The role of public-private partnerships in healthcare innovation

Master thesis to obtain the degree of

Master in business economics

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conducted by

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L’union fait la force
healthcare
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organizations
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<tr>
<td>AMC</td>
<td>academic medical centre</td>
</tr>
<tr>
<td>BIS</td>
<td>Biotechnology Innovation Scoreboard</td>
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<tr>
<td>BOLB</td>
<td>buy, own, lease back</td>
</tr>
<tr>
<td>BOO</td>
<td>build, own, operate</td>
</tr>
<tr>
<td>BOOT</td>
<td>build, own, operate, transfer</td>
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<tr>
<td>CAS</td>
<td>complex adaptive system</td>
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<tr>
<td>CC</td>
<td>collaboration continuum</td>
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<tr>
<td>CEO</td>
<td>chief executive officer</td>
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<tr>
<td>COPD</td>
<td>chronic obstructive pulmonary disease</td>
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<td>CRM</td>
<td>customer relations management</td>
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<td>CSR</td>
<td>corporate social responsibility</td>
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<tr>
<td>DALY</td>
<td>disability-adjusted life years</td>
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<tr>
<td>DBF</td>
<td>dedicated biotech firm</td>
</tr>
<tr>
<td>DBFO</td>
<td>design, build, finance, operate</td>
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<tr>
<td>EIS</td>
<td>European Innovation Scoreboard</td>
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<td>EMBL</td>
<td>European Molecular Biology Laboratory</td>
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<td>EPO</td>
<td>European Patent Office</td>
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<td>EPR</td>
<td>electronic patient record</td>
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<td>EU</td>
<td>European Union</td>
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<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>GDP</td>
<td>gross domestic product</td>
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<tr>
<td>GmbH</td>
<td>Gesellschaft mit beschränkter Haftung</td>
</tr>
<tr>
<td>GP</td>
<td>general practitioner</td>
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<td>GSI</td>
<td>government support institution</td>
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<tr>
<td>HRM</td>
<td>human resource management</td>
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<tr>
<td>IPPPH</td>
<td>initiative on public-private partnerships for health</td>
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<tr>
<td>IT</td>
<td>information technology</td>
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<tr>
<td>MRSA</td>
<td>methicillin-resistant Staphylococcus Aureus</td>
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<td>MV</td>
<td>Medicon Valley</td>
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<tr>
<td>NHS</td>
<td>national health service</td>
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<tr>
<td>PFI</td>
<td>private financial initiative</td>
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<td>PMV</td>
<td>Participatiemaatschappij Vlaanderen</td>
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<td>PPC</td>
<td>public-private collaboration</td>
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<td>PPP</td>
<td>public-private partnership</td>
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<td>PSRO</td>
<td>public sector research organization</td>
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<tr>
<td>R&amp;D</td>
<td>research and development</td>
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<tr>
<td>RJV</td>
<td>research joint venture</td>
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<tr>
<td>SARS</td>
<td>severe acute respiratory syndrome</td>
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<tr>
<td>TMT</td>
<td>top management team</td>
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<td>TTO</td>
<td>technology transfer office</td>
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<tr>
<td>U.K.</td>
<td>United Kingdom</td>
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<td>U.S.</td>
<td>United States</td>
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<td>VC</td>
<td>venture capital</td>
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Healthcare professionals, policy makers and other relevant stakeholders in healthcare face similar challenges in most Western countries. The urgency of reducing governmental deficits while remaining the accessibility and quality levels of care forces anyone involved to creatively think how to design future healthcare systems and contemplate the responsibilities of both public and private partners in it. Regardless of the paradigm on how to design the healthcare system, most governmental policies and organizations’ strategies point out the importance of organizational flexibility and investments in innovations in order to develop future therapy breakthroughs and establish competitive and solid organizations.

The aim of this research is to explore the past and present experiences on public-private partnerships in healthcare, and analyze the described influences of partnerships on innovative strength. The bottom-line objective is to make a basic structure using existing information on innovating via public-private partnerships in order to provide a fundament for further research or partnership analysis.

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Furthermore, I declare that the contents of this thesis may be consulted and / or reproduced, whenever correctly cited and with source acknowledgement.

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Tim van de Grift
Introduction

Entering the second decade of the 21st century, current dynamic world is going through processes of major changes. The complexity of those processes and the continuously changing context in Western societies has major impacts on both healthcare demand and organization. Healthcare professionals, policymakers, scientists and private actors in this sector are in an ongoing process of defining and anticipating on present and future developments and challenges. Most relevant challenges in healthcare can be subcategorized in demographic, social, epidemiologic, medical and technological, and cost developments (Ministry of Health, Welfare and Sport, 2009).

Demographic developments

The most noticeable development in demographic composition is the aging of the Western population. Many healthcare problems are a result of both the aging baby boom generation, the increasing life-expectancy and the decreasing future labor capacity. Either an increasing labor productivity or a higher percentage of the society working in healthcare is needed in future to remain current levels of cure and care. Additionally, an increasing number of people (especially women) is participating in formal labor markets. Therefore informal care decreases which puts more pressure on professional healthcare.

Social developments

In the social characteristics of Western society several developments can be observed. In first place the assertiveness of citizens; people feel free to express their feelings, thoughts, and desires as they stand up for their perceived rights. Secondly, the increasing gap between health status of higher and lower socio-economic subgroups. Education and socioeconomic status are becoming more important determinants on health and life expectancy. For example the difference in life expectancy between high and low educated men in the Netherlands is 7 years. The difference in (perceived) healthy life years (disability-adjusted life years (DALYs)) between these groups is 19 years (Ministry of Health, Welfare and Sport, 2009). Thirdly,
major changes in Western lifestyle can be observed; alcohol, drugs, cigarettes and unhealthy food become more common.

Epidemiologic developments

The actual composition and prevalence of diseases in society is shifting as well. There is a rising threat of infectious diseases; the increasing mobility of people and openness of societies enhances the globalization of diseases. This causes two infectious developments. In first place the threat of periodic epidemic outbreaks of infections (e.g. SARS, bird flu and swine flu). Secondly a pattern of geographic movement of permanent infections can be observed. An example is the West Nile virus which is observed in France and Italy. Concerning infectious diseases a threatening development is the resistance of pathogen bacteria to antibiotics. The most striking example is the MRSA bacteria. Another major epidemiologic development is that a growing number of people in Western society will be diagnosed lifestyle related diseases; diseases which are mostly correlated with the person’s daily life. Diseases like coronary heart pathology, obesity, hypertension, COPD, and diabetes are putting significant pressure on the healthcare system.

Medical- and technological developments

Concerning the past social changes and current possibilities of healthcare, there have been an explosive growth of possibilities past decades. Although most of the technological developments focus on the cure segment of healthcare, a rising number of care innovations are being realized. Three major pillars of technological changes are enabling technologies (nanotechnology, biotechnology, information technology and imaging), personification of medicine (study of the human genome combined with high technological personified biosynthesis) and information technologies (increasing availability of information creates qualitative improvement of decision-making on both personal and population level).

Healthcare costs developments

All previous developments are being analyzed within the frame of a disproportional rise of healthcare costs. For most Western countries the costs of healthcare are increasing faster than their gross domestic product (GDP). In macro-economic perspective, the income elasticity of healthcare products demand (Ey > 1) explains the fact that the rise of health cost is a logic resultant of the growth in collective welfare. This trend can be partially explained by general previously stated developments such as the shift in disease composition, assertive patients,
higher demand on diagnostic methods, higher standards and state of the art medicaments. Moreover, remuneration developments are a major factor in cost development. In healthcare the Baumol effect has led to a divergence of remunerative expenses and labor productivity.

Previous paragraphs point out the importance of continuous adaptation and proactive behavior of the total healthcare system. In a changing context, healthcare services need to be up-to-date to remain both quality and accessibility levels. Existing developments create difficulties for current actors in healthcare, but might also create opportunities for the same players in enhancing their current position as well for new entrants in obtaining a position in the system. Strategic power of actors in the evolving healthcare system is essential to remain both competitively viable in the market and long-term financially sustainable.

Innovation is concerned to be highly effective in designing strategic options which can create organizational competitive advantages. As a result innovation has become a critical capability of all healthcare organizations. Innovation can be defined in many ways. In their article Länsisalmi et al. define innovation as the intentional introduction and application within a role, group, or organization, of ideas, processes, products or procedures, new to the relevant unit of adoption, designed to significantly benefit the individual, the group, or wider society. According to the authors this definition is largely accepted among researchers in the field, as it captures the most important three characteristics of innovations: (a) novelty, (b) an application component and (c) an intended benefit (Länsisalmi et al., 2006). From the patient’s point of view, the intended benefit is a better quality of life through better health or less suffering due to illness. From an organizational point of view, the desired benefits are often enhanced efficiency of internal operations and quality of patient care.

Healthcare is considered to be among the best endowed of all industries in the richness of its science base. However, this does not imply an overall innovative strength or richness. There is no such thing as a homogenous healthcare system. The various value chains and processes in healthcare involve many partners. Therefore the density and composition of actors per domain may be significantly different. The characterization and impact of the environmental developments is different throughout the healthcare domains too. Nevertheless, a common objective for all players is to reduce healthcare costs while improving quality. On one hand, public and private players in the field are forming new kinds of cooperative networks with the aim of providing more efficient and comprehensive healthcare services better quality for patients. On the other hand, rapid advances in medicine and technology offer attractive
opportunities for radical new medical practices. Literature however shows that there is still a gap between scientific evidence and actual practice.

Different players in healthcare should be able to gain innovative advantage out of the (innovative) diversity among the involved players. Although formalized cooperations between public and private actors in healthcare are a relatively novelty, the delivery of health care in many countries already involves some form of public-private partnership (PPP). In countries where care is delivered mainly through the public system, many inputs, such as pharmaceuticals and support services, are sourced from the private sector. In countries with predominantly privately owned facilities, the state influences their configuration through regulations and financial incentives. In general, in hospitals the situation is further complicated because of the many functions provided by such institutions: the training of healthcare professionals, and research and development (R&D) – for example – are activities that are publicly funded (McKee et al., 2006). Due to the novelty of this phenomena and existing skepticism in both public and private field, literature on public-private partnerships is – although the number is increasing over time – not widely present. The potential creation of innovative value specified for PPPs in healthcare institutions has not been has not been subject of many researches as well. When considering the present and future challenges (going along with opportunities) in healthcare, and the large number and variety of actors involved, inter-institutional partnerships seem to be inevitable. Besides the fact that public and private partners operating in healthcare might have different roles in the system, there are also major differences in organizational management, innovation patterns and scope on shared working fields.

This all together makes it relevant to do additional research on PPPs and innovative opportunities using existing literature to apply to diverse healthcare PPPs-cases. The main objective of this study will be to research the central question: to which extent are participants in public-private partnerships able to gain innovative- and strategic power out of inter-institutional cooperation in healthcare? The literature concerning the central problem will be analyzed in three sub domains: (1) the specific characteristics of innovation in healthcare and the implications for organizations’ strategic positions, (2) the past and current role of public-private partnerships in healthcare and (3) the ethical and empirical limitations considering public-private partnerships in healthcare. Available and applicable theory will be used for in-depth analysis of cases of PPP in healthcare, and additional semi-structured interviewing.
Problem definition

To which extent are participants in public-private partnerships able to gain innovative- and strategic power out of inter-institutional cooperation in healthcare?

1. What are specific characteristics of innovation in healthcare and the implications for strategic positions?
   - How can innovation provide strategic advantages in healthcare?
   - What are specific patterns of innovation in healthcare?
   - How can public-private partnerships lead to innovation for healthcare institutions?

2. What is the past and current role of public-private partnerships in healthcare?
   - How are public-private partnerships used in past and current society?
   - How are public-private partnerships used in past and current healthcare?
   - How can public-private partnerships lead to innovation for healthcare institutions?

3. Which limitations can be analyzed considering public-private partnerships in healthcare?
   - Which ethical remarks can be made when analyzing public-private partnerships in healthcare?
   - Which empirical issues have been described in past and current practice of public-private partnerships in healthcare?
1. Strategic innovation in healthcare

What are specific characteristics of innovation in healthcare and the implications for strategic positions?
1.1 Introduction

1.1.1 Definition

Although innovation and creativity are often used terms, no widely used agreements among the users of these concepts can be distilled. Nevertheless a fundamental difference between the two concepts can be distinguished; from a theoretical starting point creativity can be seen as the initial stage of innovation. In other words, all innovations arise from a creative idea by an individual, group or whatsoever. Eaton et al. translate this approach into four assumptions when studying innovation (Eaton et al., 2006):

- creativity is the generation of creative ideas
- innovation is the successful implementation of creative ideas
- for something to be classified as creative it has to be novel to the unit of adoption
- anybody in any role (and at any hierarchical level) can be creative and have creative ideas

Furthermore creativity in organizations appears in forms which might have never been seen in the organization or sector. On the other hand obtaining, combining and implementing existing information which is new to the status quo is considered to be creative and potential innovative as well (Eaton et al., 2006). Where innovativeness can be seen as a typical organizational ability, creativity arises from individual competences. Therefore – since innovation is a vital capability of organizations – individual creativity is of great importance when analyzing innovation.

