual use of materials and in-materials (concepts, IP, hardware, software,)
- Customer Acceptance: Perceptions and facts to be achieved
- Customer Value Proposition: Addressable/ measurable indicators for value added customer demand
- Key Differentiations Factors: Thresholds/ hurdles of uniqueness of the product and/or services offer
- Time to Market: Yield time to provide the product and/or services for operational use
- Smart to Market: Material/ in-material options to provide products and/ or services for operational use e.g. by dual-use, re-design, down scale, down source, re-structure, teaming/ partnering up
- Data Gathering: Opportunities to get access to and/or provide data
- Data Integration and Exploitation: Opportunities to consolidate, extract, mine, and do analytics/ prediction/ prevention based on data
- Resources: Access to and provision of material and/ or material/ in-material resources (equity, human resources, competencies, materials, tools,)
- Trust and Verify: Grade of integrity and compliance of all subject matter entities involved

Figure 2-1: REACH success indicators closely linked to the concept of stakeholders and a stakeholder value proposition.

At present, the indicators outlined in

Figure 2-1 are regarded as preliminary, and they will be concretized and expanded with the progress of work in linked work packages and tasks. Integrity and compliance of these indicators with work packages and tasks will be continuously and iteratively reviewed and improved.

2.4 Interaction of stakeholder management with other work packages/ tasks

Stakeholder management needs to establish constant feedback loops and interactions between selected project activities, the most important REACH stakeholders/ stakeholder networks, and stakeholder related activities (analysis, engagement, etc.). In that context stakeholder management is closely linked and needs to work cross sectional with regard to system architecture development (**WP1**), system detailing and implementation (**WPs 2-5**), business model development (**WP8**), ethics, privacy, data management (**WP10**), usability, personalization, acceptability (**WP7**), Project management and risk minimization (**WP9**), dissemination and communication activities (**T9.8**), standardization with regard to the platform-based REACH approach (**T6.1 and T9.4**).

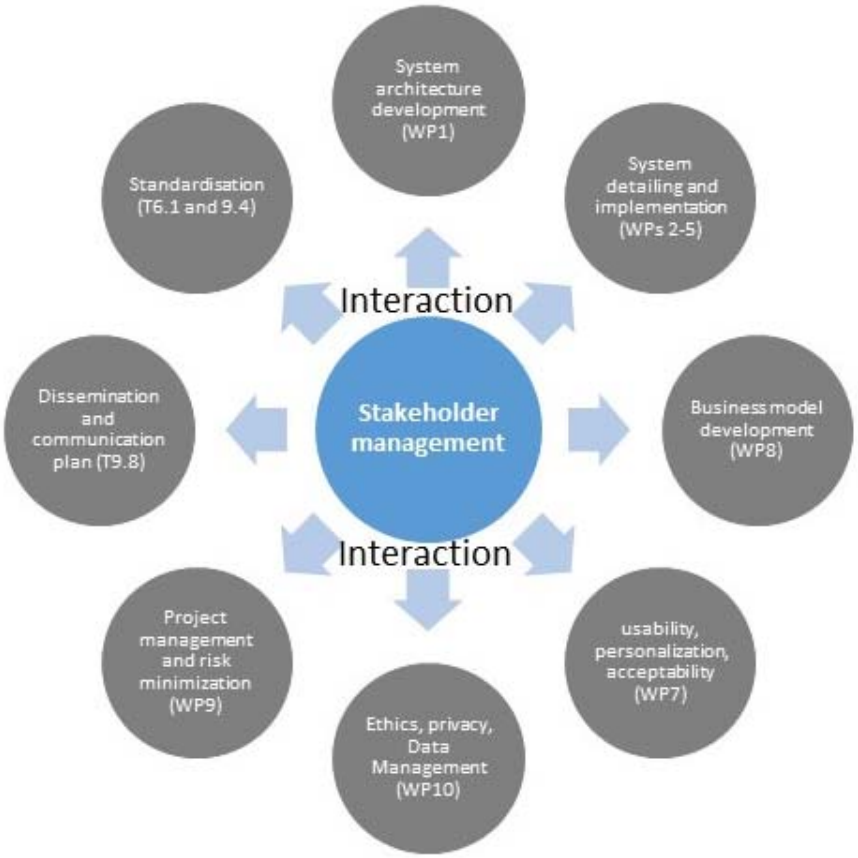


Figure 2-2: Stakeholder management establishes feedback loops and interactions between selected project activities and stakeholder related activities (analysis, engagement, etc.).

2.5 Stakeholder management as a facilitator of the investment of additional resources into REACH

One of the key goals of stakeholder management in REACH (including the identification, engagement, and influencing of stakeholders and stakeholder networks) is to facilitate an alignment of REACH's objectives and goals and the objectives and goals of specific stakeholders so that these stakeholders become willing to invest additional resources into REACH and/or its sub-systems. Only with these investments the ideas, products and services that are developed within REACH as part of the co-financing of the H2020

programme, can be brought forward and exploited beyond the project and in larger scale. REACH states an "experiment" on small and accomplishable scale, but is structure, modular composition and aspiration are informed by the vision of large scale deployment.

