Economic and Societal ambitions in the Top Sector Life Sciences and Health

A stakeholder analysis

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Maaike den Heijer

Management samenvatting

In 2010 introduceerde de Nederlandse overheid een nieuw innovatiebeleid, het Topsectorenbeleid. Dit beleid richt zich op het verhogen van particuliere investeringen in onderzoek en ontwikkeling (R&D) door de samenwerking tussen het bedrijfsleven, kennisinstellingen en de overheid te stimuleren. Het Topsectorenbeleid heeft daarmee als doel om de concurrentiepositie en de economie van Nederland te versterken. Naast het economische perspectief van dit beleid, legt de regering in toenemende mate de nadruk op de bijdrage van de topsectoren aan maatschappelijke uitdagingen. De regering is van mening dat de maatschappelijke uitdagingen van vandaag de opkomende markten van morgen zijn. De Topsector Life Sciences and Health (LSH) is één van de negen topsectoren met zowel een economische als een maatschappelijke ambitie. Hun ambitie is: 'het ontwikkelen van gezondheid gerelateerde technologie, biomedische en sociaal-culturele innovaties die bijdragen aan vitaal functioneren en aan de kwaliteit van leven van alle burgers, evenals aan de betaalbaarheid en de productiviteit binnen de preventie, cure en care cyclus. Innovatie die, belangrijker nog, business value in Nederland en in het buitenland creëert'. Toch rijst er de vraag in hoeverre de economische en maatschappelijke ambities van deze Topsector behaald gaan worden.

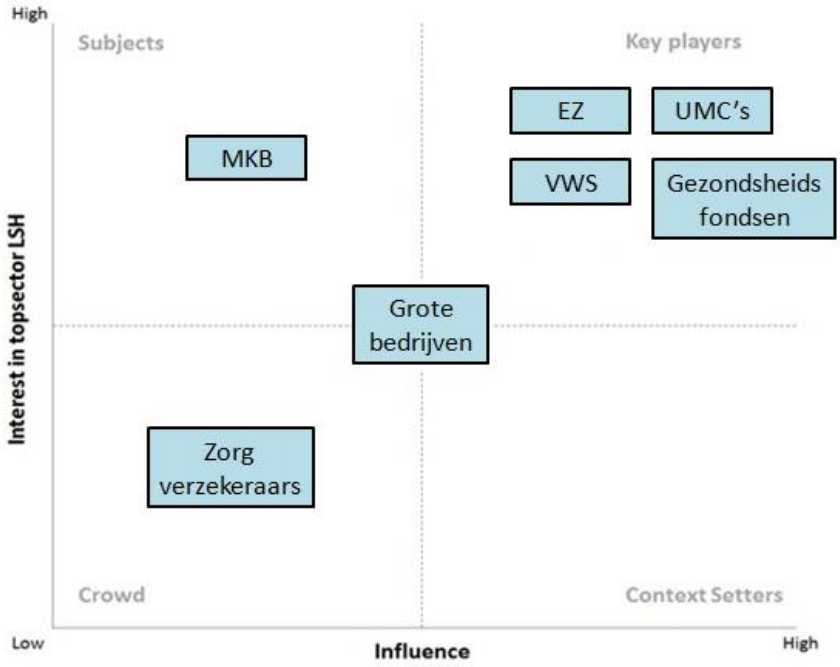
De kans dat een beleid zijn ambities zal realiseren hangt onder andere af van welke stakeholders betrokken worden en welke invloed ze hebben op de uitvoering van het beleid. Tegenstrijdige belangen of een disbalans in de macht tussen de belanghebbenden zou de verwezenlijking van de ambities mogelijk kunnen belemmeren. In deze studie is daarom gekeken naar de posities van verschillende stakeholders in de Topsector LSH en hun positie ten opzichte van de economische en maatschappelijke ambitie. De volgende stakeholders zijn meegenomen in het onderzoek: EZ, VWS, industrie: grote bedrijven & MKB, kennisinstellingen (UMC's), gezondheidsfondsen en zorgverzekeraars.

Uit onze analyse is een aantal bevindingen gekomen die realisatie van de ambitie kunnen belemmeren.

- De industrie is geen keyplayer in de Topsector LSH, ondanks het van origine een bedrijfsleven beleid is. Grote bedrijven lijken weinig belang te hebben bij het beleid. De financiële prikkel is te klein in verhouding met de moeite die het kost om het te ontvangen. Het MKB daarentegen lijkt meer belang te hebben in het beleid, toch lijkt er te weinig aansluiting met het MKB. Daarbij is in verhouding de industrie weinig vertegenwoordigd in de regiegroep.
- Zorgverzekeraars spelen nauwelijks een rol in de Topsector LSH. Hun medewerking en investeringen missen, terwijl ze erg van belang kunnen zijn voor andere stakeholders en ze zelf veel belang kunnen hebben bij de innovaties die de Topsector LSH stimuleert.
- De wetenschap is sterk vertegenwoordigd; hierdoor lijkt de agenda ook een sterk wetenschappelijke focus te hebben, wat niet altijd per definitie in het belang is van de industrie.
- De agenda van de Topsector LSH is erg breed en biedt weinig sturing voor het budget dat beschikbaar is. Hierdoor lijkt de maatschappelijke ambitie erg eenzijdig te worden benaderd. Veel participanten die TKI-toeslag aanvragen werken aan ‘cure’ gerelateerde onderwerpen, mogelijk omdat de economische waarde van deze innovaties groot is. Hierdoor blijven echter innovaties op het gebied van ‘preventie’ en ‘care’ achter, wat vaak ook sociaal-culturele en diensteninnovaties zijn.

- De perspectieven van stakeholders ten aanzien van de middelen die nodig zijn om bij te dragen aan de maatschappelijke uitdagingen, lijken met elkaar te conflicteren. De industrie, UMC's en gezondheidsfondsen hebben veel belang bij technologische innovatie en zij geloven dat deze type innovaties ook bijdragen aan de maatschappelijke ambitie. Echter, beschouwt VWS deze innovaties als kostenopdrijvend. Zij hebben meer belang bij stimulatie van sociaal-culturele en diensteninnovatie, waarvan zij geloven dat die beter bijdragen aan de maatschappelijke ambitie.

De volgende afbeelding toont welke van de vier posities (keyplayer, context setter, crowd, subject) de stakeholders in de topsector LSH hebben (de stakeholders zijn slechts in een quadrant geplaatst, de ordening in een quadrant is willekeurig).



Mede doordat de industrie te weinig aansluiting vindt met het beleid en het belang van sociaal-culturele en diensteninnovatie sterk ondervertegenwoordigd is, lijkt de ambitie van de Topsector LSH maar in beperkte mate te worden behaald. De volgende aanbevelingen voor verbetering van de samenwerking en het beleid worden gedaan:

1. Betrek meer bedrijven en zorgverzekeraars in de regiegroep. De industrie en zorgverzekeraars zijn beide belangrijke stakeholders in de Topsector LSH, maar zijn te weinig betrokken in het bestuur. Het bedrijfsleven zou beter aangesloten moeten worden zodat de aansluiting van het beleid op de behoefte van het bedrijfsleven beter wordt. Daarbij zou de TKI-toeslag verhoogd moeten worden om het participeren in PPP's aantrekkelijker te maken voor het bedrijfsleven. Dit alles zal de kans op het behalen van de economische ambitie verhogen. De zorgverzekeraars zouden overtuigd moeten worden van hun toegevoegde waarde in de Topsector. Het is daarom aanbevolen om in gesprek te gaan met verschillende zorgverzekeraars om hen van hun verantwoordelijkheid en toegevoegde waarde te overtuigen. Het is een belangrijke stakeholder, met name ook vanwege hun belang voor kostenbesparing in de zorg en sociaal-culturele en diensteninnovaties.

2. Betrek meer stakeholders met interesse in sociaal-culturele en diensteninnovaties; Uit dit onderzoek blijkt dat het belang voor dit type innovatie niet voldoende is vertegenwoordigd in het bestuur van de topsector. In Nederland bevinden zich wel degelijk kennisinstituten en bedrijven die zich bezig houden met onderzoek naar en ontwikkeling van dit type innovatie. Het zou waardevol zijn om de deze stakeholders meer te betrekken om zo het diverse palet aan stakeholders en belangen compleet te maken. In combinatie met onze eerste aanbeveling, is het aanbevolen om ook bedrijven te betrekken die gespecialiseerd zijn in sociale-culturele of diensteninnovatie in de zorg.

3. Focus het budget op specifieke onderwerpen die betrekking hebben op de 'prevention-cure-care cycle'; De agenda van de topsector LSH is erg breed. Aanvragen voor bijvoorbeeld de TKI-toeslag moeten te maken hebben met een onderwerp die de agenda adresseert. Echter, omdat de meeste stakeholders met name onderzoek doen naar 'cure' gerelateerde innovaties, blijven innovaties op het gebied van preventie en 'care' achter. Daarom is het aanbevolen om het beschikbare budget te spreiden over thema's of onderwerpen die zowel innovatie op het gebied van preventie, cure en care stimuleren. Dit betekent niet dat het bereik van de agenda versmald moet worden, maar dat juist specifieke doelen of thema's gestimuleerd worden. Een suggestie is dat de topsector zijn budget verdeelt over de drie doelen die beschreven staan in de agenda en gerelateerd zijn aan de 'prevention-cure-care cycle': 1) behouden van gezondheid en functioneren, focus op preventie; 2) vergroot het behandelingseffect, verlaag de last; 3) manage gezondheid en ziekte buiten de muren van de zorg. Op deze manier wordt er een diversiteit aan innovaties gestimuleerd.

4. Begin een dialoog over de middelen die nodig zijn om bij te dragen aan de maatschappelijke uitdagingen; Uit deze studie blijkt dat sommige stakeholders conflicterende perspectieven hebben als het gaat om welke middelen nodig zijn om bij te dragen aan de maatschappelijke uitdagingen. Dit heeft mogelijk een belemmerend effect op de samenwerking tussen de stakeholders en daarbij op het bijdragen aan de maatschappelijke uitdagingen. We bevelen aan dat zodra alle belangrijke stakeholders aan tafel zitten er een dialoog gestart wordt over welke middelen er nodig zijn om bij te dragen aan de maatschappelijke uitdagingen. Dit helpt mogelijk om wederzijds begrip te creëren en om uiteindelijk consensus te bereiken. Op deze manier wordt de kans om succesvol bij te dragen aan de maatschappelijke uitdagingen groter.

Executive summary

In 2010 the Dutch government introduced a new innovation policy called the Top Sector policy. This policy aims to increase the private investment in R&D by encouraging collaboration between the private sector, knowledge institutions and the government. Furthermore, the policy aims to stimulate innovative performance by aligning the knowledge demand from the industry with the knowledge supply from the knowledge institutions by stimulating public private partnerships. Next to the economical perspective of this policy, the government put increasingly emphasis on the contribution of these Top Sectors to societal challenges, like ageing and rising healthcare expenditure. The government believes that the societal challenges of today, are the emerging markets of tomorrow. The Top Sector Life Sciences and Health (LSH) is one of the nine Top Sectors with both an economical an societal ambition. They formulated their ambition as followed: 'develop health related technological, biomedical, and social-cultural innovations that contribute to vital functioning and quality of life of all citizens, as well as affordability and productivity within the prevention, cure and care cycle. Innovation that, most importantly, create business value in the Netherlands as well as abroad'.

However, an earlier small case study on the Top Sector LSH showed doubts about whether these economic and societal ambitions will be achieved. Presumably, because there may be diverging interests that hamper the achievement the ambitions. The chance for success to achieve policy ambitions depends mostly on which interests stakeholders have and what influence they have on the execution of the policy. Conflicting interests and imbalance in power between stakeholders could hamper the achievement of the ambitions. Therefore, the objective of this study is to assess the chance to achieve the ambitions of the Top Sector LSH by gaining insight into the stakeholders' interests regarding the Top Sector LSH and its ambitions, and into their influence on the execution of the policy. This resulted into the following research question:

What interests do the stakeholders in the Top Sector Life Sciences and Health have regarding the policy and its ambitions and what is their influence on the execution of the policy?

We assessed the stakeholders' *interests* and their underlying *frames,* which tells something about the underlying motives of their interests. It reveals what they see as important, what assumptions they have and how they perceive a certain situation. We assess the power of stakeholders by looking at the arenas of power in which stakeholders could influence the execution of a policy, these arenas are: *Participants* (in the governance & PPPs), *Process design* (decision making process, selection criteria) and *Content* (Scope of the agenda).

We focused on the seven most important stakeholders in the Top Sector LSH, these are: the Ministry of Economic Affairs (EZ), the Ministry of Health, Welfare and Sports (VWS), Health foundations, knowledge institutions (UMC's), big companies & SME's and healthcare insurers. To identify the influence and interests of these stakeholders we conducted a desk study, semi-structured interviews and a focus group. The participants included representatives of the government (EZ & VWS), industry (big companies and SME's), health foundations and knowledge institutions (n=13). We could not arrange an interview with a health insurer, though we have tried to identify their interest and influence by asking the other participants about the health insurers position in the Top Sector. The interviews and focus group were fully transcribed and coded. In analysing the data, ten categories were distinguished based on the framework that is used. Relevant sentences of the transcripts were labelled and resulted eventually into the main categories and sub categories that are grounded in the data. The (sub)categories were analyzed in order to determine the stakeholders' position towards the ambitions, which could be supportive, neutral or opposed. Thereby, the (sub)categories were analyzed in order to determine the stakeholders'

position within the Top Sector LSH. They could be placed within four categories. *Key players* have high interest and high influence, *Subjects* have high interest but low influence, *Crowd* have low interest and low influence, C*ontext setters* have low interest but high influence. In this way conflicting interests and imbalances of power could be revealed.

The results provide insight into the stakeholders' interests and influence which determine their position within the Top Sector and towards the Top Sectors ambitions. Four stakeholders are identified as key players in the Top Sector LSH. These are the ministry of Economic Affairs (EZ), the ministry of Health, Welfare and Sports (VWS), health foundations and the UMC's. The UMC's and health foundations are mainly interested in research on curative related innovations that contribute to the quality of life of patients. VWS is mainly interested in innovation that is related to their agenda, which are mostly social-cultural and service innovations. In addition, affordable healthcare is also of interest. EZ is interested in the economic potential of the Top Sector and desires to stimulate innovation that has the most economic potential. These four stakeholders have much influence because they are well represented in the governance of the Top Sector and invest money or participate in many public private partnerships. SME's seems to have much interest, however low influence and are therefore identified as *subjects*. The SME's have interest in the Health~Holland branding during economic missions and the role that the Top Sector plays when it comes to improvement of regulations and laws. SME's would benefit from financial support in R&D, however the financial support that is provided by the Top Sector is not aligned with their needs. Thereby, SME's are not well represented in the governance. Health insurers are the largest missing stakeholder in the Top Sector LSH, which made them categorised as *crowd*. They seem to be only interested in investment of innovations that already have an added value for patients, while the PPPs in the Top Sector mainly have high scientific content. Furthermore, only one health insurer participates in the steering group. The large industry did not fit any of the four categories. They are characterized by their independent position. The incentive to apply for the TKI-allowance is low because the effort does not outweighs the little financial benefit. Big companies rather chose for contract research than to participate in PPPs. When it comes to their influence in the Top Sector the large industry is represented in the steering group and top team, however they could have more influence when they collaborate in more PPPs.

Regarding the stakeholders' positions towards the economic and societal ambitions of the Top Sector it seems that there are conflicting frames relating to the means that are necessary to achieve the ambitions. EZ, the industry, UMC's and health foundations mainly interested in bio technology, medical technology and pharmaceutical innovations which are particularly technological innovations. However, VWS beliefs that these are cost driving innovations which conflicts with their interest in affordable health care. They are more interested in social-cultural and service innovations. Therefore they are 'undetermined' towards the economic ambition, because they frame it as a stimulation of technological and cost driving innovations.

The different stakeholder positions show that there are some conflicting interests and imbalance in power that might hamper the chance to successfully achieve the economic and societal ambitions. The business community (big companies & SME's) is no key player in the Top Sector policy. They are underrepresented in the governance of the Top Sector and the financial benefit accompanied with this policy is not aligned with the needs of these stakeholders, whereby the incentive to participate in PPPs is low. Therefore, there is little chance that the economical ambition of the Top Sector LSH will be achieved. It is recommended to involve more businesses in the governance of the Top Sector and to increase the TKI-allowance in order to make it more appealing for the industry to participate in PPPs. Regarding the societal ambition there are conflicting interests when it comes to the means that are necessary to achieve

this ambition. The majority of the stakeholders has interest in technological innovations, that mainly contribute to the curative healthcare. VWS however seems to be the only involved stakeholder that has interest in social-cultural and service innovation. These type of innovations mainly addresses prevention and long-term care and are therefore also very relevant to stimulate. Yet it seems that the focus on technological innovations in order to reach the societal ambitions has the upper hand in the Top Sector LSH. This seems to be an one-sided way of how to approach the societal ambition which could hamper the achievement of the societal ambitions. More stakeholders with an interest in social-cultural and service innovations should be involved. Where after a proper dialogue between all stakeholders is needed about the means to achieve the societal ambitions. This could help to increase the chance to successfully achieve the societal ambition.

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List of abbreviations

AWTI	Advisory council for science, technology and innovation (Adviesraad voor wetenschap, technologie en innovatie)
BMM	Biomedical Materials
BuZa	Ministry of Foreign Affairs
CBS	Statistics Netherlands (Centraal Bureau voor de Statistiek)
CPB	Economic Policy Analysis (Centraal Planbureau)
CTMM	Center for Translational Molecular Medicine
EL&I	Ministry of Economic affairs, Agriculture and Innovation *(former EZ ministry)*
EZ	Ministry of Economic affairs *(current EZ ministry)*
GDP	Gross domestic product (Bruto binnenlands product)
GNP	Gross national product (Bruto nationaal product)
H~H	Health~Holland
ICIN-NHI	Interuniversity Cardiology Institute Netherlands - Netherlands Heart Institute
IMDI	Innovative Medical Devices Initiative
IMI	Innovative Medicines Initiative
KIA	Knowledge & Innovation Agenda
KNAW	Royal Dutch Academy for Science (Koninklijke Nederlandse Akademie van Wetenschappen)
LSH	Life Sciences and Health
MIA	Social Innovation Agenda's (Maatschappelijke Innovatie Agenda's)
MIT-regulation	MKB Innovatiestimulering regio en Topsectoren
MKB	Small Medium Enterprises (Midden- en kleinbedrijf)
NFU	Netherlands Federation of University Medical Centres
NKI	Netherlands Cancer Institute (Nederlands Kanker Instituut)
NWO	Netherlands Organization for Scientific Research
OCW	Ministry of Education, Culture and Science
OECD	Organisation for Economic Co-operation and Development
PPP	Public Private Partnership
QUAGOL	Qualitative Analysis Guide of Leuven
R&D	Research and development
RRI	Responsible Research and Innovation
RVO	Netherlands Enterprise Agency (Rijksdienst voor Ondernemend Nederland)
RIVM	National Institute for Public Health and the Environment (Rijksinstituut voor Volksgezondheid en Milieu)
SGF	Cooperating Health Foundations (Samenwerkende Gezondheidsfondsen)
SME	Small Medium Enterprises (Midden- en kleinbedrijf)
TKI	Top consortia for Knowledge and Innovation
TNO	Netherlands Organisation for Applied Scientific Research (Toegepast Natuurwetenschappelijk Onderzoek)
TO2	Dutch research organizations for applied research (Toegepaste OnderzoeksOrganisaties)
TTI	Top Technology Institute
UMC's	University Medical Centres
VNO-NCW	Verbond van Nederlandse Ondernemingen - Nederlands Christelijk Werkgeversverbond
VWS	Ministry of Health, Welfare and Sports
ZonMw	The Netherlands Organisation for Health Research and Development (ZorgOnderzoek Nederland - Medische wetenschappen)

1. Introduction

Innovation is essential for the Netherlands, because it is a very important ingredient for the growth of the economy and therefore for their future prosperity. Innovation is roughly defined as 'a novel function or a novel way of performing an existing function' (Nooteboom & Stam, 2008). It is seen as the driving force for economic growth and economic competiveness (Baumol, 2004; Nooteboom & Stam, 2008). Businesses have interest to develop innovative products and bring them on the market which allows them to compete in existing markets and strengthen their position (Nooteboom & Stam, 2008). Subsequently, this helps the national economy to remain competitive in comparison to other countries (Nooteboom & Stam, 2008). For the Dutch government it is therefore of interest to invest in innovation and create an environment that stimulates it (Nooteboom & Stam, 2008). One way to do so is by innovation and business policy which aims 'to ensure that existing businesses remain competitive through innovation and new technologies and companies are free to develop' (VNO-NCW, 2013).