In 1939 Schumpeter defined innovation as a change in production process. Both changes in products and processes can be distinguished in this context. Characteristic in this definition is that innovation is not solely caused by changes in input, but rather by changes in transformative processes. Small innovations have the potency to generate gradual changes in organizational practices. Innovations also hold the power to catalyze fundamental distortion in
economic paradigms; the concept of creative destruction. Whereas innovation will form new frameworks for organizations, over longer periods businesses find themselves to be in a rather stable cyclic evolution. The equilibrium in which organizations move over time defines Schumpeter as economic waves or business cycles. Essential capabilities for organizations in surviving the waves are entrepreneurship, responsiveness, and creative and innovative strength (Schumpeter, 1939 in Kok et al., 2005).

1.1.2 Definition in service orientated sectors

Despite the straight definition by Schumpeter, the relevance of innovation as a product based process appears to be less relevant in service dominated sectors in some healthcare sub domains. Kok et al. question whether service sector innovations can be defined and measured equally as technological sector innovations. The authors therefore propose a broader definition in which all renewal of product, services and processes can be seen as innovative. Consequently this approach covers both product- and process-level innovation but also service- and organizational based innovation. It is in this context that the term social innovation is added to the analytical framework. Social innovation covers all the non-technological innovations in an organization. Examples of social innovations are reorganizations, human resource management (HRM), occupational health programs and corporate talent management programs (Kok et al., 2005). Researchers tend to approach organization’s innovative analysis with certain prudence, since many social changes do not necessarily directly lead to changes in productivity or significant process changes.

In this research innovation will be analyzed from a broader perspective, covering both Schumpeter’s technological transformative innovation and additional social innovation. Due to the diffuse character of healthcare innovation and the organizational complexity a more applied and comprehensive approach is chosen. Additionally there is a focus on both individual and social characteristics. In line with this approach a more pragmatic definition is adopted from Fleuren et al.: innovation stands for an idea, practice, or object that is perceived as new by an individual or other unit of adoption (Fleuren et al., 2004).
1.1.3 Characteristics of innovation

Traditionally the competitive advantage of organizations was mostly a function of possession of assets, access to capital and economies of scale. But more recently a more contemporary approach has been developed, in order to anticipate on the more complex and dynamic context. Creativity and the effective translation of ideas into valuable innovations has become a new standard in improving competitiveness (Eaton et al., 2006).

In order to enhance and remain their competitiveness organizations with all sorts of strategic approaches can benefit from innovation. More specific, innovations can provide organizations clearly firm specific advantages to produce cheaper, better and faster. On the other hand, competitor’s innovations might become the fundamental conditions for the organization to operate. A new standard on price, distribution, product characteristics etc. will be formed. With the intention of surviving there is a great need for both proactive and reactive innovation: both intrinsic and adoptive innovation. In general two pathways in strategic value creation can be differentiated corresponding with two generic strategic approaches. In **low-cost competitive sectors** organizations can decrease costs via process innovations. This results in either increased margins in case of fixed prices or in higher sales when decreasing prices. On the other hand **differentiators** benefit most from product innovation which improves their ability to distinguish themselves and create higher perceived consumer value (Kok et al., 2005).

Intrinsic innovations become most advantageous in environments in which competitors need significant periods to adopt changes. The longer it takes to adopt other’s innovations, the longer the organization can remain its competitive advantage. On the other hand, consumers benefit more from innovations to be common practice as quick as possible, since this availability enhances competition and decreases prices. In healthcare this contradiction of interest is most visible in the pharmaceutical industry and their development of medical therapies. The ambiguous relation between pharmacy companies and the greater social context might create certain tension. In first place there is a discrepancy between the cost of initial drug discovery and exploitation (proactive, intrinsic innovation) and the development of a generic version of this medication (reactive, adoptive innovation). The crux in this case is the consideration between (1) the importance of new drug discovery, (2) the recognition of intellectual rights, and (3) the ability and willingness to pay for previous demands. With the threat of immediate copies, there is less incentive and less viability for those companies, since
intrinsic innovation would cause competitive disadvantages. A second determinant of in-
house innovation stimulation are the irreversible sunk costs. Although the exact costs of
innovations vary, in general proactive intrinsic innovation is more expensive than reactive
adoptive innovation. In cases of greater market- and innovation uncertainty, higher
irreversibility of costs and organizational changes that need to go along with the innovation,
there is a greater tendency of adopting other’s innovations (Kok et al., 2005).

The previously paragraphs outline the applicability of the generic innovation approaches on
competitive advantage in healthcare. But on the other hand there are certain major remarks
that need to be made when analyzing non-profit healthcare institutions such as hospitals,
nursing homes psychiatric institutions and their competitive context.

Traditional markets are usually characterized by firms which innovate to maximize profit and
shareholder’s value and consumers who are able modify market conditions via changes in
demand. This mechanism is in the healthcare context rather deformed since most patients do
not buy their care themselves but via insurance companies. A potential pitfall arises when
healthcare institutions are focusing their product- and process design on the insurance
companies rather than on the patients they serve. Concluding, the traditional mechanism of
supply/demand and welfare maximization can only be applied to healthcare when insurance
companies can represent patients effectively.

A second difference is the capital structure by which healthcare organization’s operations are
financed. Most institutions are highly depending on governmental financing. Hospitals are
only seldom financed by shareholders equity. In some countries it is officially forbidden to
pay profits to shareholders as dividends, whereas profits need to be reinvested in care. On the
other hand, public care providers are not likely to attract liquidities on capital markets either.
This governmental liability causes two major issues; in first place governmental dependence
creates greater delays in innovation and less flexibility. Secondly the relatively stable inflow
of financial resources creates a rather passive position towards remaining competitive (Kok et
al., 2005).

Flikkema and Jansen analyzed specific innovation patterns of service organizations. Apart
from the competitor adopted innovation they distinguish five characteristics of proactive
service innovations (Flikkema & Jansen, 2004):
1. innovation dominated by suppliers: organizations adopt technological renewals which are developed outside the organization. Adopting organizations have limited influence on the composition of the innovation

2. innovation from within: the incentive to innovate originates from within the organization. Members of organizations are able to address and develop changes

3. customer driven innovation: the service organizations innovates as a result of visible customer needs. These innovations are a result of explicit formulated preferences, rather than on general (latent) market preferences

4. innovation via services: the supportive service provider influences the innovation processes which takes place at their customers and vice versa. A two way knowledge flow is interweaved with both partner’s innovations

5. paradigmatic innovation: some innovations influence the total organization’s value chain. These revolution-like changes are often the result of radical new technologies or a crisis of resources rarity

In general it is not always evident to analyse the innovative power and the strategic strength of innovations. Only seldom will costs and revenues of the innovations appear in a synchronic pattern. Usually the innovative costs are made in a relatively short period and the innovation related revenues appear over a longer period. Although revenues might be relevant to the innovation, analysts often find themselves in great difficulties in determining direct causality. The diffusion and the uncertainty of the causality are highly determined by the type of innovation and the organization’s sector. Organizations try to control those uncertainties to adopt a more defensive strategy and postpone innovations in order to gain additional information and provide further certainties. An often reported insecurity considering healthcare innovations is the great uncertainty of governmental (health) policy in many countries. Market structures and juridical regulation highly determine the attractiveness of innovation investment. Kok et al. found that restricting policy can delay innovation processes, whereas stimulating policy can accelerate innovations (Kok et al., 2005).
1.2 Patterns of innovation

What are specific patterns of innovation in healthcare?

As described in previous paragraphs, the narrow classic definition of innovation mainly covers the product and process related changes in organizations. On the other hand the social innovation part covers the broader parts of innovation. This distinction roughly corresponds with another way of analyzing innovation, namely via dividing innovations in technological, organizational and economic innovations (both social innovations).

1.2.1 Technological innovation

1.2.1.1 Technological innovation – Life science industry

Technological innovations in healthcare are mainly dominated by a few larger life science industries; biotechnology, pharmaceutical industry and medical technology. All three together European firms were worth almost 200 billion revenues in 2006 (figure 1; Volberda et al., 2008).

Figure 1: Revenues in European life science industry in 2002-2006 (Volberda et al., 2008)
The three sectors are relatively high in technologic density and R&D expenditures. Volberda et al. found the average national expenditures of Dutch firms on R&D 4.7% of the company’s turnover, in medical technology- and pharmaceutical companies this percentage is respectively 8 and 13%. In Dutch biotechnology firms R&D expenditures are even 28% of the company’s turnover (Volberda et al., 2008). A specific characteristic of the life science sector is the fact that this industry is generally composed of a few bigger organizations and a large number of smaller, highly specified companies.

Volberda et al. define the life science industry as: A dynamic area of science and technology which provides a constantly updated 'toolkit' of innovative techniques relating to the use of biological life forms and production processes in many diverse application areas. Besides the classical life sciences (biotechnology and pharmaceutical science), the authors also identify medical technology sector as a key sector in healthcare (Volberda et al., 2008). Medical technology refers to equipment and devices which are used for the purpose of diagnosis, prevention and treatment of diseases and injuries. Biotechnology is a field of applied biology which focuses on genetic science and cell- and tissue technologies. An increasing number of highly specified firms concentrate on functions such as production of biological products (e.g. immunotherapy), personalized medical treatment (e.g. pharmacogenomics), genetic imaging and drug production. A more exhaustive list of life science fields can be found in Appendix A. Interesting remark is the fact that the traditional composition (figure 2) of life science- and medical technology disciplines seems to be changing. Convergence and integration of technologies and research enables healthcare providers to create custom made solutions for patients. It is likely to assume that this trend towards personalization of healthcare will continue. It is in this context that organizations are more expected to cooperate and share resources to develop comprehensive care.

Although European countries gain most economic value from their high intensity of human capital, countries like China and India are increasingly

Figure 2: Traditional research basis in life science industry (BCG, 2002)
improving and institutionalizing their intellectual capital as well. These countries establish high quality R&D centres in relatively high tempo. Therefore there is a great importance for the established Western actors to constantly notice opportunities in order to remain competitive. Life science companies are more than ever required to capitalize R&D products and transform this into sellable products. Efficient and effective long term strategy and organizational flexibility are key competences to remain economic viable. Besides the fact that Western European R&D centres face a tendency of R&D movement towards Asian centres, the same centres find themselves in a position in which they are less capable in commercializing their innovations compared to research centres in the United States (Herrera, 2001).

<table>
<thead>
<tr>
<th>Performance indicator</th>
<th>Biotechnology</th>
<th>Pharmaceutical industry</th>
<th>Medical technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth of revenues</td>
<td>13% higher</td>
<td>16% higher</td>
<td>10% higher</td>
</tr>
<tr>
<td>Growth of profit</td>
<td>2.2% higher</td>
<td>25% higher</td>
<td>10% higher</td>
</tr>
<tr>
<td>Attracting new customers</td>
<td>2.5% higher</td>
<td>22% higher</td>
<td>3% higher</td>
</tr>
<tr>
<td>Growth of market share</td>
<td>4% higher</td>
<td>19% higher</td>
<td>8% higher</td>
</tr>
</tbody>
</table>

Table 1: Performance of innovative versus non-innovative organizations per sector (Volberda et al., 2008)

The previous table shows the importance of R&D and innovativeness for Dutch life science companies per sector. Innovations are found to be significantly determining key performance parameters such as growth in revenues, profits, market shares and the ability to attract new customers. Especially organizations in the pharmaceutical- and medical technology sectors appear to be more beneficial when they innovate.
1.2.1.2 Technological innovation – Open innovation networks

Whereas closed innovation refers to a traditional way of innovation in which the total innovation process takes place within the borders of the organization, open source innovation is a more contemporary view on organizations’ (innovation) borders. Open innovation is a term introduced by Chesbrough: open innovation is a paradigm that assumes that organizations should use both internal and external resources to advance their technologies. In this theory the boundaries between an organization and its exterior have become more permeable; innovations can easily transfer inward and outward. The rationale behind open innovation is that internal research will not be fully satisfying considering the environment’s complexity. Rather than focusing on internal generated and used knowledge, organizations should exchange resources with the external environment (e.g., through licensing, joint ventures, spinoffs) (Melese, 2009; Chesbrough, 2006).