With regard to the stakeholder driven investment of financial and non-financial resources into REACH solutions, following stakeholder dependent investment scenarios can be identified:

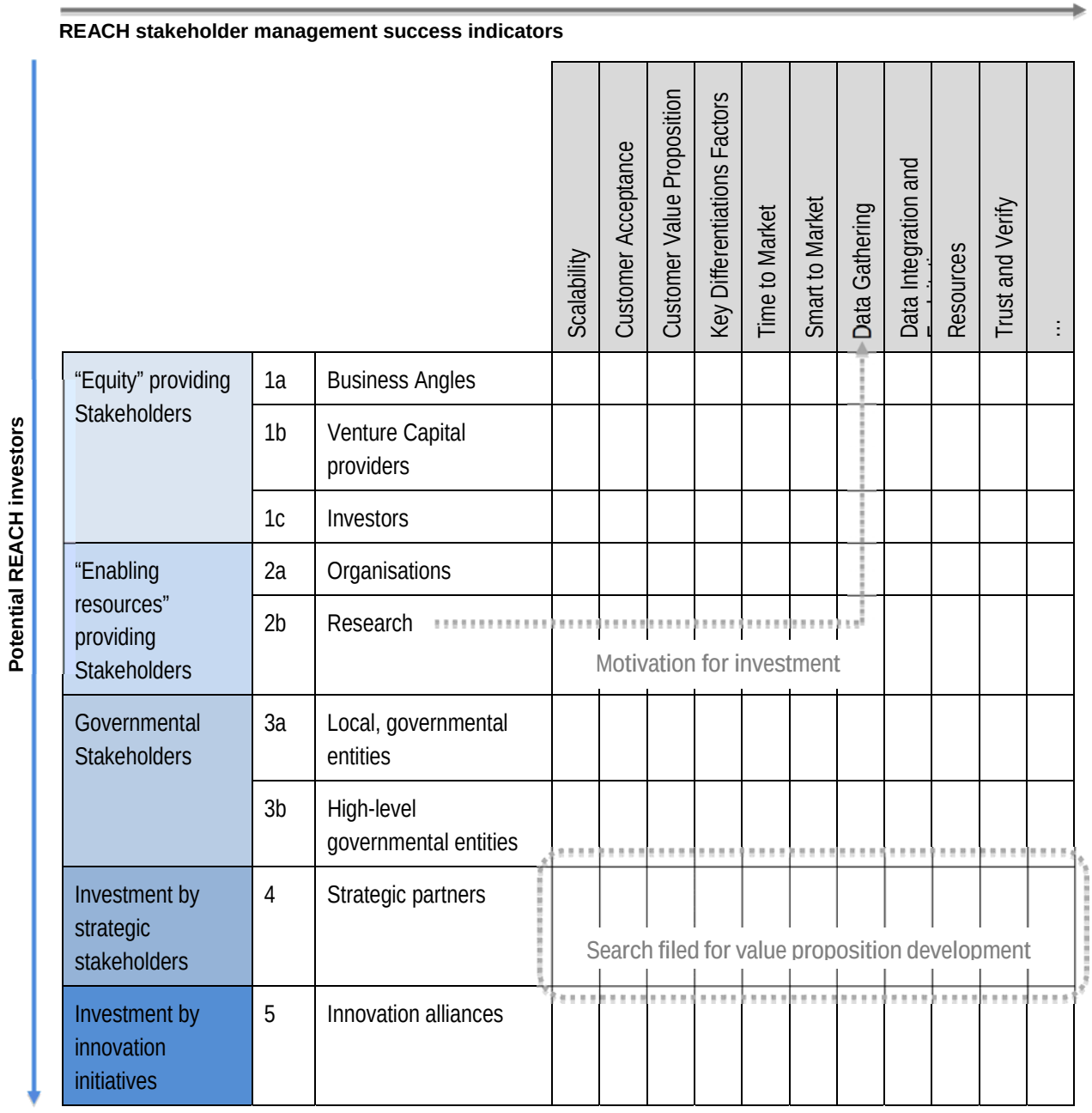
Table 2-1: Stakeholder dependent investment scenarios for REACH

Stakeholder category	No.	Sub-category	Characteristics	Potential REACH scenarios
"Equity" providing Stakeholders	1a	Business Angles	• Pre-seed phase • Invest money and know how • Monetary investment usually in the range of € 1-3 million	As part of the project a highly innovative but risky idea emerges and an internal or external investor needs to be found to create a spin-off run by some PHD students. Project partners such as Philips and ArjoHuntleigh have the financial capability to act as project internal business angel.
	1b	Venture Capital providers	• Seed phase • Invest money and know how • Monetary investment usually in the range of € 3-10 million	Investment by partners in their own REACH innovations (e.g. ArjoHuntleigh plans to allocate own R&D money to complement the EU funding for realising the "Active Environment Touchpoint").
	1c	Investors	• Growth phase • Invest money only • Monetary investment usually more than € 10 million	Investment of partners in other REACH partners developments (e.g. larger companies as Philips or ArjoHuntleigh may invest in or even buy up or incorporate another REACH partner and/or its development).
"Enabling resources" providing Stakeholders	2a	Organisations	• Interest groups, insurances, patient organisations, standardisation organisations (ISO, DIN) etc. • Monetary and non-monetary investment due to strategic interest	Organisation such as insurances may decide to support REACH with data, know-how, and political support in order to push the development of preventive approaches which may in the long run reduce their cost and risks.
	2b	Research	• Interest in data, generate knowledge about links	REACH-internal and external researchers may invest additional, own resources since