In 2010 the Dutch government introduced a new innovation policy approach called the Top Sector policy. This policy aims to increase the private investment in R&D by encouraging collaboration between the private sector, knowledge institutions and the government. Furthermore, the policy aims to stimulate innovative performance by aligning the knowledge demand from the industry with the knowledge supply from the knowledge institutions by stimulating public private partnerships. Nine economic sectors were appointed as 'Top Sectors': Agro & Food, Chemistry, Creative Industry, Energy, High Tech, Life Sciences and Health, Logistics, Horticulture and Water. The Top Sector policy builds on the strengths of these economic sectors and in this way aims to contribute to a prosperous society. (EL&I, 2011).

Next to the economical perspective of this policy, the government put increasingly emphasis on the contribution of these Top Sectors to societal challenges, like ageing and rising healthcare expenditure (Ministerie van Economische Zaken, 2014). The government believes that the societal challenges of today, are the emerging markets of tomorrow. They offer many opportunities for innovation and thereby also for economic growth. Therefore, several Top Sectors also adopted the ambition to contribute to societal challenges.

The Top Sector Life Sciences and Health (LSH) is one of the nine Top Sectors with both an economical and a societal ambition. A collaboration between different stakeholders (universities, small and large enterprises and governmental representatives from the ministry of economic affairs and the ministry of health, welfare and sport) led to the formulation of the following ambitions:

- Strengthen the economy: "The business community (Life Sciences and Health) in the Netherlands is one of the three fastest growing communities in Europe (sales and profitability), employment, development portfolio and revenue from exports grow faster compared to other European communities and more than 10% of the sales are invested in R&D." (Fonville et al., 2011, p.7)

- Contribute to societal challenges: "The industry develops healthcare solutions that will enhance the quality of life, let people stay longer in their own environment, contribute to

higher productivity in healthcare and overall contribute to the control of the expected large growth in health care expenses." (Fonville et al., 2011, p.7)

However, doubts exists whether these economic and societal ambitions will be achieved. In a previously small case study about the Top Sector LSH, Roland Friele (AWTI a82, 2013) shows that in different documents of the Top Sector LSH empathically is spoken about contribution to cost control in the health sector. Though, these documents do not contain any concrete actions or instruments which generates this goal to realistic perspective. He mentioned that this might be caused by diverging interests in the Top Sector LSH, whereby the incentive to contribute to these societal challenges might not be sufficient. In theoretical literature diverging interests or even conflicting interests and an imbalance in power between collaborating stakeholders are seen as problems that could jeopardise effective collaboration(Reed et al., 2009; Purdy, 2012; Emerson, Nabtachi & Balogh, 2011). Ineffective collaboration between stakeholders might hamper the achievement of policy goals. This could also be the case in the Top Sector LSH, however this is unknown. An in depth case study in the Top Sector LSH provide insight into whether there are conflicting interests and imbalance in power that could decrease the chance for success of this policy. Therefore, the objective of this research is to assess the chance to achieve the ambitions of the Top Sector LSH by gaining insight into the stakeholders' interests regarding the Top Sector LSH and its ambitions, and into their influence on the execution of the policy.

To identify the interests and influence of the stakeholders in the Top Sector LSH we conducted a stakeholder analyses. A stakeholder analyses is used in policy analysis to understand the stakeholders interests, behaviour, agenda's and their power to influence the outcome of the decision making process (Mitchell, Agle & Wood, 1997; Brugha & Varvasovszky, 2000; Reed et al. 2009). In regard to this study the stakeholder analysis consists of an assessment of the relevant stakeholders and decision-makers in the Top Sector LSH, their interests towards the policy and towards the achievement of the ambitions and it consists of a power assessment. In this way conflicting interests and imbalances in power could be revealed that might hamper the chance to achieve the economic and societal ambitions. Once is known if there are any problems related to these aspects, it will be possible to give recommendations on how to improve the collaboration between the stakeholders of the Top Sector LSH. In this way the chance to achieve the ambitions could be increased. The main research question is:

What interests do the stakeholders in the Top Sector Life Sciences and Health have regarding the policy and its ambitions and what is their influence on the execution of the policy?

2. Conceptual framework

In this chapter we will describe the framework by which we attempt to provide an answer to the research question. First we will discuss the contextual background. The need for innovation policy and the Top Sector policy are explained and an overview of the Top Sector Life Sciences and Health and its context is given. Second, the theoretical background of a stakeholder analyses is provided. The chapter ends with a conceptual model of the relevant concepts of this study which leads to the formulation of the research questions.

2.1 Contextual background

2.1.1 Innovation policy

As described in the introduction, innovation is a driving force for economic growth and is therefore of interest for the government. Not only the welfare of citizens, but also the revenue of the state dependents on the fortunes of private companies. This suggests that it is of common interest that private companies develop powerful (Diederen, 2013). Companies have an interest in being profitable and need a structured and economically stable environment in order to grow (Nooteboom & Stam, 2008). The government is able to facilitate and create such an environment with policy.

Different aims of innovation policy are found in the literature. VNO-NCW (2013, p.7) defines it as following "to ensure that existing businesses remain competitive through innovation and new technologies and companies are free to develop". Nooteboom and Stam (2008) have the following objective: "innovation policy is to encourage and facilitate the generation, application, and diffusion of new ideas". Baumol (2004) describe innovation policy as a need to guide entrepreneurial goals into desirable directions, which also benefit the general welfare. He says: "One goal of good policy, therefore, is redesign of institutions so as to attract entrepreneurial activity to beneficial directions."(Baumol, 2004, p.233). Summarized, innovation policy should stimulate businesses to innovate, ensure that businesses are free to develop, ensure an environment for optimal distribution of innovations and steer business into beneficial innovative directions.

There are many policy instruments to reach the aim of innovation policy. The goal of the policy determines which instruments or mix of instruments will be used (Borrás & Edquist, 2013). Generally there are three types of instruments: 1) regulatory instruments (i.a. intellectual property rights, bioethical regulations), 2) economic and financial instruments (i.a. tax exemptions, support to seed capital), and 3) soft instruments (i.a. public-private partnerships, codes of conduct) (Borrás & Edquist, 2013). The Top Sector policy uses a mix of these instruments, but is mainly focused on the stimulation of public-private partnerships (PPPs). There is no one widely accepted definition of PPPs, but they are in general medium to long term arrangements between the public and private sectors whereby for example, some of the obligations of the public sector are provided by the private sector. In the case of innovation policy, PPPs are "a setting in which public and private players work together to develop innovative solutions targeting the public sector" (Nissen, Evald & Clarke, 2014, p.473). Before the Top Sector policy is further explained a short historical background is provided about previous Dutch innovation policies.

2.1.2 Before it all started: Key areas policy and TTI's

In 2004 a new type of innovation policy was welcomed, called the key areas policy (het Sleutelgebiedenbeleid). This policy approach has many similarities with the Top Sector policy. The

following four areas were appointed as kea area: flowers & food, hightech systems and materials, water and creative industry. This approach aimed to strengthen the Dutch economy by focusing the efforts of the government, research institutions and companies on economically and scientifically promising fields (VNO-NCW, 2013). Mainly, because it was expected that most options for economic growth will take place in areas in which the Netherlands hold an excellent position as it comes to entrepreneurship and knowledge. Several top technology institutes (TTI's) were founded that aimed to support public private partnerships (PPPs) in specific technological areas. Every TTI was funded with 5 million in order to support the PPPs. There were also three TTI's founded that were linked with Life Sciences and Health: TTI-Pharma, Center for Translational Molecular Medicine (CTMM) and Topinstitute Biomedical Materials (BMM). (AWTI, 2014a)

Besides the kea area policy, there was the desire to pay more attention to the social value of innovation. This resulted in the Social Innovation Agenda's (Maatschappelijke Innovatie Agenda's, MIA). The objective was to link the resolution of social problems with the reinforcement of the competitiveness of companies. In 2010 there were innovation programs in the areas of energy, water, health and safety. Approximately 250 million was available for these projects. (AWTI, 2014a)

Due to the economic crisis the Dutch Government rethought their innovation policy. The funding for innovative projects like the TTI's stopped, but the wish for specific stimulation of innovation stayed. Furthermore, there was the desire to make the funding for innovation more accessible and less fragmented. This resulted in the Top Sector policy. In 2010 nine Top Sectors were appointed in consultation with the industry and other stakeholders. (AWTI, 2014a).

2.1.3 Top Sector policy

In 2011 the Dutch government started with the implementation of the Top Sector policy. This policy aims strengthen the innovative capacity of the Dutch economy and has three sub goals 1) to belong to the top five knowledge economies of the world in 2020, 2) to spend 2,5% of the GDP on R&D and 3) to spend 500 million euros on the Top consortia for Knowledge and Innovation (TKI's) with 40% invested by the private sector. It attempts to increase the private investment in R&D by encouraging collaboration between the private sector, knowledge institutions and the government. Furthermore, the policy aims to stimulate innovative performance by aligning the knowledge demand from the industry with the knowledge supply from the knowledge institutions by stimulating public private partnerships. The emphasis is on a number of highly export-oriented and innovative sectors in which the Netherlands is internationally strong and promising: *the top sectors*. Nine economic sectors were appointed as 'Top Sectors': Agro & Food, Chemistry, Creative Industry, Energy, High Tech, Life Sciences and Health, Logistics, Horticulture and Water. These top sectors were selected by their proven strengths and competitive advantages of the Dutch economy (EL&I, 2011).

Every Top Sector is directed by a topteam (coreteam) that is appointed by the ministry of economic affairs (EZ). The top team organizes and ensures support in the sector, set a joint agenda and also ensures that this agenda is implemented. Every topteam consists of a figurehead from the business community, a scientist, an SME and a senior civil servant from the corresponding governmental department. In 2011 every top team had to hand in their Top Sector plans that contained the vision of the sector and their actionplan. In addition the government asked the topteams to develop an innovation contract. These contracts attempt to guide research and innovation by setting different Top Sector related topics on the agenda in which innovation and research is desired. In addition the

innovation contracts served as a basis for the deployment of NWO (The Netherlands Organization for Scientific Research), KNAW (Royal dutch Academy for Science) and the institutes for applied knowledge who have to direct a part of their budget to research linked to the Top Sectors (AWTI, 2014a).

Furthermore, every Top Sector has one or more Topconsortia for Knowledge and Innovation (TKI) that have the responsibility to stimulate public private partnership on specific themes that were described in the innovation contracts. In these consortia entrepreneurs and scientists work together in their search for innovative and new products. To stimulate companies to participate in PPP, the government has introduced a TKI-allowance. When a private party invests in a PPP they may be found eligible for the TKI-allowance. If the application for allowance is approved then for every dollar that the private party invests, the government puts in 25 cents. For the first € 40,000 invested by an SME, the TKI allowance is 40%. The TKI-allowance does not directly flows back to the private parties that invested in the PPP, but will be paid to the TKI. In this way, the TKI is able to start calls that are of interest for the participating parties. Compared to the kea areas policy the TKI does not receive any financial support from the government. The TKI-allowance is their only source of revenue. Therefore, the more private parties apply for TKI-allowance the more budget the TKI has in order to start for example new calls. (Ministerie van Economische Zaken, 2012)

Another regulation that is accompanied with the Top Sector policy is the MIT-regulation (MKB Innovatiestimulering regio en Topsectoren). The purpose of this regulation is to stimulate innovation in SME's. Via these regulations SME's that are active in one of the Top Sectors could ask for subsidies that reimburse expenditure on innovation advisory projects, feasibility projects and R&D collaboration projects. In 2015 50 million was assigned to this regulation. The TKI's could also prescribe for this budget. They could receive compensation for network activities for SME's and for renting 'innovation brokers' that provide management consulting to SME's (site RVO). In the next paragraphs an overview of the Top Sector Life Sciences and Health is provided and their TKI will be introduced.

2.1.4 Top Sector Life Sciences and Health: *Vital citizens in a healthy economy*

The Top Sector Life Sciences and Health (LSH) is one of the nine Top Sectors. The top sector aims to contribute to the LSH sector's success by joining forces and uniting partners along the prevention-cure-care (value) chain. All with the mission to contribute to vital citizens in a healthy economy. The top sector LSH consists of a broad scope of disciplines, from pharmaceutical industry to medical and biotechnology and from healthcare infrastructure to vaccination. In order to realise its mission – vital citizens in a healthy economy - the top sector builds on the strengths of the Dutch Life Sciences & Health sector to address the biggest societal challenges in prevention, cure and care: improving the quality of life (vitality) while restraining the costs of healthcare. Why this is a societal challenge will be explained in the following paragraph

2.1.5 Life Sciences and Health in a changing world

The expenses on healthcare are rising significantly (CPB, 2010; Fonville et al., 2011, Regiegroep Life Sciences and Health, 2012; Ministerie van Volksgezondheid, Welzijn en Sport, 2012; CBS, 2014b; RIVM, 2007). This phenomenon does not only take place in The Netherlands, it is a worldwide phenomenon (CBS, 2014; CPB, 2010). The United States is the leader when it comes to healthcare expenses as seen in Figure 1, however also in other countries the share of health expenditure to the

GDP has risen. Thereby it is expected that the healthcare expenditure in The Netherlands rise over the next five years by more than 3% per year, well above the expected GDP growth (CPB, 2010).

In the literature there is not one specific reason found that cause the increasing expenses on healthcare, it seems to be a set of circumstances. One of the possible reasons is because of the ageing of the society and the increasing life expectancy (CPB, 2010). In older age there is greater use of healthcare as could be seen in figure 1. Simultaneously, people increasingly live longer in good health (CPB, 2010). Nevertheless, the population growth of 1/4% per year has an upward effect of 1.5% per year on the number of users of long-term care (CPB, 2010). Another reason that has influence on the increasing expenditures are the new technological developments and new or renewed treatments. More possibilities became available to care and cure people, even former fatal illnesses became chronic diseases due to innovative treatments (CPB, 2010; Fonville et al., 2011; Regiegroep Life Sciences and Health, 2012; Ministerie van Volksgezondheid, Welzijn en Sport, 2012). Although these innovations are desired it does lead to unsustainable expenditures. Another reason why the expenses of healthcare grow is because people increasingly have an unhealthy lifestyle that causes chronicle diseases such as heart and vascular diseases, dementia, cancer and diabetes (Fonville et al., 2011). For example, in 2013 4,5% of the Dutch population has diabetes and 10,1% has severe obesity (CBS, 2014b). In 2020 it is expected that the number of Dutch with coronary heart diseases and obesity will increase with 15% (van der Lucht & Polder, 2010). Also, these developments will lead to an increasing demand for healthcare which will be unsustainable.

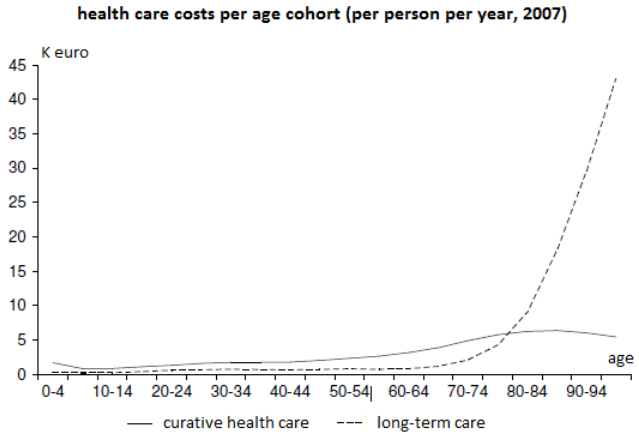


Figure 1: ***Health care costs per age cohort.*** *The costs of curative healthcare and long-term care per age cohort*

The increasing demand for healthcare also has its impact on the workforce in the healthcare. In 2025, the healthcare in the Netherlands requires several hundred thousand additional nurses and other health workers to meet the demand for care (CPB, 2010). However, due to aging, there is a growing shortage of staff in health care. In this context, the Top Sector LSH faces a major societal challenge.

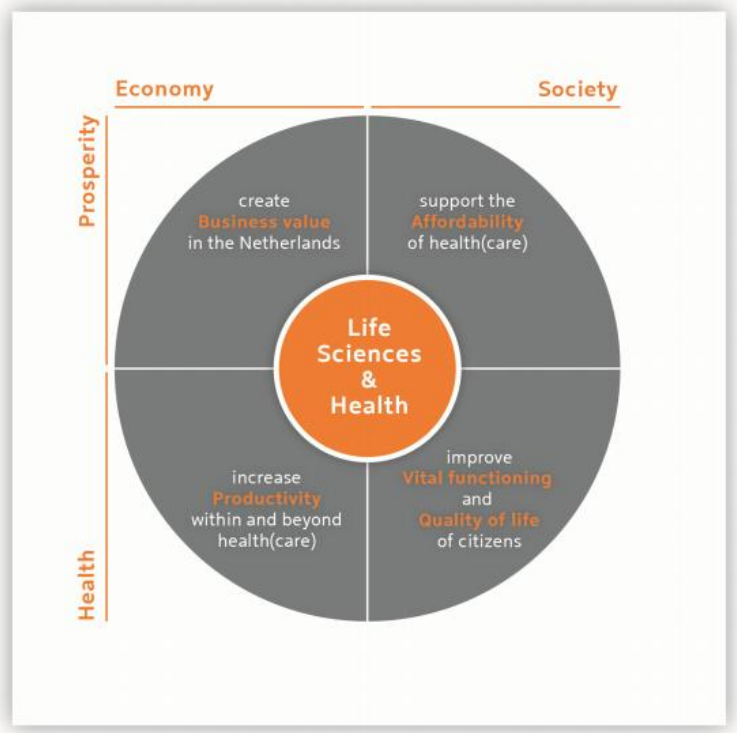
2.1.6 Ambitions of the Top Sector Life Sciences and Health

The above-described problems play an important role in the Top Sector LSH, which now operates under the name Health~Holland (H~H). The Top Sector aims to contribute to solutions that will decrease the rising health care expenditures and to the productivity within and beyond healthcare (Top Sectorplan) . This is a challenge, because formally innovations in the health care lead to rising

expenditures (CPB, 2010; Fonville et al., 2011; Regiegroep Life Sciences and Health, 2012; Ministerie van Volksgezondheid, Welzijn en Sport, 2012). Therefore, in the Top Sector plan and innovation contract the Top Sector calls for a paradigm shift: "businesses and knowledge institutions should focus on cost saving solutions. The government, health insurers, healthcare providers and citizens should ask for them, finance them and uses them." (Fonville et al., 2011, p.19)

On the other side the Top Sector acknowledges that the rising costs and declining workforce are both challenges that are accompanied by great economic opportunities: 'it cuts both ways' (Fonville et al., 2011). As explained above rising healthcare costs are a worldwide phenomenon. Innovations that are cost and labor saving are of great interest by other countries and could be exported. Thereby, innovations that lead to a better quality of life and keep people healthy as long as possible might lead to more productivity, new economic activity and thereby contribute to a higher GNP (Fonville et al., 2011). The sector will focus on products that prevent diseases (prevention), early detect disease (early diagnostics), effectively treat (maximise effect, minimise burden/ tailored therapy) and replace care to the homes of people (manage health and disease extramurally/self-management). Prevention, early diagnostics, tailored therapy and self-management will increase the quality of life of people, increase their productivity and the sustainability of healthcare. The vision and mission of the Top Sector Life Sciences and Health is described as followed:

"Develop health related technological, biomedical, and social-cultural innovations that contribute to vital functioning and quality of life of all citizens, as well as affordability and productivity within the prevention, cure and care cycle. Innovation that, most importantly, create business value in the Netherlands as well as abroad.' (Health~Holland,2015)



2.1.7 Innovation contract

In the innovation contract that was written in 2012 the Top Sectors lays out an action plan to realize its ambitions. It is developed to guide research and innovation by choosing ten different roadmaps. “These roadmaps represent the areas in which private and public parties (companies, research institutes, practitioners, patient organizations, health foundations, health insurers, regulatory authorities, etc.) are committed to co-innovation, areas in which the government is asked to invest.” (Regiegroep Life Sciences and Health, 2012, p.16). The roadmaps consists of areas where there is innovative industry and demand for industry which can be coupled with a strong knowledge base, the strengths of the Top Sector. These are the ten roadmaps: Molecular diagnostics; Imaging & image-guided therapies; Homecare & self-management; Regenerative medicine; Pharmacotherapy; One health; Specialized nutrition, health & disease; Health technology assessment & quality of life; Enabling technologies & infrastructure; Global health, emerging diseases in emerging markets. An description of the roadmaps could be found in the Appendix I:.