<table>
<thead>
<tr>
<th>Closed innovation</th>
<th>Open innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal R&amp;D centres</td>
<td>Both internal R&amp;D and external acquiring</td>
</tr>
<tr>
<td>Internal focus</td>
<td>External focus, external contribution</td>
</tr>
<tr>
<td>Internal development for internal usage</td>
<td>Internal development for external usage</td>
</tr>
<tr>
<td>Mostly used in situations of</td>
<td>Mostly used in situations of</td>
</tr>
<tr>
<td>- Stable environments</td>
<td>- Complex environments</td>
</tr>
<tr>
<td>- Higher confidentiality of knowledge</td>
<td>- Lower confidentiality of knowledge</td>
</tr>
<tr>
<td>- Lower resource dependency</td>
<td>- Higher resource dependency</td>
</tr>
<tr>
<td>External development for internal usage</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Characteristics of closed versus open innovation

The theory of closed innovation derives from a situation in which successful innovation requires a certain amount of control. This idea was developed in a period where universities and other independent research centres were mainly focussed on more basal and less commercial applicable research. With this discrepancy between university intellectual developments and the commercial needs, organizations established their autonomous research facilities. This resulted in a situation in which companies controlled the entire process of ideas generation, as well as production, marketing, distribution, servicing, financing, and supporting of those initiatives. Chesbrough argues that four fundamental contextual changes have led to a
more open approach of organizational innovation (Chesbrough, 2006). These so called erosion factors of closed innovation are:

- **increased availability and mobility of skilled workers**: organizations are more easily able to access knowledge and experience by hunting for talent. On the other hand, organizations also became more prone to knowledge drain.

- **the venture capital (VC) market**: in industries such as life sciences a great number of VC fuelled university spinoffs arose. Universities tend to focus more on commercial applicable research; technology transfer offices (TTOs) increased the economic power of university’s human capital.

- **external options for ideas sitting on the shelf**: with shortened product- and technique life cycles and an increased number of external options there is a growing necessity for organizations to accelerate their knowledge procession. External options could be the entrance to new markets (with or without VC partnering) or to cooperative forms such as licensing. In other words, if companies do not use the knowledge they have inside, someone else might.

- **increasing capability of external suppliers**: due to factors such as the improved economic capabilities of universities and the increased mobility of workforce the number of highly specified organizations expanded. Suppliers are more than ever able to provide equal or superior quality resources for the organizations and decrease the firm’s transaction costs. On the other hand, this wider availability of resources puts inevitably also pressure on the firm, since resources are sector wide available to all competitors (Chesbrough, 2006).

In an optimal open innovation network situation, organizations are able to attract external technologies and resources (outside-inside movements) and market in-house developed resources and technology (inside-outside movements). Due to the width and complexity of the scientific working fields and the increasingly in-depth knowledge basis of spinoffs, open innovation and network collaboration have become a fundamental modus operandi.
1.2.2 Social innovation

Although the major focus of many innovation strategies is on technological R&D, social innovation is found to be of greater importance in enhancing organization’s innovative strength. Social changes such as management capabilities, flexible organizing, supportive organization culture are key factors in enhancing organization’s productivity and optimizing its competitive position. Research in life science industry indicated that roughly 30% of the innovation success is determined by technological innovation whereas, 70% is determined by social innovation (figure 3; Volberda et al., 2008). Social changes enable the organization to fully use existing resources within the organization and to attract external resources effectively. Social innovations are rather complementary to technological innovations instead of excluding, as flexible organizations, dynamic managements and cooperatively directed organizations have the ability to notice and apply technological opportunities.

![Figure 3: Determinants of innovation success; the relative importance of R&D and social innovation (Volberda et al., 2008)](image)

Since social innovations mainly focus on optimization of existing structures rather than technological breakthroughs, domains of process optimizing, productivity improvement and organizational structure/culture development are vital. A specific part of the organizational innovations are the economic innovations. Economic innovations enable organizations to successful implement and capitalize creative ideas.
1.2.2.1 Social innovation – organizational innovation

Organizational innovation covers changes in operational, strategic or financial activities which do not originate from technological changes. These softer aspects of innovation facilitate organizations to remain responsive in complex environments by optimizing structure and culture aspects. The bottom line of those innovations is an optimal input-output transformation. Based on literature study, four types of efficiency improvement domains can be defined in healthcare institutions (Kok et al, 2005):

1. **optimizing of organization structures**: when focussing on a more efficient planning in logistic aspects of healthcare services, organizations can achieve greater organizational efficiency. One way of increasing organization productivity is task specialization and uniformity. Structures can be optimized towards internal specialization, but a growing number of healthcare providers is also specializing as organization itself. This means that in first place healthcare providers such as nurses and physicians establish guidelines and codes of conduct to fasten decision processes and reduce mistakes via uniformity. And this goes along with a shift within hospitals from a functional orientated operating structure to a more process orientated organizations in which super specialized physicians cooperate in treatments. In the broader sense hospitals can choose their care portfolios and differentiate on quality and efficiency. As a result these institutions can profile themselves with lower recurrence rates, more personalized approaches or shorter waiting lists and with cost-efficient operations towards health insurance companies. A second change in operational optimization is the reengineering towards comprehensive care. The convergence of multiple paths of care providence to a single patient into integrative care not only creates more patient friendly care, but also enhances effective cooperation and increases resource efficiency. Chronic multi-system diseases such as atherosclerosis, hypertension and diabetes – which cause major challenges for care providers in the near future – can be subject of integral care offers via diabetes or hypertension centres. In these centres physicians of applicable specializations cooperate directly for integrative examination and treatment, and centralized process planning can optimize patient flows and medical equipment usage. This creates more patient friendly and process orientated healthcare. Health insurance companies are willing to pay more to pay expensive treatments with the aim of reducing future additional treatments. A third way to innovate via changes in organizational structure is to increase productivity via
outsourcing of activities. In general it is unrealistic to presume that any organization has got all the required capabilities and resources internal in the most cost- and quality effective way. In some situations it might be favourable – considering transaction costs – to outsource activities to external partners. In the healthcare situation, the hospital management might decide to outsource food activities to a private catering company rather than to remain a central hospital kitchen (e.g. case 1). Other examples can be the outsourcing of administrative activities or IT management. Logistic changes which would not result in changed production processes might strictly not be seen as innovative depending on the scope of the chosen definition. On the other hand, activities such as changed planning might inevitably lead to enhanced labour productivity and efficiency. Then again, outsourcing of activities mostly lead to changes in the production process and can be seen as innovative.

2. **human resource management (HRM):** As previously stated, some HR activities, such as improved planning, might lead to optimization of existing organizational processes. But programs focused on enhancing employees’ motivation lead to process innovations and fundamentally to increased efficiency. The high percentages of absences in healthcare is a major point of concern. Some relevant factors in managing absence are intrinsic rewards, organizational atmosphere and perceived autonomy. Motivated employees attend more frequently at work. When organizations invest in process changes, the motivation and performance of employees in healthcare can increase significantly. Possible changes concerning HRM can be the customization of job tasks, empowerment at all organization levels, differentiation of functions and the introduction of incentive systems.

3. **efficiency via (supportive) technology:** A third way to increase organizational productivity is to invest in new therapeutic approaches. Possible intervening options are the development of drug therapy, new comprehensive therapeutic forms or development of technological instruments. Improved treatment options might decrease both the intensity and the time of treatment. Technological treatment innovation is possible in both cure (e.g. laparoscopy) and care segment (e.g. elastic compression stockings).

4. **information technology (IT):** A basic condition for organizational innovation is the existence of well functioning information channels. Investments in IT contribute
strongly to organizational change and innovative potential in the service sector. Although IT is a vital condition for decision making, implementation and feedback, it is not yet implemented optimally in healthcare when taking private sector organizations in account (Kok et al., 2005).

Case 1: Catering at the Charité Clinic and Zehnacker GmbH, Germany

No major investments in the German Charité Clinics’ catering services had been made since the 1970’s. Despite the urgency of complying to the EU hygiene and quality demands, no investment funds were available on updating the clinic’s kitchen services. Besides short term equipment updates and improving their financial sustainability, on the long term the clinic needed to switch to a more sustainable and competitive operational model regarding their kitchen services. In 2003 the clinic’s management awarded a PPP-orientated tender to private partner Zehnacker Catering GmbH. The management contractual agreement consisted formalizations on the investments, timetable of implementation and quality standards e.g.. This resulted in

- a contractual value of 6 million euro; a total of 800,000 euro savings for the Charité Clinics during the contract period of 5 year

- a successful certification of the catering for the first 18 months

- a range of operational changes resulting in a 7 percent decrease of labour cost due to workforce efficiency, such as: introduction of new type of food delivery carts, implementation of an improved food cycle with increased monitoring and right-on-time delivery.

1.2.2.2 Social innovation – economic innovation

Although traditional public orientated organizations in healthcare such as hospitals and nursery homes are barely concentrating on the commercial aspects of healthcare, a recent study by Deloitte showed an increase market direction of hospital managers (Deloitte, 2008). Healthcare providers are increasingly aware of their abilities to enhance their market positions. A significant number of institutions adopted the marketing manager function into their organizational structure. Almost all healthcare institutions were found to be working on improving their market position (in general or discipline specific). Marketing primary focuses on three groups: patients, health insurance companies and general practitioners (GPs). Marketing activities focus on the hospital’s advantages with the purpose of letting future patients notice the hospital as most convenient option. Patient orientated marketing exists in different forms, but mainly centres information supply. Most common forms are direct advertisement, information folders and brochures, qualitative information on internet and organizing information sessions for clients. Researchers argue that the existence of private orientated healthcare providers are often a trigger to other organizations nearby to increase their marketing activities. Additionally the marketing manager can also be a strategic player in internal marketing of plans and innovations (Deloitte, 2008).

Besides marketing practices, organizations adopted systems of customer relations management (CRM). Such CRM systems allow healthcare providers to get to know their patients in order to offer products and services which suit their preferences most. Knowledge on patients can be seen as a primary key on improving quality and creating the desired market position.

In general Deloitte argued that when patients are not directly able to select healthcare providers on their prices, many of the organization’s process innovations are not driven by necessity the of cost reduction but by the aim of revenue growth. Furthermore, in situations in which patients have greater ability to choose healthcare providers, organizations were seen to develop efficient innovative processes. When healthcare organizations are operating on a real healthcare market in which prices and production quantities are determined, organizations frequently choose to increase the produced quantity as a solution for budget problems. Organizations choose to analyze their processes for potential bottleneck. When implementing this approach (theory of constrains), organizations should be able to both reduce the average
duration of hospitalization and to increase their employee satisfaction (Deloitte, 2008). This market approach allows organizations to innovate in an economic responsible way and to implement and capitalize novelties (Deloitte, 2008).

1.2.3 Organizational innovation adoption

Although idea generation stimulation, R&D and innovation capitalization are important, the actual innovation dissemination and adoption are other key success factors of innovations. An innovation is rather worthless when only supported by the top management and not adopted by the actual users. This is a common problem in healthcare practice. Berwick distinguishes the organizational implementation (top down process) from the successfully usage of the product. The process of innovation-diffusion or dissemination is influences by three basic clusters of factors (Berwickm 2003):

1. perception of the innovation: Perceptions of the innovation by the adopters predict between 50% and 90% of the variance in the rate of adoption success. In particular, five perceptions of the change seem most influential.

   - Perceived benefit of the change: the perception of the innovation’s benefits for the adopter is the most powerful driver of success
   - Compatibility of the innovation with the individual’s values, beliefs, history and needs. Also the person’s natural degree of risk adversity
   - Degree of complexity of the innovation
   - Trialability: the possibility to test the innovation before adopting
   - Observability: the possibility to observe others use/try the innovation before adopting

2. individual characteristics of the adopter: in this context Berwick classifies the population via Rogers’ standard distribution of change adoptions. The classic bell curve divides organization members in five groups (figure 4). 2.5% of the organization’s population is actively involved in the innovation generation; the innovators. 13.5% of the members is
early adopter. There is a great importance of this group in informing and visible encouraging the majority (68%) of the users. Early adopters need to be stimulated, since they are the key in supplying information on benefits and increasing the innovations observability. A smaller group of sixteen percent needs more time than the vast majority: the laggards. Laggards often adopt the innovations in further development stages.

3. contextual factors: contextual and managerial factors either within the organization or in its social systems which encourage or restrain the process of innovation spread.
2. Public-private partnerships in healthcare

What is the past and current role of public-private partnerships in healthcare?
2.1 Introduction

Due to socioeconomic and political changes, the last decades, public-private interdependences are emerging. While governments are under pressure on cutting expenses, public functions tend to be more often transferred into private domains. In those situations in which governmental expenditures need to be cut and privatization is seen as unwanted alternative, PPPs might be a satisfying solution. In dynamic and complex environments there is a certain need for a flexible approach which creates possibilities for private actors while preserving public governorship. In their search for dynamic and effective organizational forms public and private actors tend to be driven towards each other (Austin, 2000; Keramidas, 2007).