			between behaviour and health outcomes, validation through large-scale implementation, etc. • Investment of know-how and man power	the profit from a long-term continuation of the project regarding data about intervention outcomes (e.g. the EuroTech universities plan to support REACH beyond the project's duration in order to turn it into a long-term study and teaching program.
Governmental Stakeholders	3a	Local, governmental entities	• National/ local authorities • Investment through funding, solution adoption, know how, political support, etc.	For example, Lyngby local authorities may decide to adopt the REACH approach in a larger scale
	3b	High-level governmental entities	• High level authorities • Governmental organisations • Investment through funding, know how, political support, etc.	Beyond the project, individual aspects/technologies may be brought to large-scale production using for example the "H2020 SME Instrument" Associations as the EIP AHA may provide political high-level support
Investment by strategic stakeholders	4	Strategic partners	• SMEs; for example technology; providers that have a strategic interest in the success, scale up of REACH	The project internal stakeholder SC for example may decide to invest additional resources in the development and large-scale implementation of the REACH platform and standards as these elements may indirectly function as a "vehicle" for marketing/selling wearables.
Investment by innovation initiatives	5	Innovation alliances	• Philips innovation alliance, EPFL's Campus Biotech, UnternehmerTUM, etc. • Private/ governmental supported start-up incubators, etc. • Investment of know-how, monetary investment, networks, provision of innovation environment, aces to human resources, etc.	EPFL's Campus Biotech (start-up incubator area with more than 100 young companies supported with office space, know-how and financial resources, PHDs, etc. http://www.campusbiotech.ch/en/) may be convinced to support REACH spin-off. Similarly TUM's industry connected/supported "UnternehmerTUM" incubation centre may be utilized as spin-off facilitator: https://www.unternehmertum.de/index.html

The in **Section 2.3** defined success indicators can be used to detail the investment potentials and identify the motivations that may drive individual REACH investor stakeholders.

Table 2-2: Definition of search fields regarding investment potentials and motivations



The 2x2 matrix presented in **Table 2-2** plots the potential REACH investors versus the REACH success indicators and allows thus to categorize and characterize per investor in detail its motivation with regard to the success indicators. Understanding the motivation that drives and individual investor stakeholder is essential in determining in a next step appropriate measures of addressing this stakeholder and its needs. Furthermore, the matrix can be used to define search fields/areas for potential value propositions that can be actively developed then through project activities such as technical system development, system architecture, and/or business strategy/model development.

2.6 Development of an integrated, generic stakeholder perspective

One of the key tasks of stakeholder management in REACH is to facilitate the development of an integrated, generic stakeholder view that integrates and expands the sub-views (stakeholder network perspectives) developed in various project activities (see **Section 1.3**). The integrated, generic stakeholder view shall take into account the success factors as outlined in **Section** Fehler! Verweisquelle konnte nicht gefunden werden. and the stakeholder value propositions developed in (**Lu, et al., 2016**)**/D1.3/D3** and (**Lingegard, et al., 2017**)**/T8.1/D33**. In that context stakeholder management shall facilitate the definition and detailing of success indicators and REACH system requirements that are commonly accepted among a large amount of stakeholders and those that have to be taken into account with regard to local needs, legislation, and practices. Identified stakeholders may be address in a variety of ways e. g. by embracing, co-creation, dialogue, testing/demonstration, etc.