2.1.8 Governance of the Top Sector LSH: steering group and topteam

The steering group from the Top Sector LSH brings together public and private stakeholders in the Life Sciences and Health (LSH) sector: industry, research institutes and the government, as well as healthcare providers, health insurers, health foundations and other financiers. The steering group aims to guide the sector, provide continuity, and give substance to the dialogue and cooperation between stakeholders. This includes communicating with the government and leading the implementation of the Top Sector plan for the Life Sciences and Health sector. The steering group thereby has a topteam (coreteam) that mobilizes its decision-making power and leadership, executes operational activities, and communicates with the sector and the government on its behalf. The steering group works with taskforces to mobilize existing organizations, stakeholders and experts on specific topics and guide the implementation of actions. In Figure 2 a brief overview of the governance is provided. (Regiegroep Life Sciences and Health, 2012)

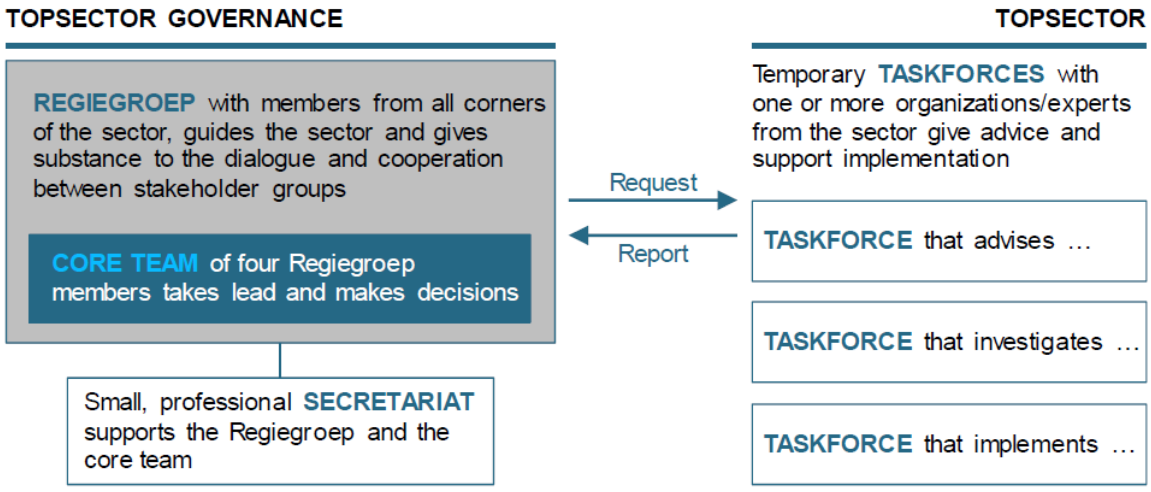


Figure 2: ***Governance of the Top sector Life Sciences and Health***

2.2 Theoretical Background

In this chapter the theory underlying this study is described. It explains how decision making by the government have developed towards shared decision making and what problems might occur during

such collaborative processes. A stakeholder analysis could give insight whether there are conflicting interests and imbalances in power. This chapter ends with a conceptual model, which structures the theory into the relevant concepts for this study and leads to the formulation of the research questions.

2.2.1 Governance in a complex world: towards shared decision-making

As described in the contextual background the Top Sector policy is compiled by cooperation of various stakeholders from the sector Life Sciences and Health. Thereby, the top team, consisting of various stakeholders, has the power to make decisions on the execution of the Top Sector policy. In the last years, this process in which the government involves different stakeholders for the implementation of policy and shared power for decision-making become a common approach (Ansell & Gash, 2008; Emerson, Nabatchi & Balogh, 2012). In the past, the government was seen as a central stakeholder. The government possessed most of the power and control and made all the decisions, the government was at the top of the hierarchy (Renn, 2008). Although the government used to be the central stakeholder in policy making processes, power has become dispersed among multiple stakeholders involved in the matter, thereby weakening the authority of the state (Hajer, 2003). The lack of state authority makes it more difficult to create effective policy, resulting in an *institutional void* (Hajer, 2003). This institutional void can be described as the lack of generally accepted rules and norms regarding policy making (Hajer, 2003). Therefore policy making and implementation is now as much a matter of citizens and enterprises as it is a matter of direct government intervention (Hajer, 2003; Ansell & Gash, 2008; Emerson, Nabatchi & Balogh, 2012).

Alternative forms of problem solving, that include a transparent process and involvement of a wide range of stakeholders, are necessary. All stakeholders should share their problems and discuss possible solutions whereby the government should participate without taking the role of the dominant stakeholder (Ansell & Gash, 2008; Reed et al., 2009; Emerson, Nabatchi & Balogh, 2012; , Purdy, 2012). Such an approach might avoid obstruction of processes by other policy stakeholders (Purdy, 2012). Moreover, the information that is required with stakeholder involvement can be used to improve the quality of decision-making processes (Purdy, 2012). Today, the term governance includes this involvement of stakeholders and the government is no longer seen as the stakeholder with most of the power and control.

In the context of shared decision-making, literature speaks about collaborative governance (Purdy, 2012; Emerson, Nabatchi & Balogh, 2012). Emerson, Nabatchi and Balogh (2011, p.2) define collaborative governance as “the process and structures of public policy decision making and management that engage people constructively across the boundaries of public agencies, levels of government, and/or the public, private and civic spheres in order to carry public purpose that could not otherwise be accomplished.” Ansell and Gash (2007, p.544) define it as “A governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets.” Important elements in these definitions are that the forums include non-state stakeholders from the public, private and civic spheres, that the participants are not only consulted but are engaged in decision making and the collaboration aims to make decisions by consensus. Following these definitions the Top Sector policy could also be seen as a collaborative governance. Different stakeholders from all over the sector are

involved to develop the agenda of the policy, the topteam which consists of different stakeholders hold the power to make decisions and the decisions are made in consensus with other stakeholders.

2.2.2 Concerns for collaborative governance: conflicting interests and power imbalance

Although collaborative governance is favourable to accomplish good formulation and implementation of policy it also has flaws and weaknesses. In several studies concerns about collaborative governance were mentioned. Stakeholders could hold conflicting interests and use their power to promote their interests (Schön and Rein, 1994). Gerlak and Heikala (2005, in Purdy, 2012) described that conflicting agency goals and missions could be an obstacle to collaboration. Furthermore, the context of collaborative governance may not fairly balance private and public interests (Sousa & Klyza, 2007). Thereby, it is possible that critical interests may not be represented (Leach 2006, in Purdy, 2012). At last, collaboration can be a way to advance self-interested goals such as increasing power (Hoxham and Vangen, 2000 in Purdy, 2012). In addition Schön and Rein (1994) state that According to Purdy (2012) many of these concerns are also linked to disparities of power among participating organizations and how power affects such issues as representation, participation, and voice. Together, all the concerns could be narrowed down to two conditions that might hamper effective collaboration and therefore might hamper the achievement of policy goals: conflicting interests between the stakeholders and power/resource imbalance between stakeholders.

In respect to this study it is interesting to have better insight in what interests and power stakeholders in the Top Sector LSH hold that might influence the outcome of the Top Sector policy. For example, it is interesting to understand what role the ambitions of the Top Sector LSH take in the allocation of the TKI-allowance, this shows what priority is given to the ambitions by the stakeholders that are in the governance. Another example is to research if there are any important stakeholders missing in the decision-making process, because in this way important interests are not taken into account when decisions are made. Gaining insight into the different stakeholders' interests and their influence in the Top Sector could tell us something about the chance to achieve the ambitions of the Top Sector.

2.2.3 Stakeholder Analysis

A method that is useful to address conflicting interests and power imbalances between stakeholders is a stakeholder analyses. A stakeholder analysis is used in policy analysis to understand the stakeholders interests, behaviour, agenda's and their power to influence the outcome of the decision making process (Mitchell, Agle & Wood, 1997; Brugha & Varvasovszky, 2000; Reed et al. 2009). Stakeholders are those actors who affect or are affected by a decision or action (Reed et al., 2009, Brugha & Varvasovszky, 2000), they could be individuals, groups and organizations. Through collecting data on stakeholders one develops understanding of how decisions are taken in a particular context, and possibly identify opportunities to influence the decision making process. In our case we are interested in the interests and influence stakeholders have towards the Top Sector policy and the achievement of its ambitions. Understanding their interests and influence on the decision making process will provide insight in if there are any conflicting interests and power imbalances within the Top Sector LSH. Subsequently, we could say something about the chance for success to achieve the main goals of the Top Sector.

According to Brugha and Varvasovsky (2000) there are three steps in a stakeholder analyses. First, identify the stakeholders. In our case we want to identify the stakeholders in the Top Sector Life Sciences and Health, identify who affect the policy and who are affected. Second, the interests of the stakeholders with respect to the issue, in our case the Top Sector LSH, needs to be identified. Third, there power is assessed. In the following paragraphs we explain more in detail the concepts underlying interests and power in collaborative governance.

Steps in stakeholder analyses (Varvasovsky & Brugha, 2000)

1. Identify stakeholders
2. Identify their interests with respect to the issue
3. Assessing their power

2.2.4 Interests in collaborative governance

The level of importance stakeholders place on a particular policy and the degree to which the policy or program contributes to their goals and objectives affects the implementation of the policy (Sprat, 2009). It is important to attempt to determine each stakeholder's interests and level of commitment to a proposed policy, because it provides good insight in the chance for success of the policy (Buse, Mays & Malt, 2005). Interests are defined as "those things which benefit an individual or group (as distinct from their wants or preferences)" (Buys, Mays & Malt, 2005, 195). For example, the expected economic effect of a policy determines which position a stakeholder holds towards that policy. If it is in their favour then they will support it, if it is not they might be opposed to the policy. The position of the stakeholders with respect to the policy could be supportive, neutral or opposed (Buse, Mays & Malt, 2005). The interests that different stakeholders hold determine which position they hold (Buse, Mays & Malt, 2005). In regard to this study it is interesting to identify what interests the different stakeholders have towards the Top Sector policy ánd what position they have towards the ambitions from the Top Sector LSH. It could be that there are important stakeholders who are opposed towards the policy. This could hamper the achievement of the ambitions as the stakeholders are not interested to collaborate.

Frames

Schön and Rein (1995) stated that there is a "reciprocal, but nondeterministic, relationship between the stakeholders' interests and their frames" (Schön & Rein, 1995, 29). A frame could be seen as a underlying scaffold that gives structure to our thinking or glasses through which we look to the world (Rein & Schön, 1996). This scaffold or these glasses are constructed from our underlying assumptions, values, beliefs, perception and appreciations (Schön & Rein, 1995; McKee, 2003). Frames are usually very tacit, which means that people never really talk about their frames but they argue *from* their frames, therefore carefully nuanced observation is needed (Schön & Rein, 1994). Gaining insight into the frames of stakeholders reveals what they see as important, what assumption they have and how they perceive a certain situation. Frames could differ from one another as everyone could have other values or assumptions. Stakeholders may frame an issue in a certain way because it is in their interest. Conversely, interests are shaped by their frames. It is therefore the frames held by stakeholders that determine if they see the policy as being in their interest or not (Schön & Rein, 1995). According to Schön and Rein (1994) policy controversies are consequences of

the fact that the involved stakeholders hold positions/views that are grounded into different policy theories or frames. Conflicting frames or conflicting interests between collaborating stakeholders could hamper the implementation of the policy. For this research it is therefore relevant to know how the different stakeholders frame the Top Sector policy and its ambitions, to gain insight whether there are any conflicting frames

We will try to understand the frames that participants have when they explain their position towards the ambitions and the Top sector policy. We research what they consider as important aspects of the Top Sector policy and which aspects are not in their interest, why they have a certain opinion and why they give priority to certain aspects of the policy. Once we have better insight in the frames of the different stakeholders we have a better understanding of the interests that these stakeholders hold and their positions towards the achievement of the ambitions.

2.2.5 Power in a collaborative governance

The power that stakeholders have could influence the chance to achieve policy ambitions. It does not necessarily has a negative influence, certainly not once their interests are in line with the common goal of the process. Though it is possible that there are dominating stakeholders that have more influence on the outcome of a process. Ansell and Gash (2000, p.551) explain it as following: "If some stakeholders do not have the capacity, organization, status, or resources to participate, or to participate on an equal footing with other stakeholders, the collaborative governance process will be prone to manipulation by stronger actors." Collaborative governance must therefore be designed in way that there is a fair balance in power among the stakeholders (Buse, Mays & Walt, 2005).

The stakeholder literature gives no precise definition of the term 'power'. In literature about collaborative governance we found several 'sources of power' that could influence the collaborative governance process. First, power refers to a the authority that stakeholders could have (Purdy, 2012; Gaventa, 2006; Ansell & Gash, 2000). "Authority is the social acknowledgement right to exercise judgement, make a decision, or take action." (Purdy, 2012, p.410). In regard to this study the top team of the Top Sector LSH holds the authority to make decisions about the execution of the policy. Second, literature refers to resource-based power (Purdy, 2012; Gaventa, 2006; Ansell & Gash, 2000). "Resource-based power recognizes the dependencies among organizations involved in collaboration and their ability to deploy resources." (Purdy, 2012, p.410). One is inclined to only think about financial resources, however resource based power also includes for example, people, technology, knowledge and capabilities (Purdy, 2012).

In this study we could focus on which sources of power the different stakeholders have. However, this says nothing about whether there is a fair power balance or the collaborative process is authentic. We want to identify the interactions in which power could be exercised. Booher (2004 as described in Purdy, 2012) states that it requires the use of appropriate organization, methods , and tools; facilitative leadership; and deliberative space, free of coercion to be authentic. According to Purdy (2012) the definition from Booher of an authentic collaborative governance contains three essential components that "provide opportunities for exercise of power" (Purdy 2012, p.411), these are participants, the process design and the content. It is possible that stakeholders could use their power in these arenas to influence the outcome of a decision. The arenas and why they are relevant to this research will be described in the following paragraphs.

Framework for power assessment: arenas for power

Participants

Purdy (2012) defines participants as following: "participants describe who is involved in a collaborative process and who leads it." This definition is almost similar as the definition of stakeholders in (Reed et al., 2009, Brugha & Varvasovszky, 2000), however it is possible that not every stakeholder that is identified as stakeholder participates in the collaborative process. This could have a large impact on the outcome of the process, because important contributions could be excluded. Therefore, as stated before in 2.2.1, an important element of collaborative governance is that it includes non-state stakeholders from the public, private and civic spheres. To identify the participants in the Top Sector LSH we will look at the members of the steering group and top team and which stakeholders participate and invest in PPPs. Subsequently, we will research the representation of each sphere in the Top Sector LSH.

Process design

"Process design describes the where, when, and how of collaborative governance, influencing the nature of interaction and the modes that are used for communication and decision making." (Purdy, 2012, p.411). Ideally the process should be designed with flexibility for trial and error without creating ambiguity and confusion (Purdy, 2012). Purdy (2012) describes that it determines whether participants feel fairly treated, and these perceptions of procedural justice influence satisfaction of the outcomes of the process (Purdy, 2012). It is an arena for power in a way that for example some participants are not communicated about meetings and therefore could not provide their opinion about certain decisions or that the design excludes some participants from meetings. Therefore, we will research the role of the topteam and steering group and how they communicated about the new Knowledge & Innovation Agenda (KIA) that was made during this study. Regarding the ambitions of the Top Sector we want to understand what role the main goals play in the decisions about the process design. This could be done by identify the selection criteria that are used for the TKI-allowance and MIT-regulation.

Content

The third arena for power is content. It is about what issues are addressed on the agenda and what outcomes are pursued (Purdy, 2012). It is an important opportunity for the use of power in deciding the scope of the issues (Altheide, 1988 as described in Purdy, 2012) This arena is also linked with interests, because the interpretations that people use to identify issues and understand are closely linked to the success of the implementation (Gray 2004, as described in Purdy, 2012). Thereby this arena of power is also linked to the other arenas, because "decisions about the content of a collaborative process determine who has a legitimate claim to participate in the process and how the process will unfold (Gray 1989)" (Purdy, 2012, p.411). Having the ambitions in mind it is important to understand how they are considered in the content of the innovation contract and the KIA, what objectives are formulated and if there are any topics on the agenda that are desired by a specific stakeholder.

2.2.6 Conceptual model

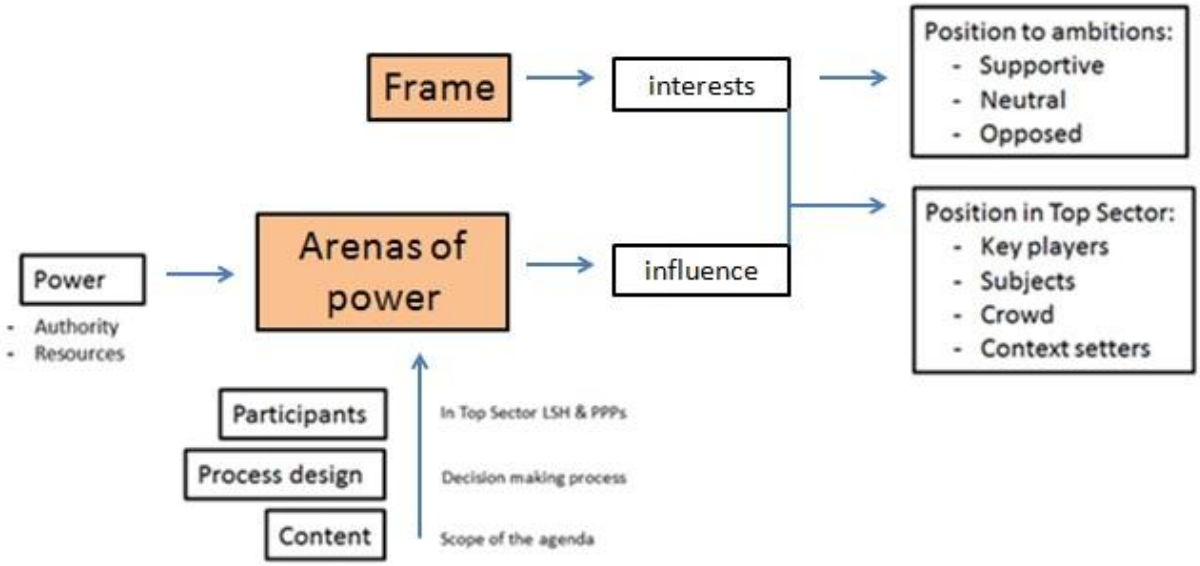


Figure 3: Conceptual model. *This model shows the concepts that have been used in this study to identify the interests and influence that stakeholders have in the Top Sector LSH.*

The theory behind the assessment of interests and power are structured into the a conceptual model presented in Figure 3. The studies and theories underlying this model are described in Buys, Mays and Malt (2005), Schön and Rein (1995), Ansell and Gash (2008) and Purdy (2012). We will identify the *interests* that stakeholders have and reveal the underlying *frames*. We assess the power of stakeholders by looking at the following concepts: *Participants* (in the top team/ steering group & PPPs), *Process design* (decision making process, selection criteria) and *Content* (Scope of the agenda).

The interests and frames that stakeholders have regarding the ambitions of the Top Sector tells something about their position with respect to the ambitions: supportive, neutral or opposed. Taking the interests towards the Top Sector LSH and the influence that stakeholders have together determines their position within the Top Sector. According to the stakeholder analysis theory stakeholders could be placed within four categories (Ackermann & Eden, 2011). *Key players* have high interest and high influence, *Subjects* have high interest but low influence, *Crowd* have low interest and low influence, C*ontext setters* have low interest but high influence (Ackermann & Eden, 2011). Subsequently, the different positions of stakeholders give insight into the chance for success to achieve the ambitions of the Top Sector LSH.

2.3 Research questions

The following research questions are derived from the conceptual model. The central question in this study is:

What interests do the stakeholders in the Top Sector Life Sciences and Health have regarding the policy and its ambitions and what is their influence on the execution of the policy?

In order to provide an answer to the main research questions several sub-questions are formulated on the basis of the conceptual model.

Sub questions:

1. **Identify the stakeholders:**

- Who are the stakeholders in the Top Sector Life Sciences and Health?

2. **Assess interest:**

- What interests/frames do the stakeholders have towards the Top Sector policy and the achievement of economic and societal ambitions?

3. **Assess power:**

- Who participates in the top team and steering group and who participates in the PPPs?
- How is the decision making process designed and what roll does the ambitions play in the decision-making process?
- What is the scope of the agenda and what roll does the ambitions play on the agenda?

4. **Position:**

- Who are supportive, neutral or opposed towards the Top Sector policy and its ambitions?
- Who are the key players, subjects, context setters and crowd in the Top Sector?

3. Methodology

This chapter provides an overview of the methods that are used in this study to answer the research question. As earlier described we are interested in identifying conflicting interests and imbalance in power. In order to identify this we research the scope of the agenda, the participants in the Top Sector LSH, and the decision making process and the underlying interests why stakeholders participate. A qualitative approach is used to research these concepts as it can grasp the many practices and underlying perspectives and opinions that exist in social reality (Creswell, 2003). The qualitative approach included a desk study, semi-structured interviews and a focus group. In the following paragraphs these methodological steps are further elaborated upon.