2.1.1 Definition

The starting point of partnership analysis is the definition of cooperation and public-private partnering. Most common, definitions of public-private cooperating tend to display the approach of partnership analysis (e.g. fundamental or applied). In general, partnerships are seen as an operating form in which two or more organizations work together to improve performance through mutual objectives, [...] committing to continuous improvement, measuring progress and sharing gains (Geddes, 2005). Collaboration parties – who see different aspects of a problem – aim to explore constructively their differences and search for solutions that go beyond their own limited vision of what is possible (Lasker, 2001).

Whereas PPPs can be seen as a special form of partnership, most researchers use specific definitions for it as well. The PPP form of cooperation can be seen as partnering of some sort of durability between specific public and private actors in which they jointly develop infrastructure, products and/or services (including knowledge and dissemination of information) and share risks, cost and resources (Van Ham and Koppenjan, 2001).
Fundamentally most of the theoretical definitions contain the following shared aspects on PPPs (Geddes, 2005):

- It is a medium- to long-term relationship
- It is a relationship based on shared aspirations
- It can involve a range of partners
- It involves the sharing of risks, rewards and resources on the part of all the partners
- The aim is to deliver outcomes and services in the public interest on a continuously improving basis

A more research-applied definition defines PPPs as cooperative arrangements engaging companies, universities, and government agencies and laboratories in various combinations to pool resources in pursuit of a shared R&D objective (Hagedoorn, 2000).

Although many PPPs will be established from a shared R&D objective, this might correspond to a more limited view on innovativeness: predominantly technological focussed. Since the aim of this research is to include both technological and social innovations in healthcare, the more fundamental definition is being adopted: A PPP is generally a medium to long term relationship between the public and private sectors, involving the sharing of risks and rewards and the utilisation of multi-sectoral skills, expertise and finance to deliver desired policy outcomes that are in the public interests (Geddes, 2005).

2.1.2 The evolution of PPP as an organizational form

Private provision of public services dates back to the 19th century. Private sectors played a central role in developing major infrastructure projects in the transport sector and in the provision of utilities. Although privatization of functions was important in developing European countries, in the post-war period many projects were taken into public ownership again because of market failure.

Privatization of public services became more widespread in the 1980s with the emergence of a neoliberal momentum that sought to reduce the role of the state. In this renewed trend, mainly the U.K. has provided a pioneer role in establishing the PPP practice. The first wave of
PPPs contained projects in which continuous contractual formalizations between governmental parties and private funders was necessary: the private financial initiatives (PFIs). This evolved further into strategic service delivery partnerships at both national and local level, again mainly based on contractual arrangements. The arrival of more strategic partnerships from the end of the 1990s created another dimension and instituted the contemporary paradigm on public-private partnering (Geddes, 2005).

Despite the cautious tendency of private service provision, in the health sector comprehensive privatization was rejected because of the ideas of market failure. Instead, various quasi-market solutions were developed which evolved into large demanders of public resources. In most recent contemplations, a logical next step would to partially move the delivery of healthcare out of the public sector. Central objective in this shift would be increased value for money, innovation, and responsiveness to users (McKee et al., 2006). PPPs can be interesting vehicles for this transformation, either as a mean or a solution.

As stated previously, the broader socioeconomic, political and organizational context have had an impact on the traditional way of providing public service. Whereas the traditional separation between public and private actors has become unclear in some cases, there is an increased number of organizations operating in the public-private grey area. With a changed working field and changed inter-organizational dependencies, conventional paradigms do not necessarily fully satisfy the reality. In healthcare environment with multiple parties on multiple levels operating in a complex system, there is a great potential for partnerships that enable heterogeneous organizations to leverage, combine and capitalize complementary capabilities and strengths (Lasker et al., 2001).

With most recent developments of exceeding maximal net debt/ GDP ratios, many European countries face drastic restructures of public finance. PPPs can be a solution worth exploring in these challenges. However, still some controversy concerning PPPs needs to be bridged. Proponents argue that PPP is a remedy for financing shortages and a way to bring private sector expertise and civil society enthusiasm into the delivery of public services. Keramidas et al. argue that PPP procurement often offer better value for money for public partners, in terms of allocation of risks, performance based payments and capturing private sector innovation. Risks are transferred to private partners on the basis of a monetary return for accepting those risks (Keramidas et al., 2007). Sceptics on the other hand, point to transaction costs, unclear
accountability structures, risk of service failure, vested interests, and the potential for eroding public sector knowledge as some of the potential problems (Vrangbaek, 2008).

Concluding for the healthcare situation one can state that, although PPPs differ in form, in the particular organizational goals, and in whom they bring together. Yet, they all share the common force: an appreciation that, in today’s environment, most objectives related to health cannot be achieved by a single person, organization of sector working alone (Lasker et al., 2001). L’union fait la force.
In Europe, unlike the United States, science and profit are often seen as conflicting ideals. Gabor Lamm, the director of European Molecular Biology Laboratory’s (EMBL) tech-transfer office states: “The whole idea of an academic researcher going into industry, or of university science being turned into a company, are both still sniffed at. There is also great fear of failure. Try telling somebody in Europe that failure is just part of the process of building an industry." (Herrera, 2001). In the previous years technology transferring and the establishment of institutes deriving from public-private sources have been aided by the easing of restrictions against scientists turning their discoveries into companies. In this context both country specific and European wide legal and socio-political paradigms have been modified. France and Switzerland passed laws allowing university researchers to take up to six years leave of absence to start a company, with the guarantee of jobs upon return. In Sweden, which has the highest per capita concentration of biotech firms in Europe, federal law automatically grants university researchers sole ownership of their discoveries (Herrera, 2001). The Swedish law was enacted in 1949, but only in the past few years have researchers taken advantage of it, pointing out he momentum for PPP and academic-industry initiatives.

Due to the great differences in financing and care conducting structures among European countries, it is hard to directly compare the usage and effectiveness of PPP projects. However general trends are inevitable visible and countries seem to learn from pioneer countries like the U.K. and U.S. (e.g. case 2). Moreover, European Union (EU) based policy is present too and attempts to unify PPP possibilities.

In order to recover the European economies, remain the standard of public services while reducing the future negative impact on the tax payers, the EU set up ambitious recovery plans in 2009. The EU supports PPP initiatives – mainly in transport and energy sectors – in multiple ways. Examples of institutional supportive initiatives are the definition of *Guidelines for successful PPPs* in 2003 and the *European Initiative for Growth* in 2003 which concerns public-private investments in knowledge networks. Additionally EU policy makers stated that until 2020 10-30% of the 220 billion euro on transport projects shall be conducted via PPPs.
To encourage PPP establishment, juridical regulations on governmental projects and the tender of public contracts were revised. Furthermore in February 2008 the Commission adopted an Interpretative Communication on the application of *Community Law on Public Procurement and Concessions to Institutionalised Public-Private Partnerships*. This communication clarifies the directions of PPP policy from EU perspective. Although recognizing the difficulties in establishing PPPs, possible restrictive regulations and the weakness of some countries’ public services to form partnerships, there is a ambition to further stimulate PPP formation. Starting in 2010, the Commission released five key actions (EU: Communication from the Commission, 2009):

- formation of a PPP group: this group will bring multi-national stakeholders together in order to explore PPP difficulties and regulatory burdens and delays
- increased funding available for PPPs: the increased funding makes PPP as one of the key financial instruments in some policy areas
- ensuring of non-discrimination in allocation of public funding where community funding is involved
- creation of more effective frameworks for innovation and the possibilities for the EU to participate
- considering of proposals for a legislative instrument on concessions

These five steps were formulated to facilitate solving the core problems which current PPP formation faces. Important difficulties and barriers in current PPP practice are the access to finance, the regulatory structure and the limited and diffused know-how on the subject.
Case 2: National eHealth portal, Denmark

The aim of the e-Health portal collaboration was to establish a electronic system which enables GPs and physicians to access centralized Electronic Patient Records (EPRs), provide electronic correspondence and communication between patients and physicians, and to allow all parties to access up-to-date information. This large scale IT contract partnered both a private consortium of IT partners (MedCom and IBM etc) and public partners (Danish authorities and major healthcare stakeholders). The eHealth portal was launched in 2003 and has resulted in a number of improvements:

- average saving of 2.30 euro per physician-insurance communication

- 50 minutes per day saved in medical practices, 66 percent reduction in hospitals’ telephone calls

- (almost) 100 percent of the prescriptions and lab results are electronically transferred between the healthcare professionals

2.3 Public-private partnerships; acting responsible in a greater perspective

Public accountability is a pre-condition for the legitimate use of public authority. It is the basis on which citizens are willing to delegate power to others to act on their behalf. Partnerships need to be accountable both intra-organizational and towards society. (Geddes, 2005). Therefore it is important for PPP actors to work on their relationships with their direct and greater environment.

For economist with a narrow view on corporate social responsibility (CSR), partnerships have little to no obligations to society other than to create economic return for the project’s investors and other legitimated stakeholders (e.g. box 1). For others however, those partnerships should serve as a vehicle to generate social value and to serve public policy. Social legitimating of PPPs however, often takes place somewhere in between, whereas both commercial and public motives to partner can be analyzed. Since public and private partners shape each other’s (social) context, both economic and social motives can be reasons to form PPPs. Important social issues are: the social environment (e.g. CSR, corporate philanthropy, stakeholders management and corporate social performance), the ethical environment (e.g. corporate codes of ethics, ethical implications of technology and corporate value), public policy environment (e.g. political action committees and legal and regulatory areas), the ecological environment and the stakeholders environment (e.g. impact corporate use of technology and workplace diversity) (Devinney, 2009).
Many involvements of private partners in social value creating projects tend to develop from a solely philanthropic approach towards a more responsible and strategic view. The shift represents an opportunity to magnify the social value and the benefits to both public and private partners, but this goes along with it greater challenges and managerial demands than the traditional model of financial donation.

**Box 1: Friedman on corporate responsibility**

When analysing contemporary views on the role of organizations in their environments, American Nobel Prize winner Milton Friedman is a clear spokesman of the neoclassic analysis. On the concept corporate responsibility Friedman states: “What does it mean to say that “business” has responsibilities? Only people can have responsibilities. A corporation is an artificial person and in this sense may have artificial responsibilities, but “business” as a whole cannot be said to have responsibilities, even in this vague sense”.

In the neoclassic view, managers are agents who are ought to generate return for their investors in stead of creating value for societies. Although the primary focus of the company is not the environment, it is not fully detached of it: “In a private-property system, corporate executive is an employee of the owners of the business. He has direct responsibility to his employers. That responsibility is to conduct the business in accordance with their desires, which generally will be to make as much money as possible while conforming to the basic rules of the society, both those embodied in law and those embodied in ethical custom”. Friedman distinguishes return-driven organizations from organizations with a charitable purpose. Those organizations are driven by service rendering rather than by profit. This division creates an interesting analytic field towards studying PPPs.

Source: Friedman, 1970
2.3.1 PPPs in global Health

When either markets or governments fail in providing the world’s poorest people healthcare, public-private partnerships often appear. These global health partnerships can emerge in both informal and institutionalized forms. Existing global governmental institutions openly plea for open and constructive relations with partners in private sector and healthcare industry. In order to encourage public-private developments on product development and distribution, to strengthen third world country’s healthcare and to educate people, the Initiative on Public-Private Partnerships for Health (IPPPH) is established by the Global Forum of Health Research. Although non-profit and for-profit orientated entities might face major differences in resourcing their activities, more than ever significant synergy in activities can be created. Reich explains this increasing prominence of PPPs in global health on one hand by the fact that many global health issues are being pushed on the international policy agenda. On the other hand the globalized economy has created influential private partners in the policy process.

Private partners can be both profit orientated organizations or private-capital organizations such as the Rockefeller- and Bill and Melinda Gates foundations. In the past it has become clear that situations might exist in which neither public nor private partners were able to resolve global health problems on their own. Public actors were confronted by limited financial resources, complex social and behavioral problems, rapid disease transmission across state boundaries and reduced national capacities. Private organizations have come to recognize the importance of global health goals for their immediate and long-term corporate objectives, and to accept a broader view of social responsibility as part of corporate mandate (Reich, 2002; McDermott et al., 2009).