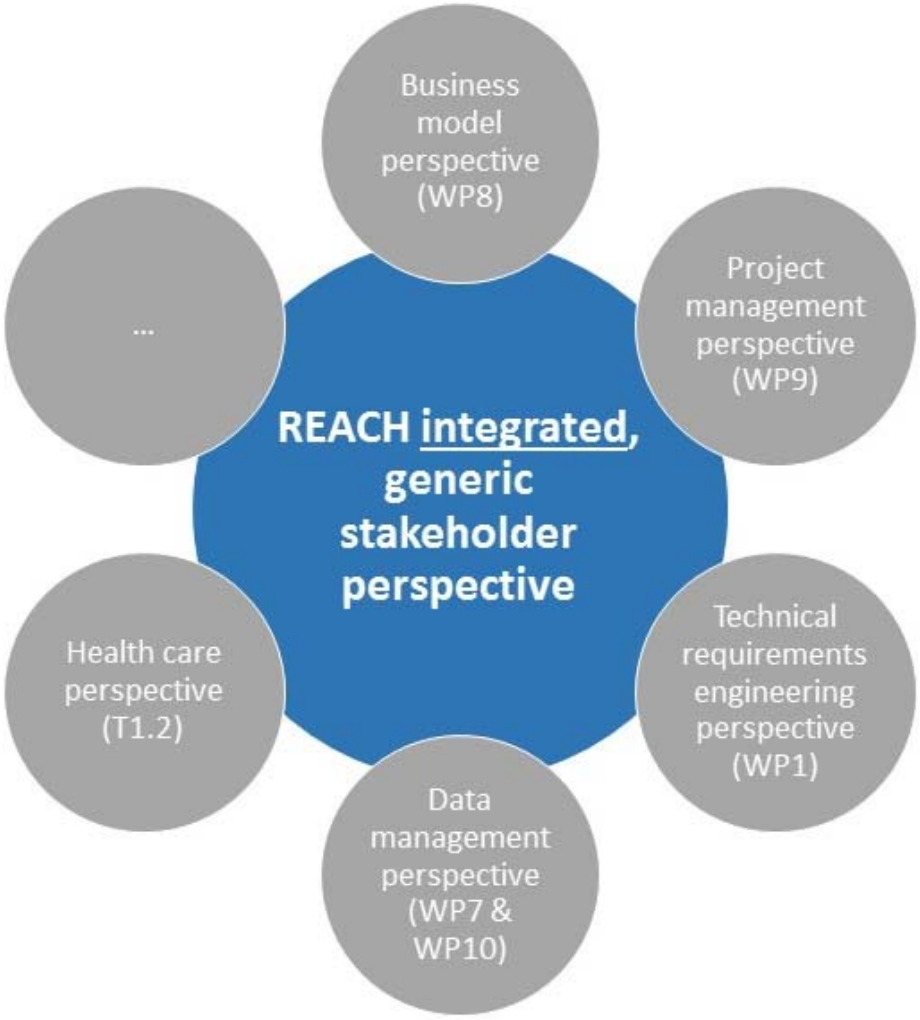


Figure 2-3: A generic view integrates the sub-views (stakeholder network perspectives) outlined in section 1.3.

3 REACH Stakeholder management methodology

In this chapter, following the clarification of the scope and role of stakeholder management in **Chapter 2**, the stakeholder management methods and tools to be used in the context of REACH are detailed. A successful Stakeholder Management Plan (SMP) is based on relevant data, facts and figures regarding the stakeholders, and therefore enables an informed and accurate management of their expectations and agreed objectives, for ensuring positive relationships (communication, data exchange, etc.) among stakeholders. The current chapter will present a pathway into establishing a SMP in the context of REACH. The general concept for SMP, based on previous relevant data and three subsequent steps, is presented in **Section 3.1**. The following sections will detail the steps to be performed in establishing a SMP: (1) identification of the relevant stakeholders and the manner they affect, or are affected by REACH (**Section 3.2**), (2) determination of stakeholders' targets concerning REACH (**Section 3.3**), and (3) establishment of the stakeholder relationship management (**Section 0**).

3.1 General approach

The SMP shall be based on data regarding the REACH stakeholders obtained from Deliverable Report D42-a ("Detailed dissemination plan"), such as preliminary stakeholders identification map, messages, tools and languages employed to address them, as well as their involvement in various REACH activities. The next steps into developing the strategy, detailed in the sections below, shall be the following: (1) identification of relevant stakeholders and their role, level, interest, pains, gains and needs, associated with REACH; (2) determination of stakeholders' targets concerning REACH; and finally (3) to achieve the ultimate goal, which the establishment of the stakeholder relationship management (see **Figure 3-1**).