3.1 Desk study

A desk study was done in order to identify the different stakeholders, the scope of the agenda from the Top Sector LSH, the participants in the Top Sectors governance and public private partnerships and the decision making process. We consulted various documents that gave thorough information on these topics. These were documents from the Top Sector LSH itself as the innovation contract, the Knowledge and Innovation Agenda (KIA) and application forms for subsidy which were accessible via their website. These documents provided information about the topics on the agenda, selection criteria that are used, the design of the governance and the stakeholders of the Top Sector LSH. The documents were read carefully, interesting sentences were marked and linked to one of the following codes: agenda topic, governance design, participant, selection criteria. In addition, every organisation, group or business area that was mentioned in these documents were tracked in a document which resulted into a stakeholder map. From the Top Sector LSH we also received a file which contained all the participants in the public private partnerships. Through this file we analysed which stakeholders were involved, categorised them using the following categories: government, knowledge institute, industry and society. Thereby we identified in which proportion, relative to each other, the different stakeholders participate. The information that was retrieved from this desk study was also used as input for the selection of interviewees and the interview design.

3.2 Semi-structured interviews

To gain insight into interests of stakeholders regarding the Top Sector policy and the ambitions we conducted semi-structured interviews. The method of semi-structured interviews was selected on the consideration that these are well suited for in-depth investigation of complex opinions, behaviours and emotions (Longhurst, 2003). The aim of the interviews was to provide insight into the positions hold by stakeholders towards the policy, their underlying frames regarding the ambitions and their satisfaction with the decision-making process. An example of an interview guide is presented in the Appendix III:.

3.2.1 Interviewee selection

The desk study revealed that the Top Sector has many different stakeholders. Because of time constraints it was too ambitious to arrange an interview with every stakeholder that was identified during the desk study. Therefore it was important to obtain a group of interviewees that covered the wide range of possible interests. We had two explanatory interviews with a former member of the steering group and a civil servant with knowledge about the Top Sector LSH with the purpose to reveal the stakeholders that were most involved in the Top Sector. From these interviews it appeared that we should include the following stakeholders: Ministry of Economic Affairs (EZ), Ministry of

Health, Welfare and Sports (VWS), Health foundations, knowledge institutions, big companies & SME's (bio and medical technology companies & pharmaceutical industry) and healthcare insurers. Furthermore, from the desk study it appeared that these seven stakeholders indeed are most involved in the Top Sector LSH. In addition these stakeholders also cover the four spheres (government, industry, knowledge institutions, society). Therefore we selected these seven stakeholders and explored their interests and influence. To ensure that this focus on these seven stakeholders was not biased we asked all interviewees which stakeholders they perceived as important. The interviewees did not bring up other stakeholders and agreed on our focus which implies that these seven stakeholders are a good representation of the Top Sector LSH.

3.2.2 Data analysis

In total we had nine interviews with representatives from the industry, government, health foundations, knowledge institutions and one interview with a governance member from the Top Sector LSH (see Appendix II for a list of the interviewees). We could not arrange an interview with a health insurer. In order to get an idea of their position in the Top Sector LSH we asked other interviewees what they knew about their position. All interviewees gave permission to record the interviews after which the interviews were fully transcribed and were made anonymous. One interview was not recorded due to technical problems, though during this interview detailed notes were made. Of each interview a summary was made. The summaries and transcripts were uploaded in Nvivo a coding programm that was used for the data analysis. The coding process is based on a method described by De Casterle, Gastmans, Bryon and Denier (2012) and is called the Qualitative Analysis Guide of Leuven (QUALOG). The summaries were first openly coded, then the codes were linked to categories. The codes that said something about the frame/interest of a stakeholder, such as their priority, things they considered as important or in which they believed, were linked to the category named after this stakeholder. The codes that said something about the KIA and the focus of the agenda were linked to the category 'content'. Codes that revealed something about who participates in the governance of the Top Sector were linked to the category 'participants'. At last, codes that were linked to statements about the process design, such as the way decisions were made and selection criteria that were used, were linked to the category 'process design'. This resulted into ten categories. Subsequently, per category the codes were put into sub-categories that grabbed the essence of the different codes. This resulted in a scheme of ten categories with sub categories. This scheme was used to code all transcripts. If no (sub) category captured the essence of the sentence a new (sub)category was added on the list. Only new sub categories were found.

3.3 Focus group

After the semi-structured interviews were conducted, a focus group was arranged. The purpose of this focus group was to verify and sharpen the results of the interviews and jointly reflect on possible improvements for the execution of the Top Sector policy. We wanted to discuss the results, get a better insight in the positions of stakeholders and discuss solutions for problems that were formulated during the focus group. A focus group is a suitable method because it provides the possibility for the stakeholders to reflect upon their perspectives. Kitzinger (1994) states that by paying attention to the interaction between focus group participants, it is possible to explore differences between participants and because participants can reflect upon each other's ideas, it can be ensured that the data is interconnected. Furthermore, the differences that might come up during the focus group can clarify why participants believe in what they do. Therefore, group interaction can stimulate participants to make their visions, perceptions and reasons more explicit.

3.3.1 Focus group participants

We have chosen a heterogeneous group with a broad representation from the top sector. This helped to gain an understanding of how the different stakeholders position themselves within the top sector and allows that conversation could take place between stakeholders with different perspectives. We invited six stakeholders that represent the government, industry, knowledge institutions, health foundations and governance of the Top sector, again no health insurer participated (see Appendix II for a list of the focus group participants). Except from one representative from the industry and one from the Top Sector LSH, all the participants were not interviewed before which helped to verify the results from the interviews.

3.3.2 Focus group design

The focus group consisted of three parts. At first there was a short introduction. All participants were welcomed and introduced themselves. In addition, a short presentation was given that included the purpose of this research, the first results from the interviews were presented and the outline of the rest of the focus group was explained. In the second part of the focus group all participants were asked to fill in an interest-influence matrix as seen in Figure 5. In this matrix stakeholders are placed based on two dimensions. The first dimension is 'interest in Top Sector LSH' which could be either high or low. The second dimension is 'influence on the execution', which was likewise either high or low. In this way the matrix is divided into four categories: key players, context setters, crowd and subjects. Depending on how much influence and interest a certain stakeholder has, determines in which category it belongs. Every participant got seven stakeholders on post-its and were asked to place them on the matrix. The stakeholders included: Ministry of Economic Affairs (EZ), Ministry of Health, Welfare and Sports, Health foundations, knowledge institutions, large industry, SME and health insurers. Every participant also had some empty post-its in case they thought an important stakeholder was missing. When all the participants had placed the stakeholders in the matrix, it was used to start a discussion about the different positions of the stakeholders. Participants were asked why they placed a certain stakeholder on that particular position and the other participants was asked why they did not placed it there if that was the case. This discussion gave insight into the relative importance of various stakeholders in the top sector LSH and their influence (Ackermann & Eden, 2010). Thereby it provided insight on what aspects/facts/assumptions the participants based their choice and thereby it revealed what elements were considered as important to take into account when placing stakeholders on the matrix. In addition the matrix makes participants aware of the different stakeholders and their differences in positions (Ackermann & Eden, 2010). In the third part of the focus group an open discussion was held about the effect of the different positions of the stakeholders regarding the achievement of the ambitions. In addition, the participants jointly sought for adjustments in the Top Sector policy that would help to increase the success of the policy. This was done in order to see what the participants saw as problematic and to collect ideas about improvements. A comprehensive version of the focus group design could be seen in Appendix IV.

3.3.3 Data analysis

The focus group was recorded, with permission of all participants, and fully transcribed. The list of (sub)categories that resulted from the data analysis of the interviews was used to code the focus group. If a sentence could not be linked to one of the (sub)categories a new one was added. Using the list of (sub)categories that resulted from the interview analysis was useful to validate the results that came up from the interviews. When all the transcripts, including the interviews, were coded the different subcategories underlying each stakeholder were analyzed in order to position the

stakeholders in the interest-influence matrix and to determine their position towards the ambitions. Whether a stakeholder has high or low interest is determined by their interest into the TKI-allowance and other (financial) tools that are provided by the Top Sector LSH and if the scope of the agenda is in their interest. Whether a stakeholder had high or low influence on the outcome of the policy is determined by the fact whether they participate in the governance of the Top Sector LSH, invest in PPP's and if they had the feeling that they were heard. The aspects on which we based the positions were also aspects that were taken into consideration by the participants of the focus group when they had to place the stakeholders into the matrix. The position of stakeholders regarding the ambitions of the Top Sector is determined by the their interest to contribute to the ambitions. If it was in their interest then they were positioned as positive, if it was not in their interest but it did not contradict to their main interest then they were positioned as neutral. If it was contradictory to their interest then they were positioned as opposed.

4. Results

The objective of this study is to assess the chance to achieve the ambitions of the Top Sector LSH by gaining insight into the stakeholders' interests regarding the Top Sector LSH and its ambitions, and into their influence on the execution of the policy. In the following chapter the results are presented. First we show which stakeholders are affected by the Top Sector policy and which of those stakeholders are involved in the governance and in PPPs. As the scope of the agenda determines the direction of the Top Sector LSH, we identified the different objectives described in the agenda. Subsequently, we show the results about the decision-making process. These results show which stakeholders have authority and if every stakeholder gets the room to express their opinion. Furthermore, the interests of the participants in the Top Sector policy are described and there position towards the main goals of the Top Sector LSH. At the end of the chapter the results will be summarized in an interest-influence matrix.

4.1 Stakeholders and participants in the Top Sector

Stakeholders in the Top Sector Life Sciences and Health are those who affect or are affected by the policy. Identifying the stakeholders helps to see the network surrounding the Top Sector LSH. The participants are those stakeholders who are involved in the Top Sector LSH. Participants could be involved either by participating in the governance of the Top Sector, the steering group and top team, or by participating in PPPs. The stakeholders and those who participate in the governance and the PPPs of the Top Sector are described more in detail below.

4.1.1 Stakeholders

During the interviews, focus group and desk study many organizations, groups and businesses are identified as stakeholders. This resulted into a list with stakeholders which in some way affect or are affected by the Top Sector policy or are key players in the innovation route. The different stakeholders are categorized using the following four categories: government, knowledge institutes, industry and society. On the next page the stakeholder map is presented (figure 4).

Within each of the four categories we observe a great variety of stakeholders. Within the government we distinguish two main stakeholders the Ministry of Economic Affairs (EZ) and the Ministry of Health, Welfare and Sports (VWS) as they are the appointed departments to join in the Top Sector LSH. However, also the Ministry of Education, Culture and Science (OCW) plays a relevant role for the knowledge institutions, as does the Ministry of Foreign Affairs (BuZa) for the companies with respect to international relations and export promotions. Within the industry, there are both large companies and smaller companies (SMEs and startups), as well as different sectors (bio technology, medical technology, pharmaceutical industry, (e)health & lifestyle). On the part of society we identified patient associations, health funds and health insurers. Furthermore, we observe that there is trend towards collaborations within each sphere. The University Medical Centres are organized through the NFU, the health funds joined forces within the SGF and the different industry sectors cooperate through the LSH Alliance. The different government departments have joined forces through the secretariat of the Top Sector LSH.

4.1.2 Participants in the governance

As earlier explained in the contextual background every Top Sector is directed by a top team. The Top team monitors the different TKI's that are directed by a steering group. As the Top Sector LSH

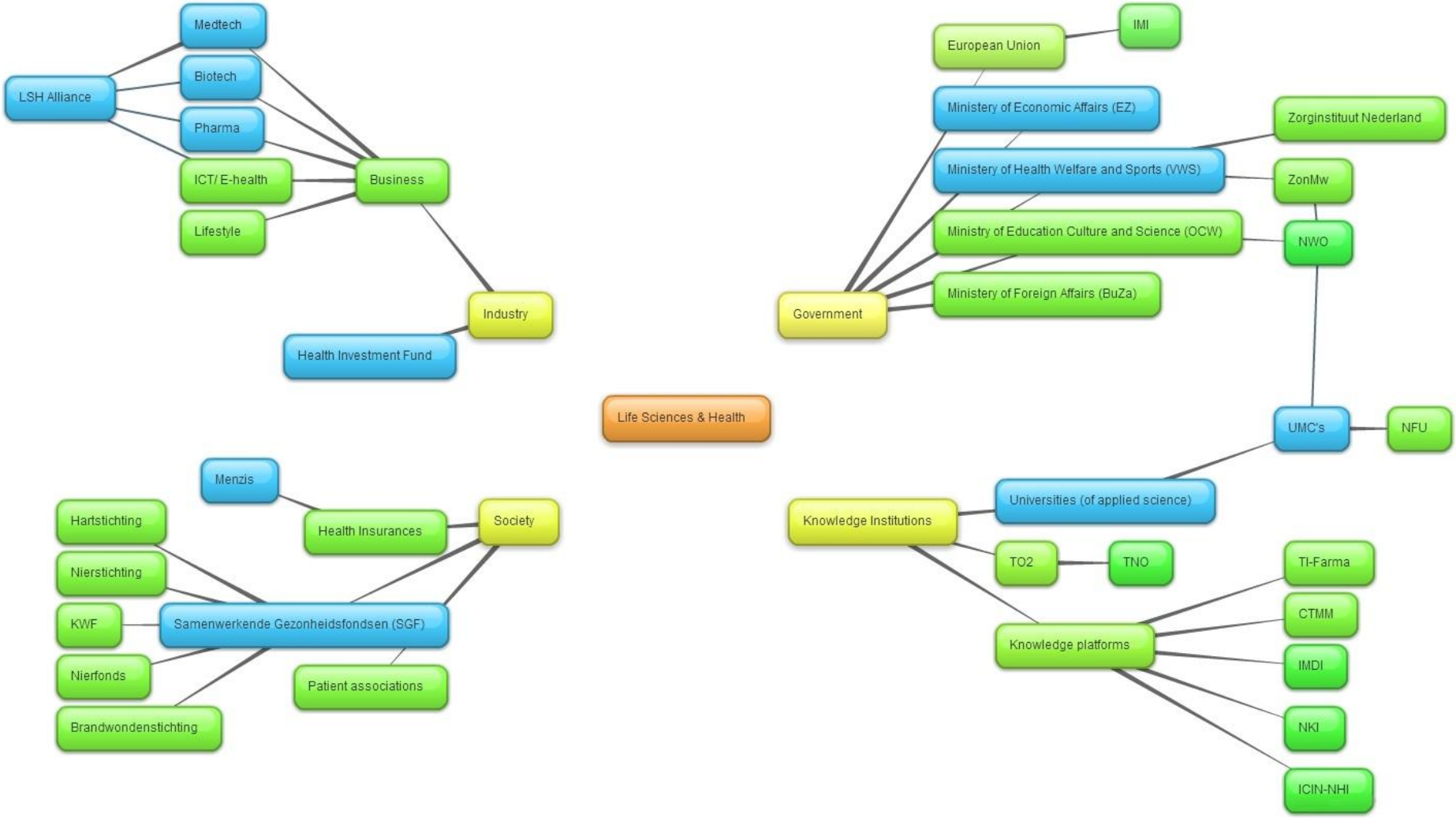


Figure 4: Stakeholder map of the Top Sector Life Sciences and Health. *It consists of all participants that participate in the PPP's and/or affected by the Top Sector LSH. The stakeholders colored in blue participate in the governance. The yellow boxes represent the four stakeholder spheres.*

only has one TKI the governance differs a bit from the other Top sectors. The steering group and top team are more integrated. The top team is compiled by the Ministry of Economic Affairs (EZ). Subsequently, the top team has the authority to compile the steering group. From the interviews (1,3) it appeared that the topteam is aware of the importance to include various stakeholders in the steering group in order to steer the Top Sector in a desirable way. They considered the steering group as an extension to their own expertise. Top Sector LSH aims to bring the various perspectives together. Box 1 shows the different expertise's that are presented in the steering group and top team. Currently the steering group and top team consists of 16 participants. In Figure 4 the organisations that participate in the steering group and top team are blue coloured. It shows that the steering group indeed includes stakeholders from the four spheres. The proportions are however not in balance, most members of the steering group are part of knowledge institutions.

All interviewees agreed that the relevant parties have a seat in the steering group and no other stakeholders are missing. Though some interviewees (2,4,6,9) complained several times about the involvement of the business community, particularly the involvement of SME's. According to those interviewees the industry is not much involved in the decision-making process, especially when the Top Sector LSH was implemented. The voice of SME's is missing. This problem was also addressed and discussed during the focus group. One of the participants (11) of the focus group said that an ordinary entrepreneur does not have the time to concern themselves with policy matters. An entrepreneur wants to do business and has no time and resources to get involved in collaborative processes. An interviewee (4) had the following proposal to for this problem:

"In other Top Sectors the business component is much more involved. They selected a sector organization that connects with the industry associations. People from those associations are also involved in the execution, in which the Top Sector really listens to the companies. Thereby, they look for opportunities for customization of the policy within this generic policy. There is still a lot to improve." (interviewee 4)

The involvement of some SME's in the steering group seems not enough according to this interviewee. The recently expansion of the Top Sectors' secretariat with a representative from the Dutch-alliance, a collaboration between several industry associations, was perceived as a 'good start' (2,4).

Box 1. Stakeholders in the governance of the Top Sector LSH

Steering group

Top team

- Chairman: Pharma (large industry)
- Government: VWS
- Industry: 2x SME (medtech & biopharma)
- Academia: University (medical centre)

- University (Medical Centre 3x) (5x)
- SME: Biotechnology
- Large Industry: Pharma
- Health Insurer
- Cooperating Health Foundations (SGF)
- University of Applied Science
- Venture capital

4.1.3 Participants in public private partnerships

Since the establishment of the Top Sector LSH in 2011 until 2013, two calls for public private partnerships has been established. One call was initiated by the TKI. They accepted 16 PPPs that together generated approximately 1 million euro TKI-allowance. The second call was started by ZonMw and aimed to establish a cooperation between health foundations, the industry and public research. They accepted 10 PPPs that generated approximately 2,65 million euros TKI-allowance, which is more than 70% of the total generated TKI-allowance. All together 26 PPPs with 54 different participants got funded by Top Sector LSH. The following table shows which stakeholders participate in these PPPs and how many of each stakeholder participates.

Table 1. shows which stakeholders participate in the PPPs till 2013 and how many of each stakeholder participates. (Source: TKI-LSH)

Stakeholder	**Participant in PPPs**
University Medical Centres	8
University	5
Big Pharma & Bio technology	8
Big Medical technology	6
SME Pharma & Bio technology	12
SME Medical technology	6
Health Foundations	5
Other research institutes	4

This table shows several interesting results. First it shows that all of the 8 UMC's in The Netherlands are involved in the Top Sector LSH. In fact, in every PPP is a UMC involved. Another interesting result is that only 5 health foundations participated while there are about 20 health foundations in The Netherlands.

Furthermore, table 1 shows that the emphasis of the PPPs is on the bio technology, pharmaceutical and medical technology industry, with a bit more SME's involved than Large industrial companies. At last the table shows that no health insurers has invested in the PPPs. Overall this table shows that every stakeholder that participates in these PPPs has one or more representatives in the steering group and top team.

4.1.4 Summary

These results show that the Top Sector LSH mainly affects those stakeholders that are doing business or research in the bio technology, medical technology and pharma. The UMC's seem to be a dominant stakeholder as they are well or maybe over-represented in the governance and are much involved in the PPPs. The industry, mainly SME's, on the other side seems to have difficulties in being heard. In the next chapter the scope of the agenda, that is constructed in consultation with the participants in the Top Sector is presented.

4.2 Scope of the Agenda

The scope of the agenda describes the topics that are addressed by the Top Sector LSH. It is an important concept as it provides insight in which topics are of interest and what strategy is chosen in order to achieve the ambitions. The scope of the agenda is written together with the participants, this process is further elaborated upon in paragraph 4.3. In 2012 an innovation contract was written by the Top Sector LSH which explained the agenda of the Top Sector and their action plan to realize its ambitions. It was developed to guide research and innovation that would be initiated by the Top Sector and other institutions. The innovation contract will be replaced by a new knowledge & innovation contract in 2015. The knowledge & innovation agenda (KIA) is the precursor of this new contract. In the following paragraphs we will explain which topics are on the agenda by focussing on the KIA, as this is the most recent agenda. We also show some differences between the innovation contract from 2012 and the KIA.

4.2.1 Ambitions, objectives and focus points

The ambitions of the Top Sector LSH are described in the KIA as following:

Ambitions

- ♣ improve functional performance and perceived health-related quality of life of citizens;
- ♣ create – new – successful and innovative private and public relationships, networks and businesses, national and international, with openings to foreign markets as well;
- ♣ support affordability of the health(care) system and delivery of value-based health(care) solutions through objective measurement of outcomes;
- ♣ increase productivity by curbing healthcare labour years and support gaining productive years in all sectors;
- ♣ realise all of these based on the highest ethical and moral standards regarding minorities, – involvement, privacy, safety and animal welfare.