Motives of PPP formation in global health are various and often difficult to address. A certain skepticism on private partner’s motives to join can also be observed among other involved players. Although private partner’s motives might appear solely philanthropic, firms are ought to continuously seek for strategic advantage or new markets in order to gain present or future profit. Apart from this discussion, the Reich concludes that in the end, it is not a matter of motives on profit seeking, but one of the abilities to gain social value (e.g. case 3)(Reich, 2002; Willus, 2001; Buse et al., 2007).
Case 3: Trachoma control: a public-private partnership approach

The International Trachoma Initiative (ITI) is a collaboration between the Edna McConnell Clark foundation (a New York based private philanthropic foundation) and Pfizer Pharmaceuticals. The PPP which was established in 1998 and aims to reduce the Chlamydia Trachomatis infections causing trachoma eye follicles, scarring and blindness in endemic areas (mostly Africa, Middle East and partially Asia). The initiative practices the comprehensive SAFE-method of bacterial infection control. Advanced stage infected patients receive surgery, Pfizer’s antibiotics are used to treat active infections, communities are educated on disease transmission reduction, and living environmental improvement on water access and sanitations are created. While the program was successfully increasing its outreach, additional public (UK’s Department of International Development) and private (Bill and Melinda Gates foundation) funding was attracted. In their search for additional resources the ITI had to reflect on future independence while considering governmental partnerships. Apart from this, both core partners, Pfizer and Clark, also needed to reconsider the relationships between the project and their organizational objectives. Fundamental considerations were how to allocate benefits and cost, if social and corporate value was satisfactory created considering opportunity costs. Nevertheless the ITI project has turned out to be a highly effective stable multi-partner PPP in the past decades.

Figure 5: The life cycle of Trachoma (http://www.gatesfoundation.org/)

Source: Barrett, Austin and McCarthy in Reich, 2002; http://www.gatesfoundation.org/
2.3.2 Corporate philanthropy & responsibility and the competitive context

Solely corporate philanthropy is under pressure in current businesses. CEOs find themselves in a situation with two-sided tension of societal critics demanding high levels of social responsibility and investors pressure to maximize short-term profits. Porter and Kramer are therefore arguing the increasing urge of strategic corporate responsibility in order to combine both flanks (see figure 6; Porter & Kramer, 2002).

Current CSR activities are merely focused on local civil multi-focus and diffuse philanthropy which is often driven by personal values and believes. Therefore many of today’s businesses philanthropic activities appear mostly cosmetic. Public relations and advertorial driven activities overshadow the minor operational and strategic approaches. Porter and Kramer analyse this point of view by stating: “Philanthropic initiatives are typically described in terms of dollars or volunteer hours spent but almost never in terms of impact.” (Porter & Kramer, 2002).

Generally speaking, the philanthropic activities of firms can be seen as a way to legitimate their operations in relation towards their environment. More specific the authors summarize 4 classical arguments to justify CSR (Porter & Kramer, 2002):

1. moral obligation; corporate responsive activities are often embedded in personal or corporate moral assumptions,

2. sustainability; the firm’s sustainability is mainly based on a fundament of the so called triple bottom line of economic, social and environmental performance,

3. licence-to-operate; businesses operate within a highly specific context in which they have to address social issues that matter to their stakeholders in order to keep legitimated in their operations,

4. reputation; although cause related marketing seeks to capitalize firm specific advantage considering philanthropy, they hardly succeed according to Porter and Kramer.
Although previous arguments might seem valuable in existing practices of corporate social philanthropic activities, all elements are focussed on a underlying paradigm of tension and mutual exclusiveness of economic and social benefits instead on their interdependences. In other words: successful companies need healthy societies and healthy societies need successful companies. In order to generate shared social and economic benefits, companies need to integrate the social perspective into their core strategy and operations. Porter & Kramer argue the opportunity for organizations to invest in corporate responsibility to enhance their competitive position. Corporate aims in being engaged in micro and macro environment on one hand and maximizing corporate growth on the other hand can be relatively effective united. Especially when companies will use similar frameworks that guide their core strategies, philanthropic activities can become more than a cost.

While analyzing corporate responsibility and contextual advantages, social and economic benefits are falsely seen as excluding intentions. Since companies are active within a broad social context, thriving both goals should not be conflictive. The fact that both objectives does not necessarily have to exclude each other, does not mean that CSR will inevitably lead to a situation of competitive advantage. Essential in enhancing competitive advantage is the convergence of interests into the shared area of combined social and economic benefit. In order to make best use of philanthropic and business opportunities, Porter and Kramer

Figure 6: Maximizing philanthropy’s value; the creation of social value (Porter & Kramer, 2002)
developed a multistep model towards creating united social and economic benefits (figure 6). Vital in selecting best grantee for donor activities is the effectiveness of the recipient which will be conducting the social activity. Research shows the difficulty in selecting these grantees, especially considering the fact that social partners’ social impact is not causally related to most prestigious or -known partners. In the process of partnering between individual profit and social partners, third party donor can be often signaled. By attracting additional donors the overall effectiveness of philanthropic allocation can be leveraged. Such clustering can improve effectiveness by enhanced credibility, expertise and overall impact via capability overlap and complementarities. By leveraging relationships within the network and between network and social environment, the cost-benefit ratio can be advanced. By improving the effectiveness of the non-private partner, businesses can create long-term social value and impact. When private partners are able to select the right non-private partners, they can be highly effective in working towards improved performance of the recipient partner via transfer of both assets and expertise. The more businesses are able to internalize social responsibility into their strategies the greater the leverage of the value created will be. Greater extents of value creation will be achieved by advancing knowledge and practice via transfer within the donor-recipient partnership. In Porter and Kramer’s approach innovation in the broad definition means both incremental improvements and changes of operational paradigms. Social value can be created by turning new paradigms into new practices of addressing social problems and designing comprehensive solutions. When both partners will adopt previous approach, partners should be able to create a virtuous circle of leveraging transfer, and creating social and economic benefits.

An effective integrated approach of business and society value generation takes a multistep process to be included. In first place points of intersection need to be identified. When taking the firm’s perspective two routes can be identified.

1. On one hand the inside-out linkages in of social impact on the value chain can be analyzed. Porter’s value chain traditionally divides organization’s activities in primary- and supportive activities (figure 7):

   - primary activities:

     - inbound logistics: public and private partners collectively integrate logistic strategies in order to optimize transportation impacts. Social value can be created via cost
effective or qualitative superior operational input. For example via cost effective procession of hospital food and sterilized equipment.

- operations: via partnering the emission and waste of healthcare institutions can be optimized, energy and water use can be limited and working relations can be improved. Involving the technology developing partners in the operational implementation can improve labour effectiveness and safety.

- outbound logistics: especially for healthcare services on an ambulant basis or delocalized outside hospitals, improved effectiveness of outbound logistics can create greater resource efficiency. Right-on-time delivery of services and effective planning systems can be established via the more resources-efficient experience of private partners.

- marketing and sales: concerning product creation (how to transform from service providing to experience healthcare), effective pricing (contract negotiation with insurance companies), suitable promotion (targeting both healthcare professionals and patients) and distribution (most patient friendly, cost-efficient etc.) the expertise of private partners can be useful to transform healthcare institutions into more economic sustainable organizations. On the other hand, private partners can use healthcare institutions as channels for their products via long-term contracts. CRM-like systems can be useful for both public and private partners to gain information on the patient. Respecting privacy limitations, IT systems might pool information by disease, region etc. in order to evolve towards more patient specific and targeted care and marketing. Nevertheless, a certain capability of balancing between a narrow economic approach and moral obligations is required in this context.

- after sales services: when approaching the term sales from a broader perspective: the patient can be seen as a care consumer who might wish to receive further follow up. Although mostly the physician is the one to decide whether follow up is needed, private expertise can broaden the possibilities of the actual patient follow up. When healthcare institutions are able to decrease the volume of intramural care, large cost reductions can be achieved, on the other hand high quality after treatment follow up is inevitable in this trend.
- supportive activities:

- firm infrastructure: the organization’s infrastructure consists of the actual tangible infrastructure and other organizational structures such as information channels and financial structures. In this domain of the organization’s activities private partner’s expertise on cost accounting and electronic reporting systems can be valuable for the public partner. Overall the most developed form of public-private partnering is the PFI, which is mainly a infrastructural asset-based partnership.

- HRM: in effective partnerships, partners are able to leverage the human capital potential. Labour management programs can be implemented using both partners’ and both sectors’ experience. Examples of HRM interventions can be education and employee training, improved health- and safety regulations and diversity policies.

- technology: one of the driving forces in PPP related changes is the technologic innovative power of the partnership. Technology is both a leading and a supportive source for partnerships, whereas there is both a two way flow of technology influencing the partner’s context (1) and on the other hand the partnership can be analyzed as a technology generating entity (2). Academic hospitals and universities are important anchor organizations in those technology creating networks.

- procurement: important is the continuing consistency of input in the organization’s production process. Long-term contracts with suppliers can create both consistency and resource efficiency. When partnering, the new alliance might operate as a more influential entity toward third party contract negotiations. Overall, the partners can act as more powerful players in reshaping their context (e.g. responsible acting in resource utilization).
2. In addition to the value chain changes, external social elements also influence the firm’s corporate competitiveness. According to Porter and Kramer, an organization’s competitive context consists of 4 elements. These elements are interrelated and therefore the firm’s overall competitive strength is determined by the weakest contextual entity (figure 8). In optimal situations organizations will be situated within a web of competitive contextual elements and form an advanced network or cluster of interrelations.

- **Factor conditions.** Firms’ high levels of productivity depend on the availability of contextual fundamental factors such as the presence of skilled labour, high quality scientific and technological institutions, adequate physical and information infrastructure and the existence of natural resources. This illustrates the reliability of the organization on its direct and greater environment. Despite increased labour and knowledge mobility, proximity and the right balance of complementarities and similarities remain key success factors for partnering
organizations. An important incentive for both public and private partners in partnerships is the need to decrease factor dependency. Examples of factor conditions in collaborations could be the transfer of market information from physicians and PhDs to commercial partners, or contractual agreements on housing, energy or medical equipment.

- **Demand conditions.** The number and qualitative characteristics of local markets determine the regional potency for businesses. When private partners collaborate with healthcare institutions such as hospitals, the hospital managers are often able to gain access to a large pool of knowledge on marketing and commercialization of outputs. Private partners can be of great value when healthcare organizations want to know their patients’ needs better and evolve towards more customized types of care.

- **Context for strategy and rivalry.** While local rules, incentives and regulations on corporate operations are highly influential on productivity, via philanthropy and partnering organizations are able to modify the competitive context. Especially the trend towards patient centrality and process orientated healthcare requires a certain reshape of some actor’s competitive focus. Organizations are ought to shift from a solely narrow corporate mission towards the creation of shared social value. On the other hand, the resource dependency of both public and private (network) partners and the need for government cuts in healthcare expenditures, createt a shift towards a more business-like approach of healthcare supply.

- **Related and supporting industries.** A company’s productivity can increase significant when it is operating within an effective network of supportive companies. A powerful network of facilitating actors creates proximity in interactions and opportunities of mutual outsourcing. An increasing number of healthcare organizations modify their in-house/outsourcing mix, in order to focus on core competences rather than to remain all facets of the care process in direct management.
Strategic processes of corporate responsibility and social partnering can be important in transforming value chain activities to create a superior position in an organization’s competitive context. Key steps are the selection and positioning of social issues and their translation into an accurate corporate social agenda. When companies want to increase the magnitude of their action’s impact, integration of inside-out and outside-in practices is inevitable. Pioneering in value chain transformations and effectively addressing and translating social issues into strategic opportunities are powerful for creating both social and economic value (Porter & Kramer, 2002, Porter & Kramer, 2006).

Despite the theoretical motivation of the concept by Porter and Kramer, the social responsible corporation is a fundamental impossibility according to others. They justify this by noting that the conflicting good and bad characteristics of the relationships between a firm and its environment along with ambiguity of its moral obligation make it impossible for the firm to be serving social purposes which all of the relevant societies are in agreement (Devinney, 2009). On the other hand, CSR and corporate social value via PPPs do not necessarily exclude each other. In multi-characteristic and complex responsibility environments, such as
healthcare, partners are being driven into collaborative approaches. In other words; PPPs could be seen as the solution rather than the problem.
As stated in most PPP definitions, public-private partnerships bring together at least one public and private partner to generate social value within a larger shared context. Via strategic partnering shared and complementary human capital, experience, knowledge, funding, partner-networks etc. public and private partner aim to create synergies. Current partnerships are namely project orientated research partnerships, but greater social impact can be achieved when extrapolating this experience into financial, operational and broader strategic purposes.

2.4.1 Categorizing public-private partnerships

Taking the general definition of PPPs in mind, public-private collaborations are an umbrella term for a wide variety of trans-sector collaborations. Generally speaking, partnerships are established to thrive organization’s efficiency and quality (innovativeness), cost- and risk-sharing. As a consequence of the great variety of partnerships a great number of scopes in categorizing those collaborations can be adopted. For example, based on the primary focus of the partnership. Horizontal partnerships are collaborations with direct competitors and aim the gathering of complementarities. The vertical partnerships are alliances with the organization’s
suppliers and customers and mainly aim resource securing and cost reduction. Based on the literature following framework on PPP categorization in healthcare can be made (Vrangbaek, 2008; Geddes, 2005; Hagedoorn, 2001; Tidd, 1997; McKee, 2006).