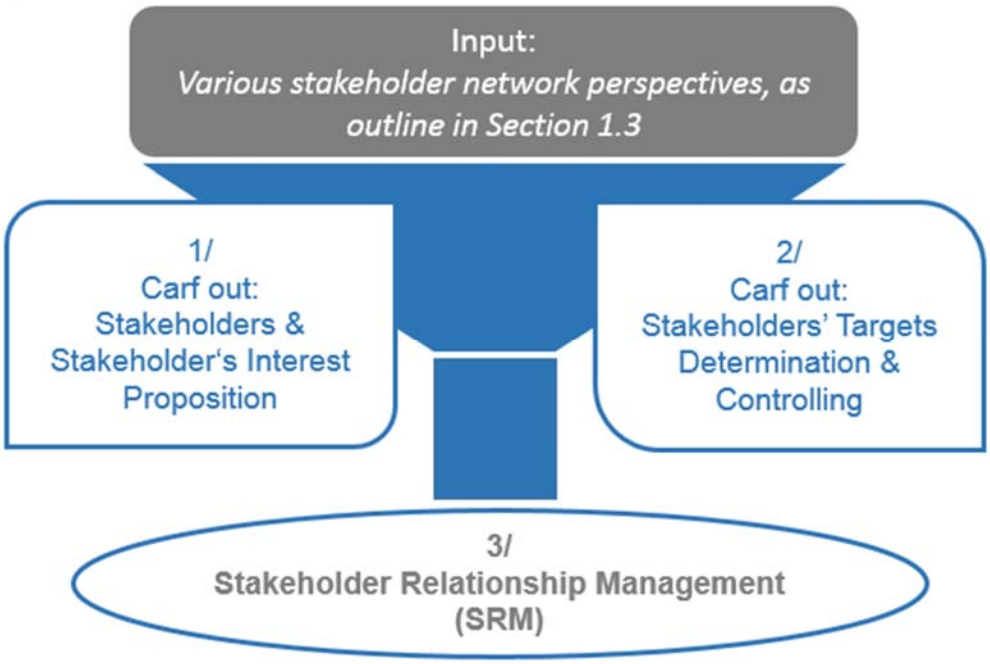


Figure 3-1: The REACH stakeholder management strategy

3.2 Adopt & adapt – Business Model Canvas

The first step into developing a comprehensive SMP is identifying the relevant stakeholders and their role, level, interest, pains, gains, as well as their needs to perform a certain job, associated with REACH. Further on, the relationship to different levels of stakeholders shall be identified, according to their role, interest, pains, gains and needs. Thereafter, means of approaching and addressing various levels of stakeholders shall be determined, based on the relationship to be established with the given stakeholder.

The checklist above is based on the Business Model Canvas, proposed by (**Osterwalder, Pigneur, & Smith, 2010**), and re-adapted to a stakeholder management template (see **Figure 3-2**). By using this template, the relevant stakeholders and their characteristics important to REACH can be identified. Consequently appropriate value propositions for the stakeholders can be generated to meet their requirements. REACH stakeholder analysis approach can help to deliver the values to the stakeholders respectively. REACH SRM can ensure that these stakeholders remain committed and collaborate in REACH system development in an orchestrated manner.

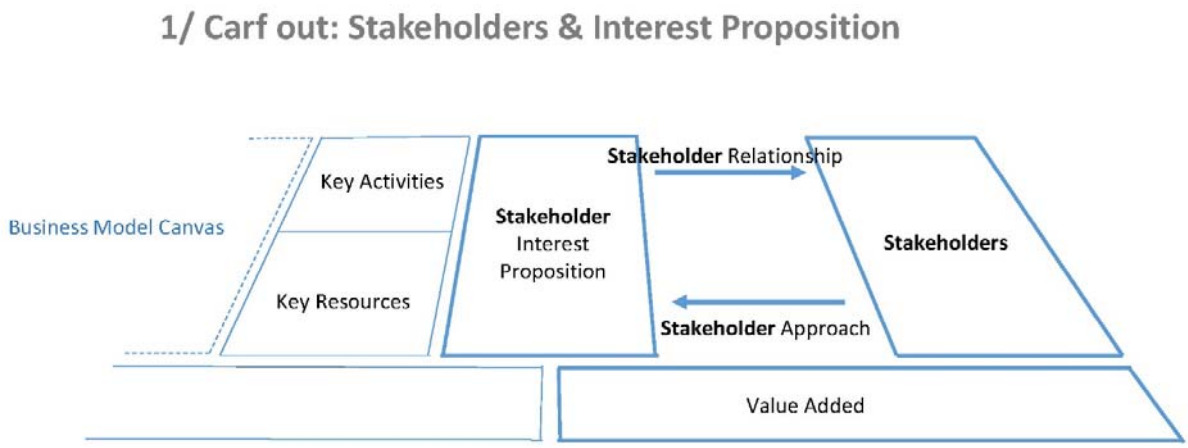


Figure 3-2: The Stakeholder Management Canvas (Image: based on (Osterwalder, Pigneur, & Smith, 2010))

3.3 Adopt & adapt – Balanced Score Card (Norton)

Balanced Score Card **(Kaplan & Norton, 1996**) has been selected to set the right perspectives in multi-dimensional settings such as the REACH project. The idea is to define not only the dedicated perspectives from the stakeholder's value proposition, but also to provide a rate of coverage optimum. This shall support grasping the most appropriate solution in sometime as disjunctive perceived stakeholders' settings or patterns. The adaption of Norton Balance Score Card turned out to be appropriate for re- or dual use. The maturity and the today broad acceptance of the Norton Balanced Scorecard shall make it possible to provide a robust solution viable for operational use. **Figure 3-3** shows the proposed perspectives for modeling the combined target approach taking into account the aggregation and consolidation of the value added propositions.