The Top Sector LSH is dedicated to contribute to these ambitions and at the same time work on the realization of its economic potential. In order to achieve this the Top Sector focus on three objectives: stimulating the development of innovative health solutions that:

1) Maintain health and functioning, focus on prevention
2) Maximize effect, minimize burden
3) Manage health and disease extramurally

The idea behind the first objective is assisting people in staying vital which keeps people away from the healthcare system, which also reduce the costs in healthcare expenditure. Innovations that belong within this category are for example vaccines and health management solutions. Innovations that contribute to the second objective will support people with a disease to maintain or/and regain their vitality and functioning as much and as fast as possible by stimulating effective therapies with minimum burden. In this way people could leave the hospital much quicker. Innovations that

contribute to this objective are for example image-guided therapies, regenerative medicine and personalised medicine. The third objective refers to innovation that enable people that have a disease or a disability to adapt self-management at their living environment. This would help to move care out of hospitals, which also could have a huge effect on the costs reduction. Innovations relating to this objective are for example domotics or E-health tools. The Top sector beliefs that stimulating PPPs that contribute to these objectives will develop products that contribute both to the societal and economic ambitions. During the desk study a remarkable result relating to these objectives was found: it appeared that about 24% of the stimulated PPPs contribute to the first objective, almost 60 % of the PPPs contribute to the second objective, and about 8% contributed to the third objective. This shows that indeed the PPP's cover the three objectives, however the participants that have interest to participate in PPPs mostly are interested in topics related to the second objective.

Furthermore the KIA describes some other focus points and actions for the future. First, the Top Sector desires to proceed in enhancing its recognition as an international frontrunner in the field of LSH. Second, there are some key issues addressed in the KIA on which the Top Sector LSH will pay special attention. These are dementia, anti-microbial resistance and E-Health, besides the issues of rules and regulations and new revenue models. These key issues are addressed by VWS, who will release funding for PPPs on these topics. Thereby two *national icons*[1] receive the full support and encouragement. At last, in essence the Agenda is centralized around the Top Sector's important task to facilitate and stimulate PPPs. The PPPs are assigned to three so-called program pillars: I) Fundamental Life Sciences Research, II) Applied and Practice-Based Health and Functioning Science Research and III) Built Environment, ICT-infrastructure and Concept and System Development.

4.2.2 Differences between innovation contract and KIA

In comparing the KIA with the innovation contract there are a few differences that are remarkable. For example, the ambition to 'contribute to the quality of life, longer and healthier lives' is in the KIA replaced by the ambition to 'improve vital function and quality of life of citizens'. This shows that earlier the Top Sector LSH mainly focused on improving the health of patients. Nowadays the KIA also is focused on contributing to a healthy society. Subsequently, the prevention domain has been expanded with innovations that develop contexts that support people to primarily make the right preventive lifestyle and behavioural choices as well as support patients to live in their own environment. Though, from some interviews (1,2,3,4,5,8) it appeared that there was much debate about the new scope of the Top Sector, even in the steering group. According to the interviews nowadays the 'health' aspect of the Top Sector LSH gets more attention. None of the interviewees explicitly told what was meant with 'health'. Though from the context of the interviews it seems that they mean that the focus of the Top Sector has been broadened by social cultural innovations, rather than only technological innovations. The interviews agreed on the importance of health related innovation, however according to them the scarcity of available resources means that not everything is possible. 'Keep focus' was therefore frequently heard, also during the focus group. Subsequently, according to some interviewees (1,3,7), most resources are available in the field of technological R&D and therefore it is expected that the upcoming years most PPPs are still focused on technological innovations rather than social-cultural innovations. The following quote illustrates the hesitance of the Top Sector towards the broadening of the scope.

"The emphasis is still on 'life science'. Even when you look at the PPPs and the money, the cash, the bulk is located in this domain. We are questing, there is also the discussion within the steering group about how far we should go. We are a small institute, you cannot do everything." (interviewee 3)

Another new aspect in the KIA is the focus on facilitating engagements as the 'Health Deals'. Up until recently, the Top Sectors efforts was only focused on developing innovative solutions. There is however also an demand from the industry (2,4,6) for extra attention from the Top Sector to bring the innovations on the market. As described earlier it happens that very valuable and cost-efficient innovations are developed, however due to all sorts of interest they will not get on the market. Health deals aim to bring all the relevant stakeholders together to find solutions in order to support an optimal valorisation in society, industry and science. Through Health Deals, the Top-Sector will help facilitate economic exploitation and societal uptake and use of new innovative solutions.

4.2.3 Summary

The above described results show that the agenda is an important part of the Top Sector policy. It describes the objectives that will contribute to the main ambitions of the Top Sector. The innovation contract in 2012 was at first mainly focused on technological innovations that improved the quality of life of patients. The KIA however has broaden the scope by including social cultural innovations that also contribute to vital functioning of citizens. The discussion about the scope of the agenda shows that participants have much interest in an agenda that is aligned with their interests. Every stakeholders and participant have their own perspective on what way the Top Sector most go and are mostly willing to express their thoughts. In the next paragraph the way all these perceptions are gathered and how the process of decision making and execution is designed is described.

4.3 Decision-making process

The way decisions are made and who are involved in the decision making process is crucial to identify which stakeholders have influence in the Top Sector LSH. Therefore we analysed who has the authority to make decisions and how that process is designed.

4.3.1 Authority: top team, steering group and TKI

The top team of the Top Sector LSH has the formal authority to make decisions, however the decisions are always made with consultancy of the steering group. The Top Team and steering group mainly decide on the course of the policy. However, some interviewees (1,2,3,4,5,8) said due to the scarcity of resources there was not much to steer. When important decisions must be made, like the KIA, the decision making process becomes more 'open'. For example, everyone who is interested had the opportunity to think along about the new KIA. A meeting, that could be joined by everyone, was arranged to discuss the agenda. Thereby, three times a draft version of the KIA was published online with the opportunity to respond. This option is frequently used, according to the list of contributors in the back of the new agenda. Thereby, the steering group, top team and the secretarial support from the TKI, often attend to meetings and organize meetings. In this way they meet stakeholders from all over the sector. On one hand they can provide them with information to keep stakeholders informed of the various developments in the Top Sector. On the other hand the top team and steering group also receive information, like problems or complaints, from the stakeholders that could be useful in making decisions.

The TKI is responsible for the applications for TKI-allowance and have the authority to decide whether the PPP may claim the allowance. For these decisions selection criteria are used, which are described in 4.4.3.

4.3.2 ZonMw

Next to the top team, steering group and the TKI also ZonMw is an important player in the decision-making process. ZonMw is an public institute that funds health research and stimulates use of the developed knowledge to improve health and healthcare in the Netherlands. Since the establishment of the Top Sector LSH ZonMw started with stimulation of PPPs on some of the eighty existing programs (8). ZonMw is financed by the ministry of Health Welfare and Sports as well as by the ministry of Education Culture and Science. The contributions of these ministries for the Top Sector LSH must pass through ZonMw (1,8). With this money they can start calls for PPPs related to the agenda of Top Sector LSH. The money that private parties invest also generates TKI-allowance. This makes ZonMw also a relevant stakeholder in the Top Sector LSH. They work closely with the TKI, but also have to deal with the specific interests from the two ministries (8).

4.3.3 Selection criteria

An important aspect of the decision-making process is which selection criteria, relating to agenda, are used to accept PPPs for TKL-allowance, and applications from the MIT-regulation. These criteria or requirements tell something about what the Top Sector prioritises. From the application form for TKI-allowance we identified two selection criteria. First, the ten roadmaps (Appendix I) take a decisive place in the process of permitting PPPs. Every PPP should fit one or more of these roadmaps. One interviewee (3) told that the roadmaps cover all the topics in the Life Sciences and Health domain and that it is almost impossible that a PPP related to LSH will not be selected. This criteria therefore does not prioritise. However, the roadmaps are very technical in nature, topics on societal and cultural innovations might therefore not be accepted. The second selection criteria is that every PPP that applies for TKI-allowance should contribute to one of the objectives of the Top Sector (maintain health and functioning; maximize effect, minimize burden; manage health and disease extramurally). The social and economic ambitions of the Top Sector are not named as a selection criteria. However, they are still covered, because the Top Sector believes that the objectives contribute (in)directly to the these ambitions. Thereby one interviewee from the governance told that the TKI has the ambitions in mind when establishing new partnerships. For example, new innovations may not be add-ons, “a new toy”(3), they should replace older cost inefficient instruments. They call this deimplementation. Also the economic value of the research for (future) industry is taken in mind as well as the scientific quality of the project. The MIT-regulation only uses the roadmaps as selection criteria.

ZonMw uses other selection criteria when one applies for subsidy. Applicants must describe i.a. the social and economic relevance of the innovation. ZonMw consider the extent to which innovation is (inter)national scalable, the expected contribution to quality of life, cost reduction in healthcare and productivity within healthcare. The economic and social ambitions of the Top Sector LSH are thus directly appointed in these selection criteria.

4.3.4 Summary

The authority to make decisions is in hands of the top team, steering group, TKI and ZonMw. When important decisions must be made, like the agenda, then the process becomes more open to give stakeholders, outside the governance, room to react. The selection criteria from the TKI are aligned with the agenda of the Top Sector. Only ZonMw uses the ambitions as selection criteria. In the following chapters the interests of different stakeholders regarding the Top Sector policy and the ambitions are described.

4.4 Interests in the Top Sector policy and its main goals

In this chapter the interests of seven important stakeholders towards the Top Sector LSH and the ambitions are described. It shows the reasons and motives, which are part of their frames, why they are involved or not. Moreover, it provides insight in which position they have towards the achievement of the ambitions of the Top Sector.

4.4.1 Ministry of Economic Affairs (EZ)

As initiator of the Top Sector policy EZ is an important stakeholder in the Top Sector LSH. In general the role of EZ in the Dutch government is to promote an excellent business climate and a strong international competitive position. Their business policy, of which the Top Sector policy is a part, aims to contribute to this role and has the following three ambitions: '1) The Netherlands is one of the top five knowledge economies in the world by 2020, 2) an increase in R&D intensity at 2.5% of GDP in 2020, 3) public and private parties participate for at least € 500 mln. to 2015 in TKI, at least 40% is funded by business' (Ministerie van Economische Zaken, 2014). In general it could be said that everything that contributes to these ambitions is of interest for EZ. This implies that EZ is particularly interested in increasing the private R&D-investments of the companies active in the Top Sector LSH. Next to that EZ focuses strongly on increasing the export opportunities.

Despite EZ implemented the Top Sector policy as part of their business policy, they put increasing emphasis on contributing to societal challenges over the last years. This emphasis is notified by all the participants in this research. From the desk study and several interviews (Int: 1,3,5,7) it became clear that the main reason to focus on societal challenges is besides that it is a social responsible decision it is also an strategic decision. Namely, the European Union has a research and innovation program too, named Horizon 2020. It is this program that has several societal challenges as starting point. For example, one of these societal challenges is 'Health, demographic change and well-being', a societal challenge to which the Top Sector LSH could have a major contribution. Bringing the Top Sector policy in line with the Horizon 2020 program ensures that the different national and international grants are in line with each other. Thereby more money is available for R&D, which is also of interest by EZ.

Besides the general interest of EZ, they realise through collaboration with other parties that some societal goals of the Top Sector LSH are of interest too, this is evident from some interviews (1,5) and the focus group. First, because a vital citizen generally participates longer in society, and by working longer may spend more money than someone who needs care. A vital society is good for the labor productivity and therefore good for the economy. Second, EZ has interest in labor productivity because it is linked to a growing economy. Third, EZ recognizes that the rising healthcare expenditure is a problem that has an negative effect on the economy. When society spends more money on

healthcare less money could be spend on daily living and other expenses. Therefore, it seems that the strategic decision to focus on societal challenges has now become of EZs interest too. The following quote shows how EZ got interested in the affordability of healthcare:

"What is the reason that the affordability of healthcare also is of interest for EZ? Well that is because it is a fact that when the healthcare expenditure keeps rising most economist say that it is disastrous for the Dutch Economy. That's the reason why EZ took this challenge on board." (interviewee 5)

Position towards the economic and social ambitions

The above described interest of EZ in the Top Sector policy and Top Sector LSH shows that EZs position towards the main goals is positive. As earlier described in the contextual background, LSH is a promising economic sector with an excellent knowledge base and with a decent international position. Furthermore, EZ increasingly recognizes the importance of vital citizens, affordable and productive healthcare and therefore is supportive towards the societal goals. However, besides positive position it seems that EZ has its doubts whether the societal goals got too much attention, in the end it is business policy. However, despite its positive position to both the economic and the societal goals, within EZ there is discussion whether the economic goal still receiving enough attention (1).

4.4.2 Ministry of Health, Welfare and Sports (VWS)

The ministry of Health Welfare and Sports is an important stakeholder in the Top Sector LSH. Their policy aims i.a. to encourage healthy behaviour, keep healthcare accessible for the entire society and improve and guard the quality of healthcare. All this in order 'to keep everyone healthy as long as possible and get the sick better as soon as possible', which is the ambition of VWS. This ambition closely resembles the societal goals of the Top Sector LSH, therefore VWS is a committed partner since the establishment of this Top Sector. They participate in the top team and support the Top Sector financially. Most of VWS financial contribution to the Top Sector LSH passes through ZonMw. Furthermore, VWS seems to be interested in the knowledge from the economic, scientific and societal side of the Top Sector that the TKI and steering group holds (3,5,8). For example, VWS could help the sector by evaluating and improving some laws and regulations. Thereby the current minister from VWS, Edith Schippers, has visited the steering group and she was very interested in what the steering group had to say, she believes in the economic value of this sector (1,3,8). Overall it could be said that VWS is a committed partner in this Top Sector.

The specific interests of VWS in the Top Sector LSH are very much related to their ambition. VWS focuses on certain topics which are on their agenda and are related to the ambitions of the Top Sector. Therefore the financial contribution, via ZonMw, is accompanied with demands from VWS (5,8). For example, VWS invest in topics that 'without public contribution cannot be achieved'. An example of such a topic is antimicrobial resistance. One interviewee (5) explained that new antibiotics are needed due to the increasing resistance of bacteria to existing antibiotics. However, the industry does not invest in new antibiotics because the costs do not outweigh the financial benefits. New antibiotics will not be used excessively to prevent resistance to these new drugs, whereby companies do not receive enough revenue. By public and private investments in such topics it might be possible to bring innovations on the market that are needed, but are otherwise not

provided by the market. Other topics on the agenda of VWS that will be support in association with the Top Sector LSH are E-health and dementia.

VWS also has a special interest in the societal goals to contribute to affordable healthcare and productivity in and beyond healthcare. Especially the rising costs are perceived as an enormous problem that they need to encounter (1,2,3,4,5,8). VWS values the solidarity of the healthcare system and is afraid that the rising expenditure will tackle this value (1,2,3,4,5,8). Subsequently the goal to contribute to affordable healthcare is supported by VWS, however during the interviews (3,5,8) and the focus group it became clear that VWS doubt whether the Top Sector LSH could contribute to it. VWS is convinced that the stakeholders that are involved in the Top Sector LSH are not those stakeholders who could tackle this problem (5,8). From VWS's perspective, the products from the bio and medical technology and pharmaceutical industry are one of the causes of the rising healthcare expenditure, especially the innovative costly medicines. They do not expect that the sector that produces these products will now contribute to affordable healthcare. In addition, they do not believe that those products contribute greatly to the quality of life (5). Supporting PPPs relating to this industrial sector therefore seems to contradict with their interest to keep healthcare affordable and keep people vital. VWS has more interest in stimulation of social-cultural innovation and service innovation that will help to make the healthcare (organization) more effective and support people in healthy behaviour.

Position towards the economic and social goals

VWS is very much supportive towards the societal ambition as it is their main interest. However they are undetermined towards the economic ambition. Minister Schippers supports the Top Sector LSH, because she believes in the economic value of this sector. However, within VWS one has enormous doubt whether supporting the bio- and medical technology and pharmaceutical industry is a good idea. They think that this contradicts with their interest in affordable healthcare and quality of life. Though, VWS appreciate that the scope of the KIA include services and health concepts related innovations. Once the Top Sector succeeds in including stakeholders that focus on these types of innovation, then VWS will be supportive.

4.4.3 The Industry: Big companies and SME's

The industry that is involved in the Top Sector LSH are mainly businesses, big companies and SME's, that develop bio- medical technology and pharmacy products. Big companies and SME's have largely the same interests, therefore these interests are first explained. Subsequently the specific interests regarding the Top Sector LSH are explained per stakeholder.

In general businesses strive to grow and sell as much as possible to make more profit. Therefore, it is important to be an innovative company and invest in R&D in order to be competitive on the market. Big companies and SME's are both important stakeholders in the Top Sector policy, because this policy aims to strengthen the economy by stimulating innovation in specific industrial sectors that excel worldwide.

Next to the general interest of being a profitable company, the bio- and medical technology and pharmaceutical industry has a special interest to get their products as fast as possible to the patients/consumers (2,4,6,9). One of the underlying beliefs of this interest is that they belief that their medicines and technologies are very valuable and contribute to the quality of life of the society

(2,4,9). On the other side, some interviewees say that R&D is very expensive and the faster a products comes on the market the faster a company could make profit (2,4,5). In relation to this interest the industry has also interest in optimizing the laws and regulations in order to fasten up the R&D process (2,4,9). Especially in the pharmaceutical industry this process takes a long time. This sector develops mainly invasive innovations that need strong regulation to guarantee the safety and efficacy of the product. Thereby, for Dutch companies it is essential to implement their innovative product or service in the Dutch market before they can export it. This is helpful for the marketing of their product abroad, because the first question companies get abroad is if their product or service is implemented in the Netherlands (2,4).

Furthermore many interviewees (2,4,6,8) appreciate the current use of the Health~Holland international branding. The Netherlands is mostly just a fraction of the sales market of companies in this sector. All the companies are international oriented. Stepping out onto the international market as an innovative country, helps the international position of this sector. Especially for SME's as they do not have much impact on the market. Related to this is an important side note that was said many times during interviews (2,4,6,8), but also during the focus group, is about the continuity of this policy. The last years many different innovation programs and policies passed this sector. Some business are tired of the uncertainty if projects or programs will be stopped. Therefore these participants believed that continuity of this policy is important to gain confidence of the industry.

4.4.3.1 Big companies

According to the interviews (2,4,8,9) a growing number of big companies invest less in R&D. Instead of investing money in their own R&D department, mainly big companies buy up innovative SME's. Despite this trend, it appeared from the interviews (2,4,8,9) that R&D is still a key priority for big companies and they mainly see universities as their research partners. Therefore public private partnerships are of interest.

Related to the PPP's, one of the biggest interests of big companies and at the same time a critical point is the budget that is available for PPP's. Companies benefit of extra investors and grants in R&D. Stimulating PPPs, by providing extra money with the TKI-allowance, might therefore be very appealing for the industry. However, in the interviews (2,3,4,8,9) and focus group it is said that Big companies did not perceive the TKI-allowance as appealing. They talked about a 'scarcity offensive', meaning that before the Top Sector policy started, much money was allocated to this sector when compared to the money invested in the Top Sector policy. Instead of investing extra money in the different Top Sectors the government cut of their budget and asked the industry to invest too. The amount of money that companies could gain however does not outweigh the effort they have to make in order to get it. They could get much better grants at European programs, like IMI. In addition, big companies invest considerable effort in contract research (6,9). This goes beyond the involvement of the government and is much easier to arrange for them.

4.4.3.2 SME's

The interests of small and medium enterprises essentially correspond to those of big companies. The key priority of SME's is to sell their product. Stimulation of R&D will help these companies to grow and become competitive on the market. SME's are in most cases not able to invest much money in R&D to develop their products, therefore they have much interest in extra budget. However, the way

the Top Sector policy stimulates R&D, mainly by PPPs, is in most cases not aligned with the needs of SME's. The PPPs take too long and are too much scientific oriented (1,2,3,4). Some interviewees told that the MIT-regulation is very appreciated by SME's (1,2,3,4). Therefore, they thought that the money that is available should be invested in the MIT-regulation. In this way SME's could for example be guided in their marketing authorization of products (2,4). This would help SME's much more then large partnerships.