1. descriptive characteristics

<table>
<thead>
<tr>
<th>(sub)sector</th>
<th>e.g. healthcare, GPs, radiotherapy, diabetes prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partnership focus</td>
<td>Horizontal (cross-licensing, consortia, collaborations with direct competitors), vertical (contracts with suppliers or customers)</td>
</tr>
<tr>
<td>Participants</td>
<td>Number of partners, characteristics and background of public and private partner. (e.g. Ministry of Health, TTOs, university)</td>
</tr>
<tr>
<td>Size</td>
<td>Initial investment in the PPP, annual turnover, value of the contract</td>
</tr>
<tr>
<td>Duration</td>
<td>History, total contract period</td>
</tr>
</tbody>
</table>
| Phase of the partnership | - planning/design, establishing/constructing, delivering, evaluation  
                        | - preliminary phase, delivery phase, follow-up phase |

Table 3a: Public-private partnership’s characteristics, descriptive

2. formal characteristics

| Operation of the partnership | - Infrastructure establishment or maintenance (e.g. hospitals or ERP systems)  
|                              | - delivery of goods or services (e.g. hospital catering)  
|                              | - knowledge creation or dissemination (e.g. RCTs, collaborative scientific publications)  
|                              | - combined rationales |
| Legal construct             | *Formal partnerships*  
|                              | - private project with shared ownership  
|                              | - public project with private shareholders  
|                              | - contractual relationship with similar public and private input: “joint venture” |
Informal partnerships

Table 3b: Public-private partnership’s characteristics, formal

PPP can have many formalized structural forms. Although most of the partnerships will be moderately formalized, Geddes defines two more generic organisational models (Geddes, 2005):

1. *Informal partnerships*: a partnership with a minimum of structure, mostly operating by consensus among the partners. Flexibility is a core characteristic for the way partners agreed to act and think within the agreement of partnership. The semi-structured organisational approach of the informal partnership is considered to be especially useful in individualised and exploration-orientated partnerships. In effect it is a more process-orientated structure rather than an action-orientated one.

2. *Formal partnerships*: it is not unlikely to notice informal partnerships progressing towards a more formal direction. Partnerships can be able to create a new environment in which renewed terms and regulations are specified. Formal partnerships do not necessarily need to have the status of a legal partnership. Ways to legalize those partnerships can be either to create a partnership-company/joint-venture or to define all structural specifications in partnership deeds. Partnership contracts will generally define the partners, objectives, actions, power composition and organisational/administrative structures.

3. motivational characteristics

<table>
<thead>
<tr>
<th>Incentive basis</th>
<th>- statutory based; partnerships as a result of legislation. Relatively limited institutional and operational freedom.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- voluntary based; partnership created on a mutual voluntary basis, and in practice often catalyzed by governments. Mostly driven by a common objective of social value.</td>
</tr>
<tr>
<td></td>
<td>- commercially based; collaborating to manage delivery of public projects out of the private sector. These partnerships are frequently contractual based partnerships (e.g PFI)</td>
</tr>
</tbody>
</table>
Strategy for partnering
- defensive strategy; partnering as a necessary step due to a lack of resources
- offensive strategy; collaborating to expand existing activities (e.g. insurance companies’ participations in prevention programs)
- no strategy; ad hoc collaboration or partnering due to governmental regulations

Partnering in strengthening competitive strategies (Porter)
- cost leadership: long term contracts with suppliers in order to secure standardization and minimize costs. When negotiating fixed rates per treatment, margins can be generated.
- differentiator: investments in CRM like systems, superior product quality, experience based customized care etc.
- focus strategy: specialized centres (e.g. hernia inguinalis surgery clinics) can use in depth knowledge to differentiate and/or reduce operational costs. Organizations can form an extensive network of resource suppliers

Intended innovation
- technological
- organizational/ social
- market/economic

Table 3c: Public-private partnership’s characteristics, motivational

2.4.2 Collaboration framework of value flows

Another – more comprehensive – analytical framework has been developed by Austin. The so called collaboration framework combines 2 concepts: the collaboration continuum and the collaboration value construct model (Austin, 2000);
1. Collaboration continuum

The collaboration continuum (CC) defines the interactions between the public and private partner within the partnership. Austin states the importance of defining the scope and organizational approaches of the partnership when setting the fundament of the collaboration. Recognizing the fact that partnerships might evolve in time or form, Austin defines 3 types of relationships: philanthropic, transactional, and integrative relationships (figure 10).

![Collaboration continuum partnerships](image)

Figure 10: Collaboration continuum partnerships

In the *philanthropic stage*, the nature of the relationship is largely that of charitable donor and recipient. An example of a philanthropic connection can be an once only drug donation by a pharmacy company. This type of relations characterizes most nonprofit–business relationships today, but increasing numbers are migrating to the next level. This is a complementary to Porter and Kramer’s analysis which urges the importance of evolution from solely philanthropic public-private relationships to more in-depth strategic collaborations. Succeeding the philanthropic stage, one can analyze the *transactional stage*. In the transactional stage, there are explicit resource exchanges focused on specific activities; example of this type of collaborations are cause-related marketing, contractual service arrangement, event sponsorships, and other specified contracts. The most thorough form of collaborating however is the *integrative partnership*. Partnerships can either be designed as an integrative PPP, but can also develop from transactional or even philanthropic collaborations into integrative partnerships. Those collaborations evolved into the integrative stage in which the partners’ missions, resources, and activities begin to merge into collective action and organizational integration.
If the relationship migrates along the CC, the nature of the partnership changes. The level of engagement by the two organizations’ people moves from low to high, since the partnerships move towards the core of the organization’s operations. The importance of the collaboration to the parties’ missions shifts from peripheral to central. The strategic value of the alliance increases from minor to major. With the increasing importance and centrality, the magnitude of both financial, tangible, and intangible resources within the alliance grows significantly.

Furthermore, the scope of the PPP’s activities broadens noticeably. The interaction intensity moves from infrequent or unsystematic contacts in the philanthropic stage to increased frequency in the transactional and integrative stages. Managing the relationship evolves from a simple clear collaboration to a complex multi-layer system. Essential in the collaboration continuum analysis is the recognition of the partnership stage of the partnership and consequently to align the expectations, formalizations and complexity of the alliance (Austin, 2000).
2. Collaboration value construct

If the CC is the fundamental identification of the partnership, the collaboration value construct is the strategic and operational implication of it. Regardless of the fundamental stage of the collaboration, the core function of most partnerships is the optimal generation of (social) value and the exchange of any form of this value. Austin analyzes multiple dimensions of value exchange, either before or during partnerships (figure 11) (Austin, 2000).

The first dimension in the collaboration value construct is the *value definition*. The more specific one can define the expected partnership payoffs, the greater direction the collaboration will have. Although benefits might be evident and clear while studying partnerships, practice shows difficulties in defining and quantifying partnership value prior to the collaboration establishment. This is mostly a result of the subjectivity and ambiguous character of the perception of value. Regardless of the actual expectations, value parameters must be perceived useful and convincing to the relevant stakeholders in each organization. Crucial in defining and evaluating of partnership value is the calculation of partnership’s benefits, risks and costs. Cost analysis also involves risk estimation, originating from changes in practice, reputation risks and losses of autonomy. Apart from the actual resources needed for funding partnership establishment and continuation, the opportunity cost need to be calculated too.

After defining value and establishing the actual partnership, *value creation* needs to be the driving force behind the collaboration. Value creation derives from a continuous exchange of resources and capabilities among the partnership actors. The intensity of resource exchange is highly determined by the partner’s strategic goals and the intensity and the nature of the partnership. The depth and frequency is highly determined by the stage in the CC. Whereas philanthropic partnerships involve only generic resource exchange, in transactional collaborations partners also exchange core competences. In integrative stage partnerships value exchange is not a matter of two entities in a mutual resource exchange relation, but one of integrated shared creations with joint productions.
Once the partners are able to create value, there is need for a balanced situation of value exchange. Generally spoken, stronger and more long-term alliances in later partnering stages have a more balanced exchange of value in the collaboration construct. This seems to be attained when each partner is actively seeking to find ways to advance the other’s agenda and where they have learned deeply about the other’s business.

As the collaboration evolves, the value of the benefits may erode. The relations within the partnership and between the PPP and its external environment are dynamic and changing. With a long-term prolongation of partnerships, a continuous modus of value renewal is a basic condition for creative capacity and innovation. Value renewal forms feedback loops to multiple steps in the collaboration value construct, as optimal collaborations renew their value definition, generation and dissemination on a regular basis.

2.4.3 Collaboration synergy analysis

Synergy is the ability to successfully combine the perspectives, resources, and skills of a group of people and organizations (Lasker et al., 2001).

Creativity and innovative power is one expression of partnership synergies. With the right mix of complementary and overlapping resources, knowledge and mind-sets, organizations can conquer existing paradigms and achieve major developments. Whereas partnership members tend to be practically and intellectually less limited to the organization- or sector specific framework, they are challenged to think contra-intuitive and comprehensive. The more significantly relevant actors are involved in the partnership, the more the collaboration is able to adopt a holistic view. When establishing PPPs and selecting partners, the possibilities of creating partners’ synergies – synergy exploration – should be one of the leading motives. Apart from thinking comprehensive and innovative, the forthcoming step of comprehensive acting is crucial for partnerships too. Lasker et al. state that partnerships that
have linked medical care to wraparound outreach, social services, and to population-based strategies, such as education campaigns and screening programs, have reported improvements in access to care, and the quality of care (Lasker et al., 2001). A comprehensive approach is essential in synergy creation, since an efficient and effective healthcare system is a chain of actors. The mixture of partners can foster the collaboration to think and act comprehensive.

When synergy can be seen as the collaboration effectiveness, synergy is *de facto* the ability of the partnership to fulfil its objectives. This ability is a function of the formulated and latent objectives of the partners and of the capacity to optimize potential synergies. This capitalization of partnership synergy depends on the partnership’s ability to (Lasker et al., 2001):

- think creative, holistic and practical
- develop realistic, supportable and understandable objectives
- plan and carry out comprehensive interventions
- track and report the interventions’ impact
- incorporate stakeholders’ preferences
- communicate the partnership’s benefits to all stakeholders
- obtain community support

### 2.4.4 Public-private partnership lifecycle

Regardless of the category of the partnership, every PPP has a natural lifecycle (figure 13) (Geddes, 2005). The initial motive to establish a partnership may arise from a number of sources: these sources mostly vary when looking at different types of PPPs. The statutory based partnerships are a result of relevant legislation and government modifications. The collaborations which are voluntary are most of the time a reaction to either government stimulation or sector-specific opportunities. Commercially based partnerships will be created to meet a particular need, often identified by the public partner.
In daily practice the initial motivational concept may be vague. Therefore there will be a need for a process of refining the concept so that it can be translated into clear objectives before it will be corresponded more thorough with all influential stakeholders. Once the consensus on the objective starts to emerge, a process to take the concept forward will need to be established. Usually an individual is identified to promote and lead the partnership development process. It is the so called champion’s (or project manager’s) role to develop a strategy to enter the phase of the partnership’s delivery processes. Essential roles for the partnership manager will be the defining of task, partner involvement, segregation of benefits and risks, and usage of structures and resources. This is considered to be the last step of the preliminary stage. Once the formal fundament of the partnership has been agreed and a PPP is established, then the operational processes of the partnership will need to be managed and the delivery phase starts. The delivery process requires continuously monitoring and feedback in order to ensure that the original objectives are met. The establishment of formal and informal feedback channels (e.g. cross-sectional team meetings, annual reports) enables the partnership manager and TMTs to track the effectiveness of the collaboration. With effective matching of the information and (operational) decision basis, the partnership can modify its structures and re-implement structures for optimal delivery. During the follow-up period the achieved results
are strategically analyzed and the consequences on future partnership structures and mission will become clear.

2.4.5 Public-private partnership establishment and continuation

It is often hard to establish a partnership with the right focus and balance among the participants. Nevertheless a solid partnership fundament is crucial for a viable and effective PPP. Since PPPs appear in many forms, the exact partnership formation is mostly a function of the objectives of the partnership. Important subjects in partnership establishment are the degree of formalization, the intensity of consolidation, the organization of benefits, costs and risks, and the strategic and operational leadership of the collaboration.