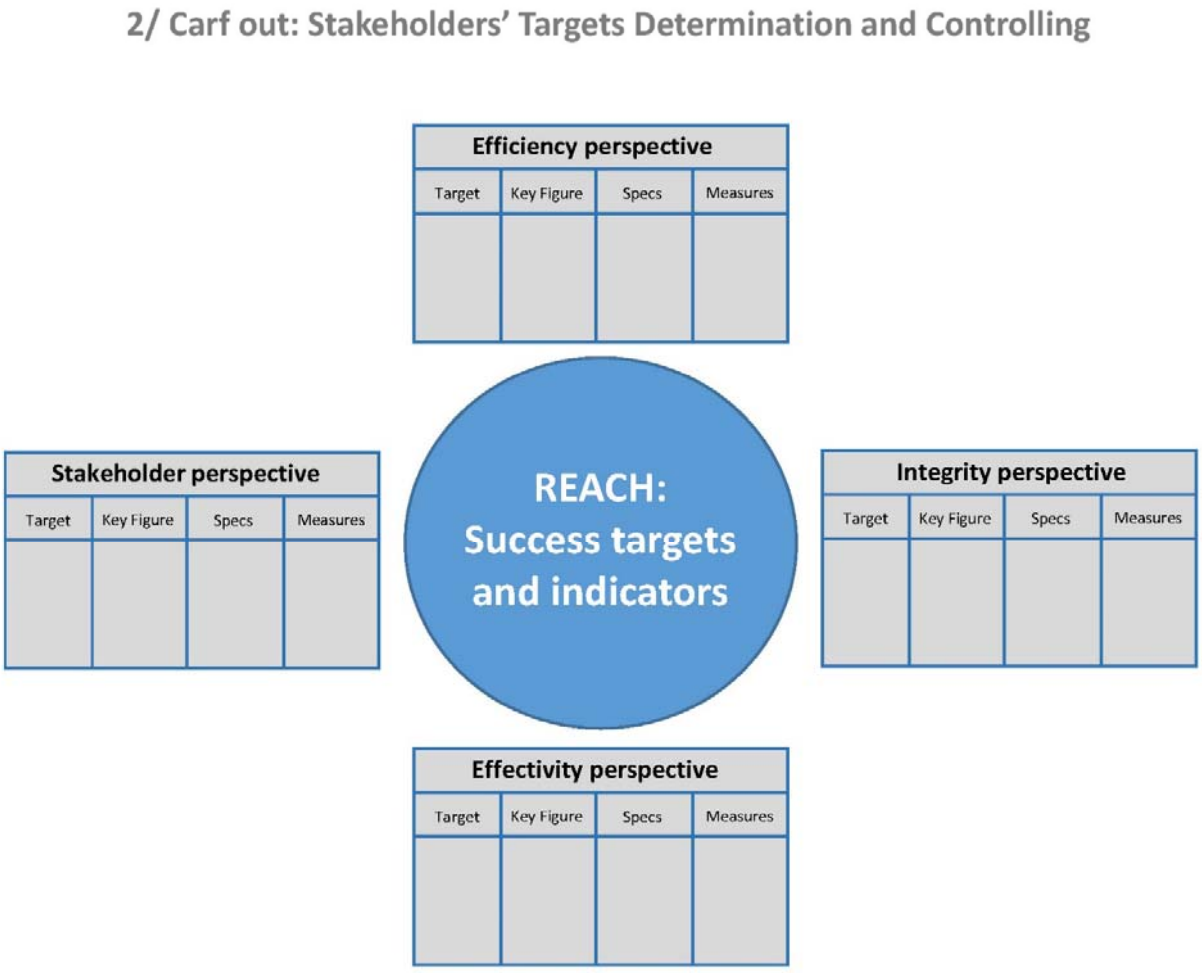


Figure 3-3: Use of Balanced Score Card in REACH (Image: own interpretation and partly adopted from (Kaplan & Norton, 1996))

3.4 Adopt & adapt – Customer relationship mean, measures and tool

Customer Relationship Management (CRM) governs the communication with the customers, based on reliable figures, data, and facts in order to focus the attention on relationships with the most important stakeholders and to identify strong and/or weak points in the dialogue with these stakeholders. CRM software, for example, provides a standard work procedure with regard to this. Nevertheless, it's a process that shall be reflected by the software, but not the software shall determine the processes.

The goal of CRM is to improve business relationships with specific, selected stakeholders and increase their willingness to adopt the solution (REACH products and services), in order to achieve growth. Furthermore, through CRM, companies learn more about their customers and their needs and can derive and detail system requirements from this.

Therefore, as a step towards establishing a SMP, in analogy to CRM, Stakeholder Relationship Management (SRM) is concerned with selected stakeholders in the REACH project scope. The following template (see **Figure 3-4**), shall guide the consortium regarding the implementation of a successful SRM, which is based on utilizing and taking further information (or intelligence) gathered during each step.