Position towards the economic and societal ambitions

With regard to the societal ambitions the industry is partly willing to contribute to them. Supporting vital functioning and quality of life is a motive for many companies for the development of their products and therefore gets a lot of support. The industry beliefs that medicines and other technologies are very valuable in regard to this ambition (2,4,6,9). They are convinced that it will contribute to the quality of life of the society. The part of the societal goal to contribute to affordable healthcare led to the most discussion during the interviews and focus group. At one side, it seemed that the industry is convinced that their innovations result into costs savings (2,4,9). Some interviewees say that despite most new innovations are indeed very costly, mainly because of the long R&D process, they provide costs savings at the end (2,3,4,8). According to these interviewees the government should look beyond the savings within healthcare expenditure. They told that due to their innovations people are able to work longer and participate longer in the society. They said that the government, especially the ministry of social affairs and employment, in the end safes money because less alimonies are provided to sick people. On the other side, the interviewees recognize that the healthcare expenditures could not increase much more (2,4,9). The market also demands for cost-effective innovations. Therefore, the probability declines of reimbursement of expensive innovations, like medicines. It was suggested by two interviewees and a focus group participant that those savings by the Ministry of Social Affairs must be used to reimburse expensive medicines (2,4,11). Overall, all interviewees from the industry (1,2,4,9) thought that affordability of health never must be the goal of the Top Sector, but must be considered as a precondition in the development process. The same applies to the goal to contribute to the productivity in healthcare. Though, interviewees and focus group participants (1,2,4,9) increasingly recognise the increasing emphasis on the societal ambitions. Some interviewees think that this shift widens the focus of the Top Sector too much. The following two quotes shows the tension that companies feel since the agenda seems to widen the scope:

"Originally it is business policy and I think that because of the wideness of this sector and the many different facets there is a tendency to widen the focus too much. I think it is very good to be aware of the societal developments, I am convinced it goes well together. However, at this moment the Top Sector has the tendency to solve every problem and I think it is important to keep focus, that is better for the results "(interviewee)

"Companies consider the Top Sector policy not as business policy, but as healthcare policy. Certain companies drop out and some other companies hitch on, maybe I say it a bit exaggerated." (focus group participant)

Considering the earlier described interests, the industry has different positions towards the economic and societal ambitions. They are supportive to contribute to quality of life. Thereby they

are willing to support to affordable healthcare 'as far as possible', but they do not frame it as a goal in itself. Though the main interest of the industry is to make profit, therefore they are mostly supportive to the economic ambitions. However, the way the policy is designed does not appear to be aligned with the 'needs' of Big companies and SME's.

4.4.4 Health foundations

In the Netherlands 23 health foundations are active in financially supporting academic research. Most of these health foundations are focused on specific diseases, like cancer and diabetes. Together they invest approximately 140 million euros per year in academic science on health and disease related topics. KWF kankerbestrijding is the largest investor with almost 70 million per year. The revenue of health foundations is mainly from donations, legacies and collection box revenues. Since 2002 twenty health foundations combined their forces in the 'Samenwerkende gezondheidsfondsen (SGF)' (cooperating health funds). Their ambition is to 1) influence the societal debate about healthcare 2) play a decisive role in the Dutch research and innovation policy 3) give patients a voice in research, policy and quality of healthcare 4) cooperate for a healthy society. These ambitions are strongly related to the Top Sector. Thereby, given the financial investment in health related research, the health foundations are seen as an important stakeholder and participate via SGF in the steering group. From the interviews and focus group it turned out that the main mission of health foundations is that the disease which they represent, will be healed, is prevented and the quality of life of the patients will increase. Everything that will contribute to this mission is of interest for the health foundations.

Health foundations are also interested in extra grants for the projects they support. One interview (7) explained that most donors became more critical and are members for shorter periods. The income of some health funds therefore reduced. Therefore, according to two interviewees (7,8) Health foundations increasingly establish partnerships to create multipliers. Money they invest will be doubled or in any other way be multiplied, because they cooperate with other investors. Since 2015, investments of health foundations in PPPs are seen as private money and therefore generates TKI-allowance. This was appreciated by different interviewees (3,7,8).

Public private partnerships are however not yet common for many health foundations, especially to cooperate with the industry is new. Formerly, health foundations only invest in academic science. In some cases because there is less known about the disability or disease they represent. Though, according the one interviewee and a focus group participant some health foundations recognizes the benefits of cooperation with the industry. The industry is most of the times much more practical and application-oriented when compared to academic research. In the end also those health foundations are interested in products that could be used by their patients. In 2013 the Top Sector LSH send out a call in cooperation with ZonMw. Health foundations could apply if they made a partnership with the industry and a knowledge institution. This call was heavily criticized in earlier research and also during the interviews and focus group, only 5 of the 23 health foundations were interested. The following quote gives five reasons for this criticism:

"The funds were hardly involved in the establishment of the call. The final process was unclear and went in a hurry. There was no room to seek affiliation with the funds own

method and the funds had little time to find a new role (during the projects the were next to financer also project partner)."(Bodewes Beleidsadvies, 2014)

Future calls from the Top Sector must be better prepared in order to keep the health foundation motivated to invest in these PPPs.

Position towards economic and societal ambitions

In regard to the economical goal of the Top Sector the health foundations position themselves as neutral. It is a goal that is far removed from their own motives. Their biggest interest is contribute to vital functioning of citizens and increasing the quality of life of their patients. Though it was recognized that the industry is needed in order to get products that help their patients (7,8). Also some participants (12, 16)) from the focus group think that health foundations have much interest in prevention of diseases. However, one focus group participant (10) explained that prevention is a difficult topic, because donators are mostly interested in products that increase the quality of life. The following quote shows the interest of health foundations and their position towards the economical goal:

"Health foundations are not driven by economic motives. It's really about improvement for patients or prevent people from becoming a patient, which is the primary driver of basically all health foundations." (focus group participant)

In regard to the other societal challenges, affordable and productive healthcare, it is difficult to describe their position. SGF formulated in their ambition that is important to give the patients a voice in the debate about the affordability of healthcare. They desire high quality healthcare that is accessible for every patient and might therefore by supportive to this goal. Though, when a medicine is produced that is very expensive, but very helpful for their patients they would lobby to reimburse this medicine.

4.4.5 Knowledge institutions: UMC's

The Top Sector aims to stimulate public private partnerships, the public part of these partnerships reverse mostly to knowledge institutions, which are public organizations that conduct research. Therefore these institutions are important stakeholders in the Top Sector LSH. In the Netherlands there is a large number of public organizations that conduct research. They could be divided into two groups, namely: institutions of higher education, like universities (of applied science) including UMC's, and research institutes. In the Top Sector there are different knowledge intuitions active, like the former TTI's and TNO. However, the University Medical Centers are the public research institutes that are involved most. Therefore, we have focussed on identifying the interests of the UMC's. In the Nederlands 8 UMC's operate. These UMC's lead international rankings in clinical research. They have a distinct public mission that integrates its three core functions: patient care, (bio)medical research and (bio)medical education. Together the UMCs have an annual budget of EUR 740 million for research and innovation (Top Sectorplan).

Some interviewees (3,6,8) and members from the focus group (12,13,14,16) told that the academic sector and especially the UMC's are interested in the budget that is made available for research related to the Top Sectors. A part of the budget from NWO, The Netherlands Organisation for Scientific Research that funds scientific research, is made available for all the Top Sectors. An amount

of 275 million euros per year is allocated to the Top Sector, of which 100 million euro especially for PPPs. NWO's budget for the Top Sector LSH passes through ZonMw. NWO manages 80 programs at ZonMw in the field of medical science. Half of their budget has the purpose to stimulate PPPs within these programs. The budget from NWO for the Top Sector is however not extra money, it is existing money that got earmarked when the Top Sector got established. Some interviewees (3,5,6,8) and focus group members (12,13,14,16) told that the fact that the existing money has been allocated to the Top Sector did not suite most researchers. One of the interviewees (8) remarked that the researchers were mainly afraid to lose the budget for academic research.

This quote shows a resistance from the academic sector towards PPPs. During the interviews no clear reason was given for this resistance towards PPPs. Only one interviewee (8) mentioned that researchers were afraid that suddenly the industry decides what would be on the research agenda. An underlying interest might be that researchers could publish less articles in professional journals when cooperating with the industry. The desk study confirmed that the academic sector might have interest to decide what is on the research agenda of the Top Sector. In the position nota of UMC's is said with emphasis that the industry ánd the UMC's decide what is on the agenda of the Top Sector LSH. Mainly because the scientific research is the fundament for the products and services that will be developed by the industry. As long as the agenda addresses a wide range of topics in medical science the UMC's are of great significance.

Position towards the economic and societal ambitions

The above described interests focus mainly one financial and scientific aspects. However, the medical research sector has also specific interest in the ambitions of the Top Sector. UMC's conduct research with the ambition to contribute to the wellbeing of patients, to understand diseases, to prevent diseases, to find cures for diseases, to develop medical devices and to develop technologies that help medical doctors to improve their diagnoses. Vital functioning and contribution to the quality of life is therefore a goal that would be fully supported by the UMC's. Contribute to the affordability and productivity of healthcare does not seem to be in interest of a researcher (6,8). The economical motive of the Top Sector policy is not directly of interest for the UMC's. However, as said earlier many products and services developed by this industry are based on the research in UMC's. Boosting this sector therefore also means boosting the scientific research in this area. All together it could be said that UMC's are supportive towards both ambitions.

4.4.6 Health insurers

From the interviews, focus group and desk study it appeared that health insurers are important stakeholders in the LSH Top Sector. Health insurers are mandated by the Ministry of Health and are therefore bound by laws. They are i.a. obliged to provide care to the insured in accordance with the Health Insurance Act. The following two quotes from the code of conduct for health insurers, illustrate the task and position of health insurers in the healthcare sector:

The health insurer is guided in its enterprise policy by the interests of the insured, the social attitudes towards responsible health care, through regulations, through the

importance of a well-functioning system of insurance and by striving for continuity of its business.[1]

The health insurer contribute to the accessibility and quality of healthcare within the limits of its possibilities. He contributes to controlling the cost of care by promoting the efficient use of healthcare.[2]

As the quote says the insurance is i.a. guided by the interests of the insured, of which there are two types. There are insured which are healthy and desire cheap health insurance and there are insured that are in need of healthcare and desire high quality healthcare and that all costs are reimbursed (5). Therefore, in general it is of interest for health insurers to buy high quality healthcare at a low price.

The health insurers are important stakeholders in the Top Sector LSH for two reasons. First the they are an important player in the innovation route of many products and services developed by the LSH sector. Especially when it comes to medicines. When there are multiple drugs with the same active ingredient, a health insurance is allowed to decide which of those medicines he reimburses, this is called the prevalence policy. Hence, for the pharmaceutical industry the health insurers are important players to get their medicines on the Dutch market. Second, health insurers could have much interest in the Top Sector LSH according to the interviewees (1,2,3,4,5,6,8,9) and focus group participants (11,13,14,15,16). The rising healthcare expenditures for example, causes the fees that health insurers pay will rise continuously. Innovations that contribute to the affordability of care are in that sense of interests for health insurers. The second quote from above also shows that health insurers recognize their role in the affordability of healthcare. Moreover, according to one of the participants of the focus group (13) a health insurer raised this goal in the steering group. Furthermore, innovations in the field of prevention may lead to a decrease of demand for care and therefore a decrease in the amount of fees.

Despite these interests many criticism was expressed during some interviews (1,3,5,8) and focus group (13,15,16) on the way health insurers contribute to the Top Sector LSH and innovation in general. Health insurers invest in innovative projects, however they scarcely participate in cooperative innovative projects. Thereby, the money they invest is often spent on projects that are almost at the final stage and already have a clear added value for the patient. For example there is the Innovation Fund, this fund was established by seven Dutch health insurers. It aims to "contribute to solutions of current problems in healthcare that have great social and individual consequences". One of the criteria in order to qualify for this fund is that the possible funded project should be practice-oriented: “Patients are directly involved and have also immediately benefit from it. Scientific research is not eligible”. During the interviews two reasons were given why health insurers are reluctant to invest in scientific research. First, health insurers do not feel the urge to contribute to innovations in healthcare (1,3). They are administers of the law and reverse to the task described in this law. They fulfil their social responsibility by investing in innovation, however this is limited to innovation that is in its final phase. Second, one interviewee (1) mentioned that the contribution to

[1] Code of conduct for health insurance (2015) 2.0.1
[2] Code of conduct for health insurance (2015) 2.2.1

early stage medical innovation could benefit other health insurers too. For example, health insurer x invests in research that eventually end up in a new effective medicine that is cost saving, however another health insurer benefit of this innovation too without having invested in this particular medicine.

Altogether, the health insurers could have much benefit from the innovations that are stimulated by the Top Sector LSH, therefore they are positioned positive towards the societal ambitions of the Top Sector. Health insurers do not seem to have interest in the economical ambition, therefore they are positioned neutral towards this ambition.

4.5 Interest – Influence Matrix

The results from above provide much information about the different interests in the Top Sector as well as information about the involvement and power of these stakeholders. In this paragraph we brought this information together by placing the seven stakeholders in an interest-influence matrix. To determine whether the stakeholders have low or high influence we looked at if they are (under)represented in the governance and invest in PPP's. If stakeholders have low or high interests is determined on their interest in the (financial) instrumentation provided by the Top Sector and their interest in the agenda. This results in an overview of the positions of these stakeholders within the Top sector LSH as seen in figure 5. Furthermore the position of the stakeholders towards the ambitions is illustrated by the different colours. This position is determined by the their interest to contribute to the ambitions. If it was in their interest then they were positioned as positive, if it was not in their interest but it did not contradict to their main interest then they were positioned as neutral. If it was contradictory to their interest then they were positioned as opposed. Figure 5 shows the matrix with the positions towards the economic ambition. Figure 6 shows the same matrix though with the positions towards the societal ambition. The stakeholders are only placed in one of the four quadrants, within the quadrants stakeholders are placed at random. In the following paragraphs the different positions will be explained.

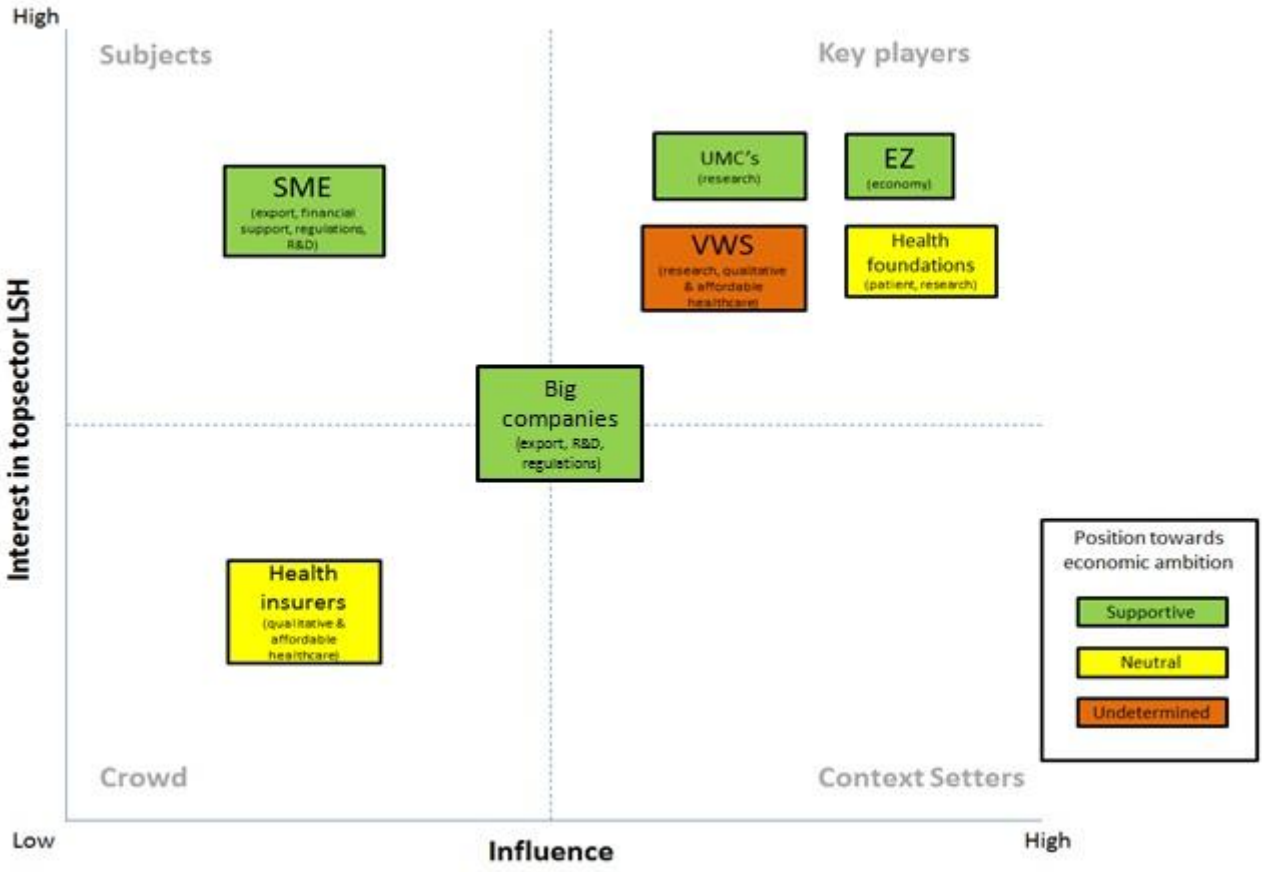


Figure 5: ***Interest – Influence Matrix and positions towards the economic ambitions****. Seven stakeholders are placed in the matrix on the basis of their interests and their influence in the Top Sector. The colors show their position towards the achievement of the economic ambition.*

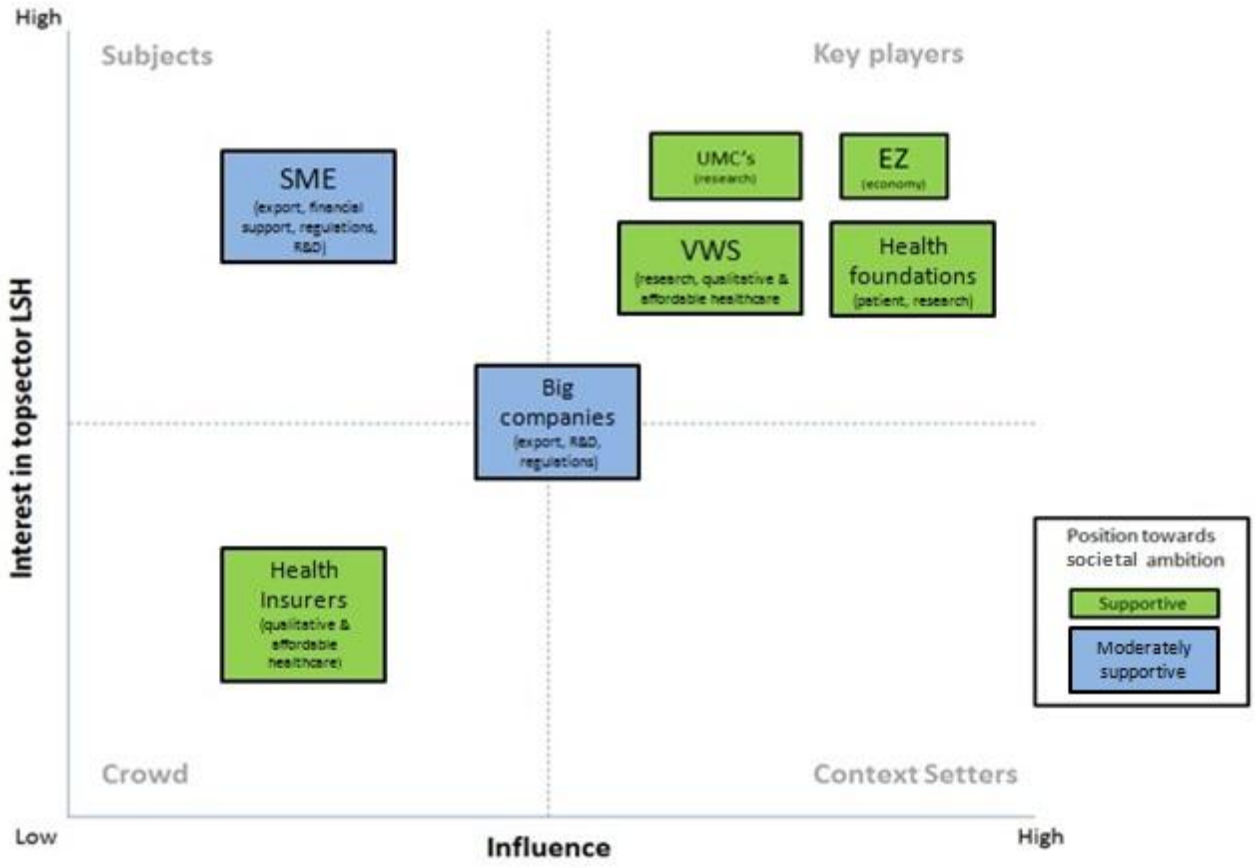


Figure 6: ***Interest – Influence Matrix and positions towards the societal ambitions****. Seven stakeholders are placed in the matrix on the basis of their interests and their influence in the Top Sector. The colors show their position towards the achievement of the societal ambition.*

4.5.1 Position within the Top Sector LSH

Key players

In our study we identified 4 stakeholders as *key players,* who have high interest and high influence. These are the ministry of Economic Affairs (EZ), the ministry of Health, Welfare and Sports (VWS), health foundations and the UMC's. As the initiator of the Top Sector policy *EZ* has much interest in the Top Sector LSH. Thereby, the have the ability to influence the execution, because they participate in the secretariat of the Top Sector LSH and support the Top Sector with financial arrangements as the TKI-allowance and the MIT- regulation. *VWS* is represented in the top team and could therefore have much influence. VWS uses its influence mainly for agenda setting, in order to start PPPs, through ZonMw, on topics that are of their interest. *Health foundations* showed interest in the Top Sector policy because of the multiplayer effect. They are represented in the steering group and participate in PPPs. Despite the fact that only 5 of the 23 health foundations participated it is expected that they will become much more involved in the coming years, when the calls are improved. Thereby, their financial contribution is very welcome in these times of scarcity, therefore they probably have much influence on the scope of the agenda. *UMC's* are heavily represented in the

governance of the Top Sector LSH. In this way they have much influence on the scope of the agenda, that contains a high level of scientific content. This is important for them because a part of the scientific budget, in which they are interested, is allocated to the topics addressed on the agenda.