The first step in partnership establishment is the trigger to actually create the collaboration. Due to the fact that most partnerships would not emerge spontaneously, a certain direction in the partnership creation is required. Those triggers of latent motivations can be both externally (e.g. emerge of new therapeutic opportunities or changed legal framework) or internally driven (e.g. need for cost reduction in order to fit budgets). In this first step, in-depth knowledge of all partners’ motives and objectives is essential, especially when choosing the partnership characteristics. In the early establishment period parties are able to define an effective partnership focus and create powerful PPPs. Besides mapping the requirements for the core partnership members, a second step in partnership establishment is the appreciation of all partner’s wider context. Although maximizing partner’s synergy is crucial for collaboration establishment, focusing solely on internal aspects would deny the partnership’s role in its greater environment. In order to maximize the partnership’s effectiveness within the partnership and towards its context, partners need to thoroughly define the public context in which they will be operating. After setting the partnership’s scene, practical formulation of the partnership is required. The need for regulation and institutionalization mainly depends on the partnership’s objectives, since most partnership’s have to balance institutionalization, and partnership flexibility and independence. Choosing for less institutionalization is most of the time not a case of less commitment, but one of optimizing partnership’s structures to fit the participant’s objectives. An important part of the partnership establishment is the report responsibilities in order to track the partnership’s effectiveness. Key actors need to develop
the PPP’s feedback channels and success criteria. Success criteria might be applicable to either macro, partnership, partner or individual level and need to be highly specified if possible (Geddes, 2005).

Although shared objectives and motives among partners is of great value in the partnership’s success, partnership continuation is often pushed and catalyzed by partnership drivers. Partnership drivers will mostly be some of the founding partners, since many partnerships are mainly established as a result of the existence of needs. These core partners can be from both private parties, governments and other public parties and are often able to attract external network partners to become associate members in the partnership’s activities. Based on the complementarities of the partner’s resources, associates might move towards becoming core members. One can say that regarding the fact that many organisation’s behavior is determined by the view of key individuals, is it clear that those individuals can be strong partnerships drivers too. Depending on the specific partnership characteristics are key drivers are required to possess capabilities such as sufficient knowledge, strategic vision, political skills, team working skills and business planning skills (Geddes, 2005).

Sometimes it seems that there is a great difficulty in finding the balance within the partnership. Perhaps the most pragmatic approach is to recognize the view that there are two categories of partners within PPPs. While having the stakeholders map in mind, it should be easier to define a balanced allicance:

- Core members: these partners will be required to make the major resource contribution to, and benefit from, the work of the PPP

- Associate members: partners whose views and inputs will be valuable but whose contribution to, and benefit from, the PPP will be less.

It could be that there will be other parties, outside the scope of the formal deed, with interests in the work of the PPP. These stakeholders can move in time either towards the core members or their positions can be marginalized. An abstract view of PPP’s positions is given in figure 14 (Geddes, 2005).
2.4.6 Public-private partnership’s objectives

Generally the choice of collaborating and the degree of partnership intensity are a trade off of perceived (strategic) benefits and transaction costs. Due to the multiple forms of PPPs, the actual balance optimum depends on the establishing partner’s objectives and the context (e.g. country and healthcare system specific) in which the partnership is embedded. Generally spoken, the PPP focus could be on the creation of (social) value optimizing effectiveness and efficiency of healthcare activities. The optimal collaboration strategy usually depends on the maturity of the innovation, the organization’s innovative position and the strategic significance of the technology; all determinants of the innovations impact and the risk on opportunistic behaviour. In practice, transaction costs are not per se the most influencing factors affecting the decision to acquire external technology via partnering. Factors such as competitive advantage, market expansion and extending product portfolios are more important (Tidd, 1997). Apparently there is a greater focus on long term organizational effectiveness rather than short-term cost efficiency when establishing innovation focused collaborations.

Organizations collaborate for a number of reasons. As stated before, a thorough mapping of partners’ and stakeholders objectives and requirements enhances the legitimated basis and the power of the partnership. Based on literature one can analyze the following common objectives for public-private partnership establishment (Keramidas, 2007; Tidd, 1997):
1. *patient or customer related objectives*; organization’s response to key customer or market needs is found to be most powerful incentive to collaborate.

- improvement of access to healthcare and reduction of waiting lists
- improvement of therapeutic options to reduce morbidity and mortality
- decrease healthcare costs and insurance premiums
- make healthcare more convenient via patient- and process orientated care

2. *partner related objectives*; in order to remain competitive organizations are constantly seeking for opportunities to improve its strategic, financial and operational modus operandi.

- reduction of costs/risks of market entry (e.g. fasten product commercialization processes by using the private partner’s expertise/network)
- reduction of costs/risks of technological development/R&D
- enhance the organization’s technological basis by being able to peer review the internal R&D, by reducing the not invented here syndrome, and to challenge the internal researchers with new input
- reduction of costs/risks of financing (e.g. public authorities often have lower interest rates than private partners, via PFI’s financial risks of hospital building and exploitation can be transferred to private partners)
- achieving economies of scale in production
- increase the organization’s responsiveness on technology changes
- technology-, market-, product- or service diversification
- changes or fine tuning of strategic approach (e.g. product leadership (development more advanced and innovative products) or customer intimacy (development of CRM systems))
- response to key individuals within the organization and management initiatives
3. *environment related objectives*; although some partnership will be created solely to meet customer- and partner-related objectives, enforcement of the PPP in the greater environment can foster the partnership’s impact.

- enhancing the partners’ legitimated basis or licence to operate in the healthcare environment, gaining goodwill of customers and governments
- response to changes in the competitive context (entry of new competitors, changes in competitor’s forces, suppliers’ and customers’ power or substitutes threats due to changed technology)
- pooling interests towards third parties, providing an united front for lobby, industry-wide standards and influence further legislation
- reduction of governmental involvement and financing in healthcare
- increase financial and operational diversity in order to stimulate innovative constructs and healthy competition
- greater flexibility to respond to environmental complexity

2.4.7 *Key types of public-private partnerships*

The specific formation of PPPs highly depend on partner’s objectives and the partnership’s environment (e.g. legal framework). Apart from the legal basis, the internal regulatory framework is essential in creating an effective collaboration. The regulatory framework plays a critical role in assuring and optimally improving the quality of healthcare services. This regulatory framework consists of both formal (audit, reporting channels, incentive systems) and informal structures (quality focussed and adaptive organizational culture). However, the regulations need to be in harmony with the scope and the objectives of the collaboration. Therefore, fundamental collaboration analysis is required. In the health sector a number of key types of PPPs can be analyzed. The most broad division is the partition between *contractual agreements* and *joint partnership arrangements* (Klijn, 2005).
Contractual agreements are often characterized by diffuse problem definitions and solution specifications. The public and private partner specify the partnership targets independently. The scope of contractual partnerships is mostly dominated by clear divisions; collaborating actors act within the prescribed framework of tasks and responsibilities. An example of contractual partnering is the classic tendering of hospital buildings. Public and private partners are limited involved in co-production, although managing the contract is a trend. Whereas previously most time was spend on contract establishment, an increasing number of attention is paid to optimize and modify of operational implications of the contract. Several types of contractual agreements can be defined (Nikolic & Maikisch, 2006, Geddes, 2005; Klijn, 2005):

Service delivery contracts are well defined service specific contracts between a public and private partner. A specific characteristic of service delivery contract is the fact they do not involve any capital facility investment as a central objective. The aim of the contract is to benefit from the private partner’s expertise by leveraging the comparative benefits. These comparative benefits of the private partner can be both on the domains of efficiency and superior quality. Services such as hospital catering, administration, IT maintenance and laboratory services, can be outsourced to external private parties (supplier contracts). Those private partners often have more experience, opportunities to gain economies of scale and might be embedded in a network of convenient suppliers of process input.

When public and private partners are arranged in a management contract, public partners formally transfer authority from public entities to private partners. Private partners gain the authority to manage a public facility and provide the services, under their full responsibility. Furthermore the private partner has the authority to manage all necessary functions and staff with the objective of enabling more efficient management via a flow of executive human capital from the private into the public sector. Although the ownership of the facility remains within public hands, management contracts can be seen as a soft form of (partial) privatization. Construction, maintenance, and equipment contracts are typically entered into for development, renovation and maintenance of a healthcare facility.

Due to the fact that many partnering organization operate in a context of both alike and complementary resources, contractual partnerships are often hard to analyze within one of the previous general categories. Hybrid contracts hold features of both service- and management contracts and are specified on a explicit healthcare topic rather than on partnership form.
their case studies, Nikolic and Maikisch state that hybrid partnerships may involve a variety of elements of the contracts in order to serve a specific need or a situation, such as an IT contract providing for both the building and operating of the infrastructure, or a health facility management contract requiring the private operator to also renovate or upgrade the facility (Nikolic & Maikisch, 2006).

*Lease contracts* involve a private partner paying a fee to the public partner to manage and operate a public facility. The private partner on the other hand generates revenues by operating the public facility. In lease contract situations the asset remains either in public ownership or is gradually transferred to the private sector. The government usually remains responsible for the service to guarantee the continuation and accessibility of the facility. Most of the times, the government is the one to re-invest in the service when drastic updates are required. The aim of leasing is to increase the quality and to limit the collective costs by introducing more efficient management. Additionally governments and other public parties are able to transfer some of the operational risk to private parties.

More integrative and intense forms of collaborating are the *joint partnership arrangements*. In those collaboration forms the public and private partner are involved in a joint process of problem definition and solution specification. Whereas the contractual partnerships are characterized by domain specified actions, in joint partnership arrangements there is a greater tendency of searching for expansions in scope and links between the elements. This creates a partnership in which co-production is visible in all partnership stages. Preliminary in mapping the context and defining the scope of the partnership, and later on via searching for partner linkages and other cross-connections. The main focus is the joint realization of the previously defined common objectives.

In *concession agreements* public partners transfer the authority of existing public service exploitation to a private partner. Similar to management contract constructions, the ownership of the present asset remains in public hands but differently from the contract agreements, the private partner is responsible for both operating and maintaining the existing assets, as well as for new investments. The concession format covers multiple contract types, such as performance-based management contracts, BOO-constructions and privatization via asset- or technology licensing. Similar to other choices in partnership establishment the exact regulation and institutionalization is mostly determined by the partnership’s objective (risk allocation and cost/benefit distribution between the public and private parties). The
concession format exemplifies the overlap between the different PPP focuses; a concession partnership has got features of both leasing- and PFI formulas. A typical concession agreement involves an initial investment of the private partner’s financing resources, which will be repaid over a longer period afterwards through a service charges or revenues from the facility. This is similar to the classical DBF(M)O contracts in the PFI construction where much of the investment risk is being shifted to the private sector. In the healthcare sector governmental bodies will ensure the accessibility, quality and continuation of care, but the sum of the collective risk is lower (Grimsey et al., 2005).

Privatization is probably the most drastic form of public-private transactions. Privatization of public facilities involves the sale and full transfer of ownership and risks to the private partner. Nevertheless, even though the government is legal not responsible for the projects since they are not the owner, governments are often monitoring the privatized project. The project is not in the government’s possession but, the government remains its duty to ensure healthcare standards. Apart from direct interventions, the government may also provide support by adjusting the regulatory framework or offering financial incentives (e.g., tax breaks) to influence the private partners’ behavior (Nikolic & Maikisch, 2006).

Private finance initiatives and research based partnerships are specific collaboration types and will be discussed separately in respectively paragraphs 2.4.8 and paragraph 3.3.3.
The Private Finance Initiative (PFI) is a form of Public-Private Partnership (PPP) where private entities finance, design, build, and operate infrastructure projects on behalf of governments. PFIs were first developed in the United Kingdom and have since been applied in various sectors, including healthcare, transportation, and education. The primary goal of PFIs is to create a fair comparison between private and public financing options, ensuring that public sector projects are cost-effective and value-for-money.

In PFIs, private consortia enter into long-term contracts with the government to finance, build, and maintain infrastructure projects. These contracts are structured to ensure that the public sector partner retains control of the asset while providing the private sector with a stable income stream. This arrangement helps to reduce financial risk and stabilize costs for the public sector.

Despite the broad applicability of PFIs, there are different types of partnerships, each tailored to specific project needs. Capital facilitating PFIs are solely designed to develop capital assets and transfer them to the public sector, while combined capital and service facilitating PFIs offer more ongoing partnering relations. An example of a combined PFI would be a commercial partner involved in both constructing and maintaining a hospital building and providing additional services such as security or billing.

In the context of PFIs, private actors such as construction companies create special purpose vehicles to bid on contracts with public partners. These vehicles are typically formed to secure financing from banks or other investors, manage construction projects, and provide facilities management services over the lifetime of the contract.
Synchronous with the contracts duration the public partner pays a contractual defined charge. This can be a fixed amount with a constant or inflation-specific growth rate, a defined percentage of its revenues, etc.. Depending on the contract type, the private partner is also responsible for the building’s and related facilities’ maintenance (table 5). Franchising is a rather different model in which the public authority contracts a private company to exploit and manage an existing public hospital. Another unique model has been developed in Valencia. The Spanish Alzira Model is a pioneer mixed management model in the public health system, by which a private company is awarded a contract to build and run an integrated health area management, including hospital and primary care. Spanish NHS transferred regional healthcare responsibility to a private consortium in return for an annual per capita payment (case 4) (McKee, 2006).