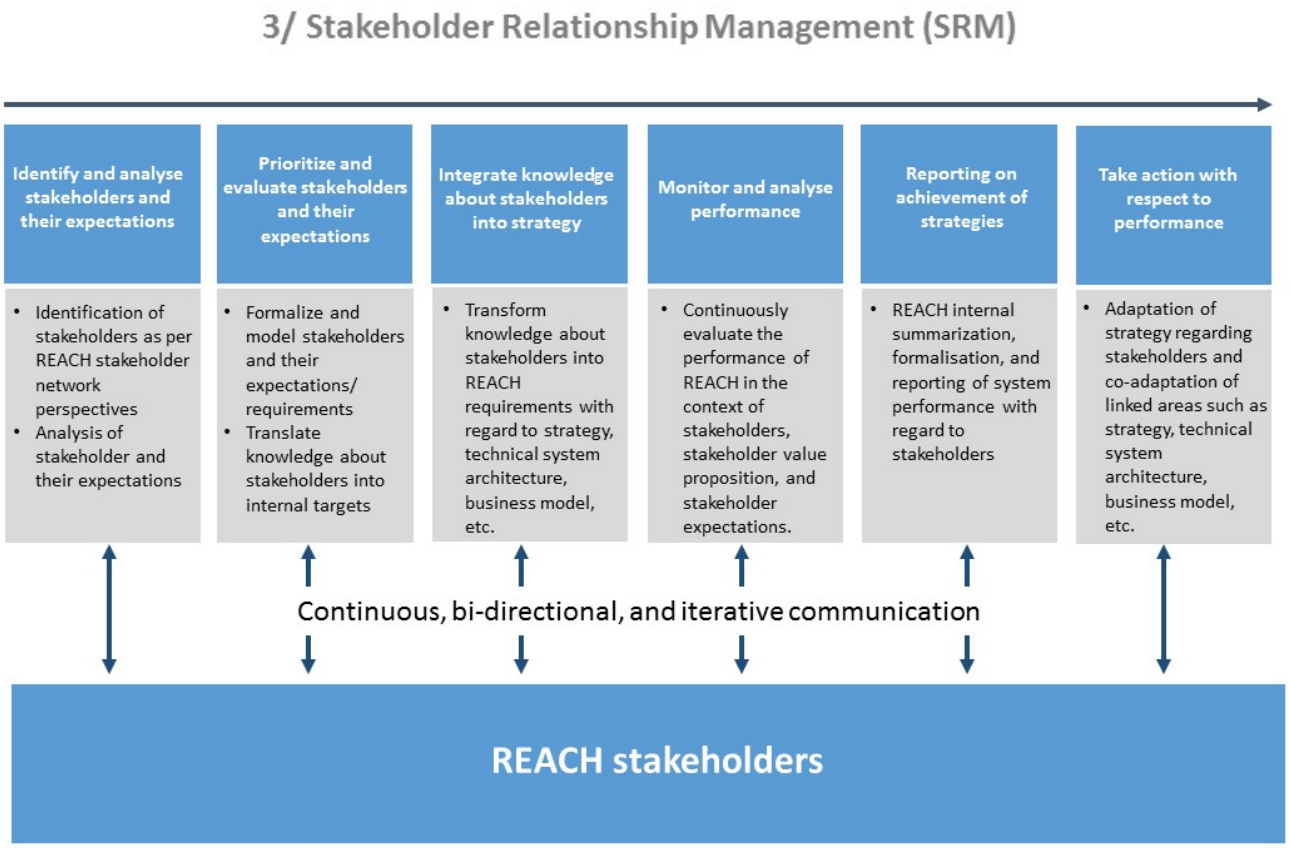


Figure 3-4: Stakeholder Relationship Management (SRM) in REACH (Image: own interpretation and partly adopted from (SAP, 2017))

4 REACH Stakeholder management roadmap

In this chapter, an initial REACH stakeholder management roadmap is presented. First, a detailed stakeholder management roadmap is presented which sub-divides REACH into four subsequent stakeholder management phases that are in tune with the workflow and work plan of the project (**Section 4.1**). Second, the plan regarding the expansion and updating of the IP strategy and management roadmap is briefly outlined (**Section 4.2**). In REACH stakeholder management is concerned with the processes, methods, and organisational activities used to mediate between the in the context of the concept of stakeholders relevant activities and steps (e.g. identification, analysis, communication, etc.) with the goal to ensure REACH's success and maximise its large-scale acceptance and capability to capitalise on its individual sub-systems as well as on its overall platform-based approach. Stakeholder management in REACH also covers activities related to the alignment of goals of potential REACH internal and external "investors" with the REACH system architecture and the proposed system/service/product developments.

4.1 Roadmap

With regard to stakeholder management, REACH is divided into four major phases, (1) the development and analysis of stakeholder network perspectives in phase 1, (2) the development of an integrated, generic stakeholder network perspective in phase 2, (3) Active stakeholder engagement and communication in phase 3, and (4) stakeholder related activities (e.g. the active formation and formalisation of networks and alliances) aiming at REACH system optimisation and exploitation preparation in phase 4. These phases are co-adapted to the "technical" and development oriented project phases and activities carried out through the project's duration. Throughout all phases, stakeholder management will create feedback loops and interactions between project activities (including system development) and the stakeholder network.