Subjects

SME's are a vulnerable group in the Life Sciences and Health sector. Investments in innovations in this sector go along with high risks. Therefore most SME's would benefit from financial support in R&D. The financial support that is provided by the Top Sector is however not satisfactory and not in line with their needs. The SME's are satisfied about the Health~Holland branding during economic missions and the role that the Top Sector plays when it comes to improvement of regulations and laws. All together their interest in the Top Sector LSH is high. Their influence however seems to be very low. A frequently heard complaint is about the involvement of SME's in the Top Sector LSH. Just a few SME's are active in the top team and steering group and there seems to be a moderate connection with the industry associations. SME's are therefore identified as *subject*, they have high interest though low influence.

Crowd

Health insurers are the largest missing partner in the Top Sector LSH, which made them categorised as *crowd*. They are not interested to invest in PPPs that are initiated by the Top Sector LSH. Health insurers seem to be only interested in investment of innovations that already have an added value for patients, while the PPPs in the Top Sector mainly have high scientific content. Furthermore, only one health insurer participates in the steering group. All together the health insurers seem to have less interest in the Top Sector LSH and have less influence.

Big companies

After the analysis big companies did not seem to fit any of the quadrants in the matrix. They are characterized by their independent position, when compared to the SME's. This is because the large industry appeared to be less in need of financial support. They do cooperate with knowledge institutions, however this is mainly based on contract research and happens outside the Top Sector. The incentive to collaborate with the Top Sector, and apply for TKI-allowance is low because the effort does not outweighs the little financial benefit. They as well appreciate the international branding during the economic missions and the attention on improvement of regulations and laws**,** which make them medium interested in the Top Sector LSH. When it comes to influence in the Top Sector the large industry is represented in the steering group and top team, though they could have more influence when they invest in PPPs.

4.5.2 Position towards the ambitions

Economic ambition

Figure 5 shows that the industry and the UMC's are supportive towards the economic ambition. For EZ and the industry it is not surprising given their economic position. The UMC's are supportive because their research is seen as the fundament of the industry. Therefore boosting the economy also means boosting this scientific sector. The only stakeholder that was 'undetermined' about this ambition was VWS. This is because they perceive the innovations of the current involved industry which are, bio- and medical technology and pharmaceutical innovations as 'cost driving innovations'. Boosting this economic sector therefore means in their perspective boosting the expenditure in

healthcare. VWS has more interest in social-cultural innovations and service innovations, which they perceive as innovations that are less likely to drive costs and could even make the healthcare more (cost)effective and contribute to vital functioning and quality of life. Boosting the more 'health' related industry that brings these type of innovations on the market is, therefore, in the interest of VWS.

Societal ambition

Figure 6 shows that most stakeholders have interest in the societal ambition and therefore are supportive. EZ is supportive from the perspective that a healthy society is good for the economy because people are able to work longer. VWS off course is supportive as it is their main task as government agency to encourage healthy behaviour, keep healthcare accessible for the entire society and improve and guard the quality of healthcare. UMC's are supportive as they conduct much research on new medicines or treatments that should increase the quality of life. Health foundations support such research because it is their main interest to increase the quality of life of the patients which they represent. Also health insurers seem to be positive, mainly from the perspective that health related innovations could decrease the healthcare expenses. The industry, including SME's and big companies, are supportive towards the ambition to contribute to vital citizens. However there was much discussion about the contribution to the societal challenge of affordable healthcare. They did not frame it as goal, but as a precondition. This is because they are willing to support to affordable healthcare, but on the other side they noticed that novel innovation in the beginning could be very expensive but in the end could lead to much cost savings. For this reason we have positioned them as moderately supportive.

5. Discussion

The Top Sector policy has the aim to strengthen the Dutch economy and contribute to societal challenges. Innovation serves as the unifying factor in order to achieve this aim. The Top Sector Life Science and Health is one of the Top Sectors with a dual ambition. Their ambition is to 'develop health related technological, biomedical, and social-cultural innovations that contribute to vital functioning and quality of life of all citizens, as well as affordability and productivity within the prevention, cure and care cycle. Innovation that, most importantly, create business value in the Netherlands as well as abroad.' (Health~Holland, 2015). However, doubts exist whether these ambitions will be achieved (AWTI a82, 2013). The likelihood whether a policy will achieve its ambitions depends mostly on which interests stakeholders have and what influence they have on the execution of the policy (Purdy, 2012). Conflicting interests and imbalance in power between stakeholders could hamper the achievement of the ambitions (Schön & Rein, 1996; Purdy, 20012). Therefore the objective of this study is to:

Assess the chance to achieve the ambitions of the Top Sector LSH by gaining insight into the stakeholders' interests regarding the Top Sector LSH and its ambitions, and into their influence on the execution of the policy

In the Top Sector LSH many different stakeholders are involved and affected by the policy. To identify their influence we analysed the scope of the agenda, the decision-making process and the participants in the Top Sector LSH. We identified their interests by researching their underlying frames, constructed by their motives, priorities, beliefs etc, which they have regarding the Top Sector LSH and the ambitions. In this chapter we will discuss the conflicting interests and imbalances in power that are found. Moreover, the effect of these differences on the achievement of the ambitions is discussed. Subsequently, recommendations are provided that could increase the success of the Top Sector LSH. In addition the methodology that is used is discussed.

5.1 Discussion about the results

5.1.1 Chance to achieve the economic ambition

The Top Sector LSH has the economic ambition to create business value in the Netherlands. This economic ambition is valued high as the agenda put emphasis on stimulating PPPs that create new and successful innovative networks and businesses, national and international, with openings to the foreign markets as well. This ambition is included since the top sector policy is basically a business policy. The private sector therefore should be an active stakeholder within the Top Sector LSH. However, the interest influence matrix shows that this is not the case. Both SME's and big companies are not key players in the Top Sector. As earlier explained, the SME's seem to have interest, though the top sector policy seems not to be aligned with their needs. Big companies on the other hand are interested in PPPs though the financial benefits do not outweigh the effort that must be made in order to receive it. Hereby the big companies seems to be reluctant to participate in the Top Sector Policy. In addition, it seems that the economic interest is not well represented within the governance.

Regarding the theory, authentic governance should include all stakeholders that have an interest in the governance (Purdy, 2012). In this study we found that the big companies and SME's are included, though they seem to be underrepresented in the governance. This might cause the poor alignment to the needs of SME's and the big companies. Thereby, the stakeholders that should benefit from the policy, like in our case big companies and SME's, also should have an interest in/give priority to the policy in order to make the policy a success (Sprat, 2009). However, we found that especially big companies do not have a high interest in the Top Sector LSH, which could cause their low incentive to collaborate. Taking this together it could be concluded that, as long as the big companies do not have the incentive to participate in the PPPs and the big companies and SME's are underrepresented in the governance there is little chance that the economical ambition of the Top Sector LSH will be achieved.

5.1.2 Chance to achieve the societal ambition

The societal ambition in the Top Sector LSH is 'create innovations that contribute to vital functioning and quality of life of all citizens, as well as affordability and productivity within the prevention, cure and care cycle.' It is hard to say what the chance for success is to achieve the ambition, but it seems that the current approach is very one-sided due to imbalance in power and conflicting frames. This will be explained in the following paragraphs.

Conflicting frames and imbalance in power

The topics that are addressed on the agenda tell something about the way the ambitions will be achieved (Purdy, 2012). The seven stakeholders on which we focused in our study seem to disagree when it comes to the implementation of the agenda regarding the societal ambition. Every stakeholder was positive regarding the ambition to contribute to vital functioning and quality of life. Though stakeholders seem to frame this ambition in different ways. VWS and health insurers are the only stakeholders that have interest in stimulation of social-cultural and service innovations. These type of innovations could arrange the healthcare system in such a way that it becomes more efficient and quality of care increases. Thereby these type of innovations could help people to stay vital or regain their vitality. Most other stakeholders, the current involved industry, UMC's and the involved health foundations, however, have interest in technological innovation in the area of bio and medical technology and pharmacy. The industry that is currently involved sells these type of innovations, UMC's conduct research on these type of technologies and the involved Health foundations are mainly interested in products that could heal 'their' patients. Yet it seems that the focus on technological innovations in order to reach the societal ambitions has the upper hand in the Top Sector LSH. Most likely because this type of innovation is economically most profitable and because the interest for social-cultural and service innovations is underrepresented. There are no companies involved nor knowledge institutions that have a lot of knowledge about social-cultural and service innovations. It is therefore doubtful whether these innovations will be fully supported if the majority of the participants is not interested in them. This could be seen as an imbalance in power, because these stakeholders should also be involved to set the agenda or to negotiate about the scope of the agenda.

Related to the latter is the discussion about the ambition to contribute to affordable healthcare. There seems to be much debate about the role of this ambition, mainly because the Top Sector has no clear vision about this goal. Most stakeholders frame this ambition as a precondition and not as a

goal in itself. This means that they are willing to bring innovations to the market that for as far as possible do not increase the cost of healthcare. Other stakeholders, like VWS and health insurers, however seem to be interested in innovations that tackle the rising costs and therefore frame this ambition as a goal in itself. Thereby VWS strongly beliefs that technological innovation ensures that the healthcare expenses rise even more and are therefore 'undetermined' towards stimulation of these innovations. This shows that the frames/interests of VWS and most other stakeholders within the Top Sector conflict with each other.

According to the literature conflicting frames could lead to intractable policy controversy, which could hamper the success of a policy (Schön & Rein, 1994; Hisschemüller & Hoppe, 1995; Grey, 2004). Grey (2004) describes that it is necessary to stimulate reframing when collaborating stakeholders have conflicting frames. She says "in order to find an acceptable solution to the conflict, the parties need to reframe some of their original interpretations about other parties, about the substantive issues, and/or about the process by which a decision will be reached." (Grey, 2004, p. 168). Reframing entails revising your frame by taking the counterparts view on the situation into consideration (Schön and Rein, 1994). In this way mutual understanding could be achieved which could help to find consensus (Grey, 2004), for example in this case about how to achieve the societal ambition. The Top Sector LSH therefore must encourage the different stakeholders to get into dialogue with each other and try to find consensus on how to achieve the societal ambition.

Altogether, it could be concluded that the current approach of the Top Sector may partly contribute to the societal ambitions. However the approach seems to be too much focused on technological innovations due to imbalance in power and conflicting frames. This seems to be a one-sided way of how to approach the societal ambition. More stakeholders with an interest in social-cultural and service innovations should be involved. Where after a proper dialogue between all stakeholders is needed about the means to achieve the societal ambitions. This could help to increase the chance to successfully achieve the societal ambition and contribute to societal challenges.

5.2 Findings in context of an earlier small case study

The conclusions from this study correspond with an earlier small case study on the Top Sector LSH from the AWTI. At first this study concluded that it is appealing for the government to follow the investment agenda of the industry (AWTI a82, 2013). In this way public money is worth more. Thereby it is more likely that innovative products will be applied. However, it was expected that as side effect the industry only invests in innovations that are economic profitable (AWTI a82, 2013). In this study we find strong indications that indeed participants invest in those PPPs that are most economic profitable, because 60% of the PPP are related to curative technologies, which are very economical profitable. Investments in other valuable innovations, that might be less economic profitable lack.

The second conclusion of the small case study was that mainly innovation in the organization, governance and management of healthcare is necessary to achieve the societal ambitions rather than new innovative products and technologies, on which the Top Sector seems to focus (AWTI a82, 2013). In our study we also concluded that the approach of the Top Sector to achieve its societal ambitions is very one-side. Despite the Top Sector broadened the scope of the agenda with social-cultural innovations, which could change the organization and management of the healthcare, it

seems that the emphasis is still on the more technological innovations. It is a novel insight that this is because the interest in social-cultural and service innovations is underrepresented in the governance of the Top Sector LSH.

5.3 Discussion of the methodology

5.3.1 Usefulness of a stakeholder analysis

The stakeholder analyses provided useful insights that were used to assess the chance for success to achieve the ambitions. By taking into account the many different stakeholders, acting from diverging interests, we saw that, conflicting interests indeed have influence on the execution of the policy. The three concepts that were used to assess the power stakeholders, namely: participants, process design and content/scope of the agenda, gave insight in how power is exercised in the Top Sector LSH. The Interest-Influence matrix thereby gave a good visual representation of the different positions of stakeholders within the Top Sector. The insights required by this matrix in relation with the position towards the ambition is novel and seem to be very useful to improve the Top Sector LSH.

The conceptual model that was used for the stakeholder analyses gained interesting insights, however also has some limitations. At first the concept frames was sometimes a bit hard to discover. We indentified the frames of stakeholders by asking how the stakeholders positioned themselves towards the policy, which aspects of the policy is in their interest and especially *why* this was important for them. However, as the literature already says, frames are tacit, 'we are tend to argue *from* our frames *to* our explicit policy position.' (Schön & Rein, 1994, p. 34). This means that no one really explicitly talks about his or her frame, which makes it difficult to gain insight into that frame. In some cases interviewees explicitly mentioned aspects of frames such as 'I really believe that...' or 'the way I perceive it is...'. In this way parts of frames were constructed, and we even found conflicting frames. However in cases where participants not explicitly mentioned aspects of frames, it required too much interpretation of the researchers during data analysis to construct a stakeholders' frame. In this way we were not able to identify the frames of all stakeholders. In future research we must try to ask more follow up questions to reveal the beliefs, values, perceptions and motives of stakeholders which are underlying aspects of their frames. Especially more 'why' questions, because then people are triggered to think about their reasoning and motives which could help to make these aspects more explicit. Thereby it would be helpful to construct the frames with a team, as they can build upon each other's findings and interpretations, 'two people see more than one'. In addition, working in a team is important because researchers are influenced by their own frame when constructing and interpreting frames of others (Schön & Rein), working with a team of analysers prevents this bias for the most part.

A second limitation was that we identified the influence/power of stakeholders regardless of their interests, however the scope of the agenda which is one of the ‘arenas of power’ cannot be seen in isolation from the interests that participants have. In this study we only identified the current scope of the agenda by identify the topics that are addressed. However it would also have been relevant to know what topics would be placed on the agenda if the stakeholder has the full power on the content. In that way it would be possible to see were consensus could be met and where interests seem to conflict. However, we did not ask the interviewees which topics they would place on the

agenda. Though, during the data analysis we were able for the most part to identify which topics are in favour of the different stakeholders, because via other questions some interviewees mentioned it.

A third limitation of this model is that it doesn't focus on the interaction between stakeholders. From the literature it appeared that interconnection between stakeholders also is an important concept to take into account (Ackermann & Eden, 2011). For example, one stakeholder's action can generate a response across a range of other stakeholder. In this way this particular stakeholder has much power and could influence the actions of other stakeholders (Ackermann & Eden, 2011). This specific type of power has not been identified in this study.

5.3.2 Participant composition

In this study we examined the interests and influence of seven stakeholders: Ministry of Economic Affairs (EZ), Ministry of Health, Welfare and Sports (VWS), the industry: SME's & Big companies, health foundations, health insurers and UMC's. These stakeholders were considered as important in the two exploring interviews and in our interviews the interviewees did not bring up other stakeholders and agreed on our focus. This implies that these seven stakeholders are a good representation of the important stakeholders in the Top Sector LSH. In the focus group however also two other stakeholders were mentioned as important, namely the Ministry of Social Affairs and the Ministry of Education, Culture and Science. Unfortunately we did not asked the participants why they considered these stakeholders as important.

In total thirteen people participated in our study (n=13). These included six of the seven important stakeholders as well as an representative of the governance of the Top Sector LSH. A big limitation in this study is that we have not spoken with a health insurer. We tried to arrange some interviews, however they were not interested to participate. The results about the health insurers are only based on what other stakeholders told about them. Therefore these results could be biased and might not represent the real position of the health insurers. Another limitation is the amount of participants. Per stakeholder we spoke with at least two people, which is a small sample. More interviews are necessary to validate our results. Though we spoke mainly with people who were representatives of the whole sector, like associations and alliances. This means that despite the small sample, it probably still provides a good overview of the different interests and influence of stakeholders.

5.3.3 Reflection on the methods

Strengths and limitations

The desk study, semi-structured interviews and focus group provided much data that deepened the understanding of the interests and influence of different stakeholders. A big strength of this study is the use of semi-structured interviews followed with a focus group. In this way the results from the interviews could be validated and deepened. During the focus group, the participants compared each other's experiences and opinions. This was a valuable source to gain insights into their position and underlying motivation. Thereby, from the data analysis it seemed that the results from the interviews were in line with the results from the focus group. Another strength of this study is the variety of stakeholders that we examined. In this way we gained a thorough overview of the positions of many stakeholders in the Top Sector LSH.

There are however some limitations, all about the design of the focus group. First, regarding the focus group, group interaction may influence the nature of the data it produces. Participants of focus groups might be influenced by the group interaction and may behave differently than during an interview. Homogenous groups diminish the negative effects of group interaction. However, we created a heterogeneous group. This could have an effect on the data, because participants might think twice before they say something. On the other side in a heterogeneous focus group a real discussion can take place between stakeholders, which also happened. This provides many insight in the different point of views between stakeholders. A second limitation of the focus group, was that it took long time to let every participant have their say. Especially when we used the interest – influence matrix in the second round not every participant got the time to explain their ideas. This was very limiting because some post-its were placed in total different places, but in some cases we do not know why these participants placed them there. Therefore there might be still some unknown interests and influences that are not expressed during the focus group. A third limitation of our design, also related to the matrix, was that the matrix was only used to gain insight into why the participants place the different stakeholders on a specific place. It would have been an improvement to have an extra matrix in which the seven stakeholders will be placed in consensus with the whole group. This would be an improvement, because then the matrix itself could also be used as input for our own matrix instead of only the discussion about the matrix.

Another strength and limitation of this study is related to the AWTI, who initiated this study. The AWTI was very helpful to get access to interviewees as well as contribute to conducting the interviewees. It has been experienced to be very useful to conduct interviews with more than one researcher, to be able to reflect during the interviews on the information provided and the gaps in information left. However, the presence of somebody from the AWTI could also have influenced the information given, since the AWTI is an important advisor to the government. We were aware of this, but did not find instances that confirmed this statement. It even seemed to have a positive effect, since interviewees were comfortable talking to a familiar face.

5.3.4 Data analysis

In order to analyse the data correctly, the several steps as described in our methodology improved the internal validity of this study. Open coding was used to find (sub)categories in the summary, where after the transcripts were coded with these categories. The categories were connected to our theory. The concepts formulated within our conceptual framework were recognized in the data, which indicates that the right questions were asked to the participants. This improved the validation of our data gathering and strengthened our information processing for our results However, as explained earlier during the analysis it was hard to construct the frames of stakeholders, because most participants did not explicitly mentioned their motives, reasons, beliefs etc. In future research we must ask more follow-up questions and especially more why-questions to make the frames more explicit.

5.3.5 External validity

Top Sector LSH is one of the nine appointed Top Sectors. Every Top Sector is characterised by its own set of stakeholders. For example, the Top Sector Energy has most likely no overlapping stakeholders with the Top Sector LSH. Therefore, the results of this study could not be validated external. Though

it would be interesting to know if the problems in the Top Sector LSH, like the involvement of SME's, are also occur in the other Top Sectors.

5.4 Recommendations

In this chapter recommendations will be suggested based on the findings in this study. The results indicate there are three main opportunities for the governance of the Top Sector LSH to improve their policy. Thereby one suggestion for future research is given.

5.4.1 Recommendation 1:

Involve more businesses and health insurers in the governance; From our results it appeared that the business community, including big companies and SME's, and health insurers are no key players in the Top Sector LSH. Both stakeholders are important in this Top Sector and should be involved better. The business community could be represented better in the governance of the Top Sector, currently there is no fair balance between the knowledge institutions and businesses. Thereby the TKI-allowance should be increased in order to make it more appealing for the industry to participate in PPPs. The Health insurers might need to be convinced of their added value in the Top Sector. Therefore take the initiative to engage in dialogue with them. Especially, because they could be an important stakeholder that is willing to invest in social-cultural and service innovations.

5.4.2 Recommendation 2:

Include more stakeholders with an interest in social-cultural and service innovations; This study showed that the interest in social-cultural and service innovations is underrepresented in the Top Sector LSH. In the Netherlands there are many knowledge institutions and researchers that work on these type of innovations as well as businesses that develop them. Involving these stakeholders will be a valuable addition to the diverse range of stakeholders in the governance. As our first recommendation is to establish better relationship with the business community it is recommended to include a company in the governance that is specialised in social-cultural or service innovation in health and life sciences.

5.4.3 Recommendation 3:

Focus the budget on specific themes along the prevention-cure-care cycle; The KIA has a broad scope. A broad agenda addresses the interests of many stakeholders which most likely keep them all satisfied. Requests for allowances must be related to topics that are addressed on the agenda. However, because most involved stakeholders have an interest in 'cure' related innovations, valuable innovations related to prevention and care are less stimulated. It is therefore recommended that the Top Sector LSH focuses the budget on specific topics or themes that cover the prevention-cure-care cycle. This does not mean that the scope of the agenda must be narrowed, the focus stays on Life Sciences and Health. It implies that specific topics or objectives should be addressed on which the Top Sector could focus its budget. More specific then the roadmaps because the roadmaps still address the entire range of innovations that are possible. A suggestion is that the Top Sector divided its budget over the three objectives: 1) Maintain health and functioning, focus on prevention, 2) Maximize effect, minimize burden, 3) Manage health and disease extramurally. In this way a diversity of innovations could be stimulated.

5.4.4 Recommendation 4:

Start a dialogue about how to achieve the societal ambition; Our results show that some stakeholders hold conflicting frames regarding the means to achieve the societal ambition. This hampers effective collaboration and therefore could hamper the achievement of this ambition. We recommend to start a dialogue between all stakeholders about how to achieve the societal ambition. In this way mutual understanding could be achieved which could help to find consensus. This could help to increase the chance to successfully achieve the societal ambition.

5.5 Future research

5.5.1 Recommendation 5:

Get insight into the interests of the Health Insurers; In this study we could not arrange interviews with health insurers. This is a huge limitation in our study. Therefore in order to validate our findings extra interviews must be arranged.

5.5.2 Recommendation 6:

Conduct a stakeholder analyses in other Top Sectors to see if there are overarching problems; This study could not be externally validated, which means that our results are not the same when we examined another Top Sector. Though it is possible that problems, such as the poor connection with the business community, also occur in other Top Sectors. Therefore it is recommended to conduct a stakeholder analysis in other Top Sectors to identify if there are any overarching problems. Once this is known the general Top Sector policy could be improved.

5.5.3 Recommendation 7:

Conduct research on how to stimulate innovation within prevention and extramural healthcare; This study showed that most participants were interested in technological/ intramural health care innovations whereby mainly one side of societal ambitions is achieved. It is therefore recommended to investigate how to successfully stimulate innovation within prevention and extramural healthcare, with in consideration the current budget that is available.

5.5.4 Recommendation 8:

Conduct an independent costs-benefit analysis of technological healthcare innovation; During this study it was frequently mentioned that technological innovation contribute to costs savings, however not in the prevention, cure and care cycle, but for example in decreasing social assistance from the ministry of Social Affairs. Until now no independent study has been conducted that analyses this type of financial benefit of these innovations. However, it would be helpful for the debate about cost savings in healthcare.

6. Literature

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Appendix I: Roadmaps

These are the ten roadmaps that are described in the Innovation Contract:

1. **Molecular diagnostics:** Development of candidate biomarkers into validated molecular diagnostics for clinical use.
2. **Imaging & image-guided therapies:** Development of imaging applications for more accurate and less invasive diagnosis and treatment.
3. **Homecare & self-management:** Development, assessment and implementation of technologies, infrastructure and services that promote clients' abilities to live independently and manage their own care, adequately supported by healthcare professionals .
4. **Regenerative medicine:** Development of curative therapies for diseases caused by tissue damage and ensuing organ dysfunction, through repair or renewed growth of the original tissue or replacement by a synthetic or natural substitute.
5. **Pharmacotherapy:** Discovery, development and stratified use of new, safe and (cost)effective medicines in order to cure or prevent progression along the healthcare chain.
6. **One health:** Development of solutions like vaccines, optimized antimicrobial use and early warning systems that improve health status of humans and animals by coupling the know-how and infrastructure available in the human and veterinary/agricultural domains.
7. **Specialized nutrition, health & disease:** Researching specialized nutrition for nutritional intervention as part of integrated health solutions in terms of prevention, cure and care of chronic, acute and rare diseases.
8. **Health technology assessment & quality of life:** Development of methods and knowledge for health technology assessments in which the impact of health innovations on quality of life, cost-containment and productivity is assessed
9. **Enabling technologies & infrastructure:** Development and offering of expertise and infrastructure in cutting-edge molecular life science technologies (e.g. next generation sequencing, proteomics and bioinformatics), in biobanks and in ultramodern research facilities, all readily accessible to industry and academia, and with existing, strong links to other Top Sectors (Agro-food, Horticulture, Chemistry, Biobased Economy and High Tech Systems and Materials)
10. **Global health, emerging diseases in emerging markets:** Development and delivery of solutions to diseases associated with poverty, which affect more than 2 billion people in the developing world.

Appendix II: List of interviewees and focus group participants

Interviewees:

Interview number	Type of stakeholder
1.	Government
2.	Industry
3.	Knowledge institute
4.	Industry
5.	Government
6.	Knowledge institute
7.	Health Foundation
8.	Government
9.	Industry

Focus group participants:

Interviewee number	Type of stakeholder
10.	Health Foundation
11.	Industry
12.	Knowledge institute
13.	Industry
14.	Knowledge institute
15.	Government
16.	Knowledge institute

Five from the nine interviewees and two of the 7 focus group participants were involved in the governance of the Top Sector.

Appendix III: Interview guide

Rol in / ervaring met de topsector LSH:

Wat betekent de topsector voor u?

Wat is jullie ervaring met de topsector LSH?

- *Hebben jullie bijeenkomsten bijgewoond?*
- *Hebben jullie samengewerkt?*
- *Hoe verliep de samenwerking?*

Wat heeft de topsector lsh jullie tot nu toe gebracht?

- *Positieve punten / negatieve punten?*

Hoe zien jullie je rol in de topsector LSH?

Positie t.o.v doelen:

Wat zijn volgens jullie de doelen/ambities van de topsector?

-doorvragen waarom ze ze …belangrijk, goed, niet goed vinden?

Wat waarderen jullie aan de gestelde doelen?

- *Wat is jullie aandeel als het gaat om het versterken van economische waarde van deze sector?*
- *Wat is jullie aandeel als het gaat om het verlagen van de zorgkosten?*

Wat zijn mogelijke struikelpunten van het stellen van deze doelen?

- *Zijn er verliezers en zo ja wie zijn dat?*

Wat brengen de doelen teweeg in uw sector?

- *Leeft de doelstellingen binnen de sector, wat merken jullie ervan?*
- *(Waarom) is de topsector een goed middel om de economische positie nationaal en internationaal te versterken? Waarom wel waarom niet?*
- *(Waarom) is de topsector een goed middel om de zorguitgaven te verlagen? Waarom wel waarom niet?*

Hoe denk je dat andere stakeholders staan ten opzichte van de doelen?

- *Overheid, universiteit, verzekeraars, bedrijfsleven*

Invloed in de topsector:

Voelen jullie de ruimte om input te leveren wat betreft de ‘inhoud en uitvoering’ van de topsector?

- *Hebben jullie wel eens input gegeven? Wat werd daar mee gedaan?*
- *Zijn jullie op de hoogte van besluiten die genomen worden?*
- *Worden jullie betrokken in de besluitvorming?*

Denken jullie dat alle belangen als het gaat om de gestelde doelen vertegenwoordigd zijn? Wie missen er?

Wie zijn volgens jullie de belangrijkste stakeholders in de topsector?

Appendix IV: Focus Group Design

Doel van de focusgroep:

Toetsen en aanscherpen van de resultaten uit de interviews en gezamenlijk nadenken over mogelijke verbeteringen van het topsectorenbeleid en de uitvoering ervan.

Deelnemers:

We hebben gekozen voor een heterogene groep met een brede vertegenwoordiging vanuit de topsector. Dit helpt bij het krijgen van inzicht in hoe de verschillende partijen staan in de topsector. Ook zijn we erg benieuwt naar de gesprekken die zullen plaats vinden tussen de verschillende personen, dit zal ook veel inzicht geven in de onderlinge relaties en verschillen in perspectief op bepaalde onderwerpen.

Algemene taakverdeling:

Facilitator: Facilitator leidt de focus groep. Hij/zij faciliteert de discussie tussen participanten zoveel mogelijk. De facilitator voert samen met de participanten de opdrachten uit. Houdt de tijd in de gaten en zorgt ervoor dat alle participanten aan het woord komen en alle relevante topics behandeld worden.

Monitor: De monitor assisteert de facilitator tijdens de focusgroep. Hij/zij voorziet iedereen op het juiste moment van post-its en andere benodigdheden. De monitor let ook op de tijd en waarschuwt de facilitator wanneer het tijd is om naar de volgende ronde te gaan. Daarnaast schrijft de moderator tijdens de 'open discussie' op een flipover wat er gezegd wordt en maakt hij/zij foto's van de influence-interest matrix.

Observeerder: houdt de tijd bij, let op waar de discussie en opmerkingen heengaan en of de 'leidende vragen' in de discussie aanbod komen. Maakt aantekeningen over het proces en de inhoud van de focusgroep.

Welkom en introductie (duur: 30 min)

- Welkom
- Kennismakingsronde
- Presentatie over eerste bevindingen van het onderzoek

Doel:

het doel is om de participanten welkom te heten, elkaar te leren kennen en een introductie te geven over het onderzoek en de eerste bevindingen te delen.

Welkom (5 min)

De facilitator, moderator en observator worden voorgesteld aan de groep. De aanleiding van het onderzoek wordt kort verteld. Vervolgens worden de algemene gang van zaken besproken om meer duidelijkheid te geven over het verloop van de focus groep en de verwachtingen van de facilitator.

Kennismakingsronde (10 min)

In deze ronde wordt door de facilitator aan de participanten gevraagd zich voor te stellen: naam + werk. Zodoende leren de partcipanten elkaar een beetje kennen en voelen ze zich vrij om te zeggen.

Presentatie (15 min)

In de presentatie wordt de aanleiding van het onderzoek kort toegelicht. Het topsectorenbeleid wordt in het kort uitgelegd.

- Wat is het topsectoren beleid?
- Aanleiding van het onderzoek: gestart als bedrijvenbeleid, maatschappelijke doelen worden ook opgenomen. Gaat dit goed samen of botst dit ook?
- Topsector LSH: de doelen
- Stakeholder analyse:
  - de verschillende stakeholders in het veld: een overzicht
  - Hoe staat ieder tegenover de topsector en zijn doelen?
- Eerste resultaten/ wat is opgevallen?:
  - het doel maatschappelijke doel 'bijdragen aan betaalbaar houden van zorgkosten' is onduidelijk, wat wordt er onder verstaan en hoe draagt de topsector er aan bij?
  - steeds meer partijen betrokken

We beseffen dat het geven van de eerste bevindingen een sturend effect heeft op het gesprek. We zullen onze bevindingen nog niet als conclusies presenteren, maar als 'wat ons is opgevallen'. Op die manier geven wij een beetje sturing aan de gevolg gesprekken, zodat onze bevindingen getoetst kunnen worden. Anderzijds stellen we ons op deze manier ook open op, zodat participanten de ruimte voelen om er op te reageren en eventueel aanvullende 'bevindingen' te benoemen.

Ronde 1: Interest-influence matrix (duur: 40 min)

- Uitleggen & uitvoeren interest/influence matrix
- Vergelijken van uitkomst en eerste reflectie

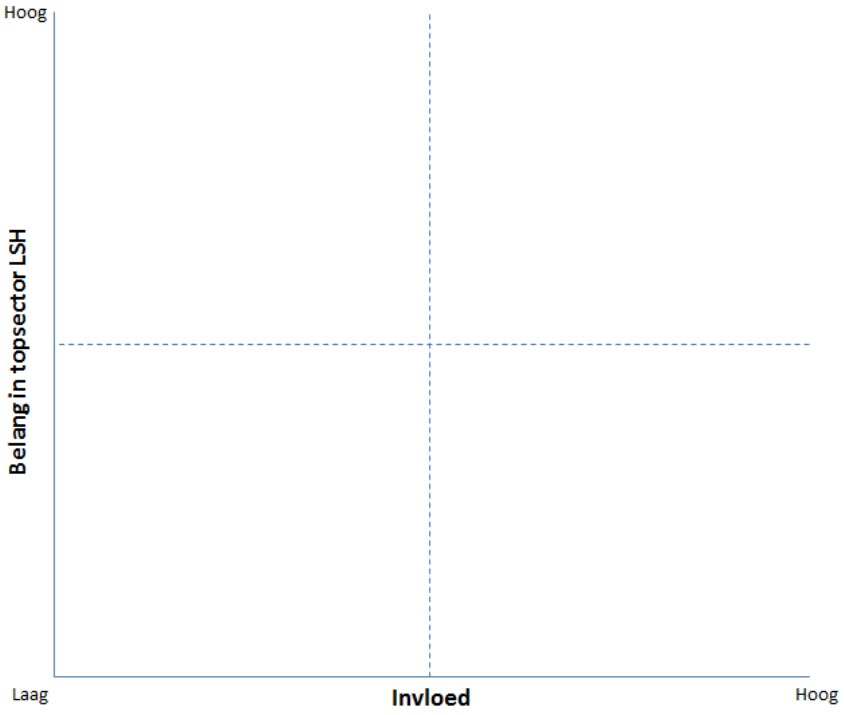
Doel: het doel is tweeledig enerzijds inzicht krijgen in wat het relatieve belang is van verschillende partijen in de topsector LSH en wat hun invloed is. Anderzijds dat de participanten bewust worden van wie zich begeven in het veld van de topsector en wat hun belangen zijn en hoe ver hun invloed reikt.

Uitleggen en uitvoeren interest-influence matrix (10 min)
elke participant krijgt 7 post-its met de volgens ons onderzoek belangrijkste stakeholders erop:

- Vws
- EZ
- Gezondheidsfondsen
- Zorgverzekeraars
- Kennisinstellingen
- Grote bedrijven
- Mkb

Daarnaast krijgen ze ook lege post-its voor het geval ze vinden dat er een belangrijke stakeholder in het rijtje mist (de post-its zijn voorzien van initialen waardoor achteraf te achterhalen is waar iemand de post-it geplakt heeft). Vervolgens mag iedereen deze post-its naar eigen inzicht plaatsen in de

matrix. De verschillende vakken worden nog kort toegelicht en er is ruimte voor vragen als het nog niet duidelijk is. Belangrijk is dat de participanten weten dat er geen goed of fout antwoord is, zij zijn de experts en wij zijn benieuwd naar hun ideeën. Past een stakeholdergroep niet specifiek in 1 vak dan mag die ook op een scheidingslijn geplakt worden. Heeft een participant geen idee waar een bepaalde stakeholder geplaatst kan worden, is het mogelijk om deze stakeholdergroep over te slaan en deze post-it naast de matrix te plakken. Hieronder volgt een afbeelding van de matrix



Bespreken van de matrix (30 min)

Wanneer iedereen weer terug is op zijn plek gaat de facilitator elke stakeholdergroep langs en bekijkt waar deze zich op de matrix bevind. Belangrijk is om te vragen waarom participanten de stakeholder op die plek geplakt hebben. Ook wanneer er onderling veel verschillen zijn, bijvoorbeeld de stakeholder VWS is terug te vinden over heel de matrix, is het interessant om te vragen waarom dit zo is en de participanten de ruimte geven elkaar te bevragen. Er hoeft geen consensus te komen over waar welke stakeholder moet staan. De opdracht is puur om inzicht te krijgen in wat de participanten denken wat betreft de plek van verschillende stakeholders in de topsector LSH.

Als laatste vraagt de facilitator of de stakeholders op hun ‘wenselijke’ plek staan. Bijvoorbeeld iemand heeft VWS in het vak ‘veel belang/weinig invloed’ geplaatst en vind het wenselijk wanneer VWS meer invloed krijgt in de topsector. Ook hier is het belangrijk om te vragen waarom dat wenselijk is en wat de mogelijke redenen zijn waarom die stakeholder niet op de ‘wenselijke’ plek staat.

Leidende vragen in dit gesprek:

- *Waarom heb je ervoor gekozen deze hier te plakken? -> zijn jullie het hier mee eens, wie wil hierop reageren?*
- *Welke partijen staan op een plek waar ze eigenlijk niet zouden moeten staan, waar moeten ze wel staan?*
- *Wie zijn de belangrijkste spelers in het veld en waarom?*

Ronde 2: Open discussie/gesprek over trade-offs en verbeterpunten (45 min)

- Openen van discussie
- Verbanden leggen tussen matrix en belemmeringen
- Verbeteringen/ aanbevelingen verzamelen

Doel: Een open discussie voeren met de participanten om inzicht te krijgen in wat het effect is van de verschillende belangen en invloeden op het behalen van de gestelde doelen van de topsector LSH (waar botst het/ wat zijn de trade-offs) en vaststellen wat er mogelijk veranderd/verbeterd moet worden aan het topsectorenbeleid en/of aan de uitvoering van het beleid om de doelen te bereiken.

Gesprek over trade-offs en mogelijke verbeterpunten

In deze ronde willen we dat de participanten met elkaar in gesprek gaan over de doelen van het topsectoren beleid en wat mogelijk belemmeringen zijn en verbeterpunten om de doelen te bereiken. We hebben bewust gekozen om geen (creatieve) werkvorm te gebruiken om zo echt ruimte te geven aan de discussie, zodat de participanten hun verhaal kunnen vertellen en op elkaar kunnen reageren. Het gesprek wordt gestart met een hoofdvraag die het kader aangeeft voor het gesprek. Deze is als volgt:

'Waar bevinden zich mogelijke trade-offs tussen economische en maatschappelijke doelen en hoe kan hier mee worden omgegaan?'

Tijdens het gesprek zullen de verschillende doelen die de topsector LSH beoogt te halen in beeld worden gebracht op een powerpointslide, zodat te alle tijden de participanten hier zicht op hebben. Participanten krijgen de ruimte om met elkaar in gesprek te gaan, delen hun belemmeringen en verbeterpunten en er zal gevraagd worden of deze herkend worden.

De facilitator zal zich zoveel mogelijk op de achtergrond houden zodat de participanten echt met elkaar het gesprek aangaan. De facilitator let goed op of iedereen aan de beurt komt en vraagt door wanneer dit nodig is. In het achterhoofd houdt de facilitator nog enkele deelvragen om het gesprek meer diepgang te geven:

- *In hoeverre draagt de topsector LSH (alle partijen op de matrix) bij aan het economisch vooruitbrengen van deze sector? Wat zijn mogelijke belemmeringen? Wie herkent dit?*
- *In hoeverre draagt de topsector LSH (alle partijen op de matrix) bij aan de kwaliteit van leven en besparing in de zorgkosten? Wat zijn mogelijke belemmeringen? Wie herkent dit?*
- *Wat zijn mogelijke verbeter punten?*

Belangrijk is dat dit een open gesprek blijft, waar niet met vingers gewezen wordt naar ‘de ander’. Aan de facilitator de taak om deze sfeer goed in de gaten te houden en hierop te wijzen wanneer dat nodig is.

Tijdens het gesprek worden de trade-offs die de participanten noemen samengevat/kort opgeschreven op een flip-over door de moderator, zodat iedereen zicht houdt op wat er is gezegd. Dit zelfde geldt voor eventuele verbeterpunten. Dit helpt de participanten ook om op elkaar te reageren. Aan het eind van de ronde probeert de facilitator in samenspraak met de participanten samen te vatten wat de grootste belemmeringen zijn en wat de mogelijke verbeteringen zijn.

De rol van de matrix in deze ronde:
wanneer men een bepaald probleem aangeeft, kan er gewezen worden naar de matrix en de vraag gesteld worden of het belang/invloed van een bepaalde partij de oorzaak is, of dat een ander probleem ten grondslag ligt. Wanneer men spreekt van een verbetering kan ook gevraagd worden wie van de stakeholders de verbetering zou moeten uitvoeren.

Afsluiting (5 min)

De participanten worden hartelijk bedankt voor hun deelname en er wordt nog gevraagd hoe ze het ervaren hebben. Daarna staat de borrel klaar!