Table 4-1: Stakeholder management roadmap

Project Month	Stakeholder Management Phase	Project Phases	Stakeholder Management Tasks	Status
M1-M14	Stakeholder network perspectives	Requirements: • Analysis of use cases, stakeholder networks, motivational technologies, etc. • Definition of requirements and initial system architecture • initial business strategy	• Setting up of stakeholder management methods, definitions, and procedures/ plan (T9.7) • Identification and analysis of stakeholders and stakeholder network composition as per specific task-oriented perspectives (e.g. care process/WP1, business model/WP8, data management/WP10, etc.) • Inclusion of primary and key stakeholders into the "co-creation" and system development process in the	completed

			context of WP1 and early testing • Development of initial stakeholder value proposition (T1.3 and WP8) • Development of the first, initial stakeholder-oriented dissemination/communication mechanisms (T9.8) • Alignment of goals of REACH internal stakeholder (=partner and their investors) with the REACH system architecture (WP9/ task of the coordinator + WP1)	
M15-M26	Development of an integrated, generic stakeholder network perspective	Technology selection and specification: • translation of requirements into technical solutions and specifications • development of technical variants and selection • pre-testing • detailing of system architecture	• Execution of stakeholder management methods, definitions, and procedures/ plan (T9.7) • Detailing and integration of the various stakeholder network perspectives to a universal, generic view • Use of "Balanced Score Card" • Detailing of stakeholder value proposition (WP8) • Continued integration of primary and key stakeholders into the "co-creation" as part of lab tests and developments in WPs 2-5 • Define internal and external stakeholders interested in investing additional resources into REACH • Start working towards and alignment of goals of REACH internal/external investors with the REACH system detailing	pending
M26-M36	Active stakeholder engagement and communication	Technical implementation: • Technical implementation • Testing and usability engineering • Detailing of business strategy • Detailing of aspects related to health data management (privacy,	• Update of stakeholder management methods, definitions, and procedures/ plan (T9.7) • Updating of the universal, generic stakeholder network view • Active stakeholder communication and stakeholder relationship modification/influencing	pending

		security, sharing/ exploitation, etc.)	• Detailing of stakeholder value proposition (WP8) • Continued integration of primary and key stakeholders into the "co-creation" as part of pre-testing I and II (WP6) • Alignment of goals of REACH internal/external investors with the REACH system detailing	
M37-M48	REACH system optimisation and exploitation preparation	Verification and generalisation: • Demonstration and summative testing • Analysis of health and prevention related outcomes • System optimisation • Improvement of business, data management, and exploitation strategies	• Optimisation of the REACH system by incorporating knowledge gained about stakeholders in the previous phases • Active formation of stakeholder networks and alliances that allow exploitation of project results as per the REACH business plan (WP8) • Continued integration of primary and key stakeholders into the "co-creation" as part of final demonstration in Lyngby (WP6)	pending

4.2 Continuation and update of stakeholder management plan

Stakeholder management in REACH is considered as a continuous, on-going process that is interdependent with a variety of project activities (system development, business strategy/model, testing and demonstration, dissemination and communication, etc.) Therefore the strategies, plans, procedures, and definitions presented in this deliverable report will be reviewed, adapted and updated in each stakeholder management phase. All updates and advances will be laid down as a continuation and expansion of this deliverable report.

5 Conclusion

In this deliverable report, first, the general task of stakeholder management in REACH and the background/environment in which it will be used was outlined. Second, the role of stakeholder management was detailed by providing REACH adapted key definitions for important terms, outlining the stakeholder management mission statement and success factors, explaining the role of stakeholder management with regard to the leveraging of additional financial investment, explaining the relation and interaction of stakeholder management with other activities in REACH, and providing a framework for an integrated, generic stakeholder perspective. Third, the RECH stakeholder management, methodology and toolkit were introduced, and fourth, a detailed REACH stakeholder management roadmap was presented specifying the key activities of the stakeholder management and their relation to specific project phases

In REACH, stakeholder management is considered a facilitator of the following process: (1) identification and analysis of the relevant stakeholders, (2) determination of stakeholders' goals concerning REACH, and based on this, (3) the establishment of the stakeholder relationship management process. In REACH, stakeholder management creates a feedback loop between individual project activities and the stakeholder network. One of the key goals of stakeholder management in REACH (including the identification, engagement, and influencing of stakeholders and stakeholder networks) is the alignment of REACH's objectives and goals and the objectives and goals of specific stakeholders, so that these stakeholders become willing to invest additional resources into REACH and/or its sub-systems. Stakeholder analysis and management in REACH also reinforces the platform-based system, through addressing a broad network of potential stakeholders to achieve vast acceptance and extend viable scalability.

With regard to stakeholder management, REACH is divided into four major phases, (1) the development and analysis of stakeholder network perspectives in phase 1, (2) the development of an integrated, generic stakeholder network perspective in phase 2, (3) active stakeholder engagement and communication in phase 3, and (4) stakeholder related activities (e.g. the active formation and formalisation of networks and alliances) aiming at REACH system optimisation and exploitation preparation in phase 4. These phases are co-adapted to the "technical" and development oriented project phases and activities carried out through the project's duration.

Stakeholder management in REACH is considered as a continuous, on-going process that is interdependent with a variety of project activities (system development, business strategy/model, testing and demonstration, dissemination and communication, etc.) Therefore the strategies, plans, procedures, and definitions presented in this deliverable report will be reviewed, adapted and updated in each stakeholder management phase. All updates and advances will be laid down as a continuation and expansion of this deliverable report.

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