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Franchising</td>
<td>Public authority contracts a private company to manage existing hospital</td>
</tr>
<tr>
<td>DBFO</td>
<td>Private consortium designs facilities based on public authority’s specified requirements, builds the facility, finances the capital cost and operates their facilities</td>
</tr>
<tr>
<td>BOO</td>
<td>Public authority purchases services for fixed period after which ownership remains with the private provider</td>
</tr>
<tr>
<td>BOOT</td>
<td>Public authority purchases services for fixed period after which ownership reverts to public authority</td>
</tr>
<tr>
<td>BOLB</td>
<td>Private contractor builds the hospital; facility is leased back and managed by public authorities</td>
</tr>
<tr>
<td>Alzira model</td>
<td>Private contractor builds and operates the hospital, with contract to provide care for a defined population</td>
</tr>
</tbody>
</table>

Table 5: Models of PPP in hospital provision (McKee, 2006)
Case 4: Alzira model; Valencia, Spain

Spain’s NHS contains a free universal public healthcare system (70% of the expenditures) and a private system which covers 30% of the care expenditures. Whereas the public part is fully operates on governmental resources, the private system is provided by a private network.

Due to governmental deficits in the nineties, public parties were forced to think about new creative forms of healthcare providing. Furthermore, authorities decided to establish a special contractual agreement for the Alzira region in Valencia. Within the contract the academic La Ribera hospital and multiple health centres were adopted in order to contract out the care supply of 250,000 people.

The contract with the private care consortium covered 15 years and the private contractor receives a fixed annual sum per inhabitant (535€ per inhabitant (2007)) for the 15 year duration of the contract. The costs that the government pays are around 25% below average costs per person elsewhere comparable. The annual amount payable is revised on a yearly basis regarding the governmental budgets and the inflation, market- and cost developments. Furthermore, the private consortium is responsible for investments and remaining the healthcare standards. For the private partners, this contract resulted in a structural ROI of 7.5%.

According to benchmark analysis the Alzira model was a significant better performing model compared to traditional modi operandi (parameters such as length of stay and number of surgeries performed per day per surgeon). Furthermore, the patients’ satisfaction reported was excellent. Additionally table 6 provides a number of reported benefits from the Alzira model for different stakeholders:

<table>
<thead>
<tr>
<th>Citizens</th>
<th>Hospital’s staff</th>
<th>Government</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater accessibility</td>
<td>Improved professional development initiatives</td>
<td>More efficient and transparent</td>
</tr>
<tr>
<td>Shorter waiting lists</td>
<td>Activity based incentive systems</td>
<td>use of public resources</td>
</tr>
<tr>
<td>Perceived quality via individual approach</td>
<td>Greater job security</td>
<td>Decreasing budget problem</td>
</tr>
<tr>
<td>User satisfaction</td>
<td></td>
<td>Increased resource efficiency</td>
</tr>
</tbody>
</table>

3. Innovating via public-private partnerships in healthcare

How can public-private partnerships lead to innovation for healthcare institutions?
3.1 Introduction

When organizations are faced with a make-or-buy decision in any form, they will be confronted with several considerations influencing this decision. Generally two motives are crucial in the assessment whether to internally generate knowledge, capabilities, products etc or to attract it externally: namely partnership costs and competitive advantages. It is the role of the TMT or partnership manager to assess partnering risks, benefits and costs. An important cost of partnering is the partnership’s transaction cost. Transaction costs are the organizations costs (and the chance of facing the costs) resulting from exchanging resources on markets. These costs originate from the partner’s limited knowledge or opportunistic behaviour (deliverance of inferior quality and/or high pricing). Whereas transaction cost analysis is a major consideration, empirically most partnerships are settled based on long term strategic motivations such as product portfolio expansion. Competitive advantages, market entry and innovativeness are other important strategic motives to collaborate. Usually firms collaborate for a number of strategic reasons; the reduction of technological development and market entry can be one of those. Organizations might choose to acquire external expertise once they adopted diversification to complex technologies into their strategy. Furthermore and aligning the R&D process might reduce the risks of development and market entry too. In addition, via collaborating partners are able to pool resources or
responsibilities in order to achieve economies of scale in production and distribution. Other firms choose to collaborate to increase their market flexibility and responsiveness. With effective partnering, actors can be able to reduce the time taken to develop and commercialize new products. The collaborating motives and objectives are the fundament of the alliance. Furthermore, the technical and organizational structures, assets and complementarities are the resources to further build up the partnership. Especially research based partnerships derive from the right mix of technologic resource overlaps and complementarities. The greater the impact or the chance of opportunistic behaviour (e.g. leakage of crucial information, loss of control or conflicts), the more interesting it will be to remain technology generation internally. If the technology is of great competitive significance the impact of opportunistic behaviour will be much higher, and therefore the transaction cost too. Additionally, the quality of the knowledge flow between partners is highly matching the quality of the innovations. The more complex and uncodifiable the knowledge is, the greater the chance of quality mismatch can be expected and the greater the transaction cost will be. The organizational partnership basis consist of a right mix of similarities and complementarities. The scope of the organizations towards change/innovations/partnering etc. (in both organization culture and TMT) needs to be in the same direction. The actual design of the partnership is characterized by a trade-off between institutionalization and flexibility. Whereas institutionalization deals with the formalization of objectives, partners’ responsibilities/restrictions etc. flexibility requires some looseness and trust among the partners. While empowerment is an important capability in stimulating innovation, it also increases the chance of opportunistic behaviour. Therefore feedback mechanisms are crucial in the effective behavior of the partnership. Transparency creates trust and open innovation network-like innovation generation. With the right intention to learn and receptivity to up to date knowledge collaborations become most effective (Tidd, 1997).

Figure 15’s collaboration model shows the way partnering and innovating are tightened to each other. In order to understand how to foster innovation via PPPs, a clear understanding of partnering- and innovation strengthening is required. This chapter will focus on partnership- and innovation determinants as well on social- and technological innovations via collaborating and at last on collaborative innovation management.
3.2 Determinants of partnership innovation

3.2.1. Determinants of PPPs and innovation

Analyzing determinants of successful partnerships and innovative power is relevant to organizations for a number of reasons. In first place a good view on enhancing and impeding factors helps TMTs to develop and implement innovation- and partnering strategies which centre determinants which are relevant to the innovation process. Furthermore knowledge on determinants enables organizations to influence established innovation processes. Organizations can make most efficient use of available resources by focussing solely on significant factors in the process. Based on the literature the following framework of determinants of PPP’s success (Geddes, 2005; Tidd, 1997; Klijn, 2009; Keramidas, 2007; Lasker, 2001) and innovative power (Berwick, 2003; Kok, 2005; Fleuren, 2004; Volberda, 2008) can be generated.

<table>
<thead>
<tr>
<th>PPP determinants</th>
<th>Innovation determinants</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1. Institutional factors</strong></td>
<td></td>
</tr>
<tr>
<td>- clearly defined and common agreed objectives</td>
<td>- organizational size (number of employees/turnover)</td>
</tr>
<tr>
<td>- clearly defined and common agreed responsibilities and risks</td>
<td>- organizational structure (functional, process orientated)</td>
</tr>
<tr>
<td>- defined project milestones and sub-goals</td>
<td>- degree of hierarchical structures and participation</td>
</tr>
<tr>
<td>- realistic aims</td>
<td>- clarity of innovation guidelines and procedures</td>
</tr>
<tr>
<td>- mutual benefits, balanced membership</td>
<td>- scientific- and R&amp;D basis of the organization/sector</td>
</tr>
<tr>
<td>- equality in power and dependency</td>
<td></td>
</tr>
<tr>
<td>- thorough planning, clear business plans</td>
<td></td>
</tr>
<tr>
<td><strong>2. Partnership- and process characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>3. Resources</td>
<td>4. Social related factors</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>- frequent communication</td>
<td>- equality in contribution</td>
</tr>
<tr>
<td>- regular progress reviews</td>
<td>- continuity of resources</td>
</tr>
<tr>
<td>- deliver as promised</td>
<td>- complementary resources</td>
</tr>
<tr>
<td>- flexibility</td>
<td>- presence of tangible resources (money, space, equipment etc.)</td>
</tr>
<tr>
<td>- carrying specific added value</td>
<td>- presence of intangible resources (skills, expertise, information etc.)</td>
</tr>
<tr>
<td>- long term commitment</td>
<td>- resource connections (e.g. networks)</td>
</tr>
<tr>
<td>- shared believe in cultural change</td>
<td></td>
</tr>
<tr>
<td>- shared scope among partners</td>
<td></td>
</tr>
<tr>
<td>- logistic procedures related to the innovation</td>
<td>- staff characteristics (turnover, capacity)</td>
</tr>
<tr>
<td>- scope to the environment (outreaching vs. introvert) and relationships with others (network complementarities)</td>
<td>- time available</td>
</tr>
<tr>
<td>- administrative support</td>
<td>- financial resources made available (or access to)</td>
</tr>
<tr>
<td>- support and visualization of innovators</td>
<td>- availability of expertise, skills and knowledge</td>
</tr>
<tr>
<td></td>
<td>- availability of other resources such as equipment or manuals</td>
</tr>
<tr>
<td></td>
<td>- employee’s intrinsic motivation for change</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>5. Management related factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>- TMT commitment</td>
</tr>
<tr>
<td>- prominent political presence</td>
</tr>
<tr>
<td>- strong interpersonal skills</td>
</tr>
<tr>
<td>- consistency</td>
</tr>
<tr>
<td>- ability to effectively adjust strategic planning based on information</td>
</tr>
<tr>
<td>- existence of a collaboration champion</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>6. External environment</th>
</tr>
</thead>
</table>
- effective and transparent public control/regulations
- community characteristics
- public- and organizational policies

- fitting into rules, regulation and legislation (e.g. intellectual property rights)
- patients’ characteristics (willingness to cooperate, perceptions of benefits and concerns, financial burden)
- competitiveness of the environment
- external pressure to innovate
- characteristics of the organization’s direct network (complementarities, participation, competition, resources)

7. Innovation characteristics

- number of potential users, frequency of use
- compatibility, trialability, observability
- perceived added value, relative advantage and risks compared to previous situation

Table 7: Determinants of PPP’s success and innovative power

Institutionalization is often a first reflex of organizations to deal with uncertainties. A certain trade-off between formalization and flexibility can be analyzed. Yet, an effective institutional and infrastructural basis is crucial for both partnership- and innovative success. In order to establish an innovative collaboration, the organization needs to be institutionalized around this scope of change. A balanced and effective collaboration creates the best opportunity for effective innovation.

Partners are the source of the partnership’s resources which fuel the collaboration innovativeness. Partner- and process related characteristics are important in determining the innovative power. Administration, information channels, governance and feedback mechanisms are important in bringing the right mix of partners, resources and capabilities together at the right time to generate creativity. Furthermore a stimulating and supportive process design will enhance effective and efficient implementation and adoption of innovations.

Tangible and intangible partnership resources are the basic foundation on which synergies of any kind can be build. Important tangible resources are money, equipment, space etc. and important intangible resources are expertise, knowledge, time, capabilities, information etc.. Apart from the resource volume the right mix of resource balance, resource complementarities and resources connections is crucial in generating added value.
To achieve optimal levels of collaboration synergy and innovativeness, partnerships need to be characterized by effective resource interconnections. Furthermore, strong personal- and social interconnections are of great value too. The ability to adopt new innovative or comprehensive ways of thinking and acting, determines the creative power of the partnership. On all levels (from individuals to organization cultures) innovativeness needs to be adopted into the fundamentals of the organization. Especially in the later stages of innovation (implementation, adoption etc.) the social context in which the innovation is embedded is crucial for the innovative success. Moreover, key individuals can be leading in persuading and stimulating the vast majority to adopt this partnership- or innovative focus.

Coordinating and catalyzing the cooperating organizations into a collaboration with a shared focus requires effective leadership. TMT commitment in all innovative stages and in all partnership stages enforces organization’s members at middle- and bottom level to connect to these principles. Managers should effectively match the innovative strategy with an appropriate and stimulating organization/partnership design. Managers should be leading persons when required, but also be able to empower others in order to generate creativity at the organization’s roots.

The partnership’s ability to generate synergies and innovative products is not always a function of determinants within its control. Especially legislation, regional preferences and availability of resources can influence PPPs’ innovative policies. Moreover, the external environment is a great influencer of the urgency to innovate. Competitiveness, changing patient preferences and resource uncertainties are important stimulants of innovation.

Apart from the vehicle which enables organizations to innovate (e.g. clustering, in house R&D etc.) innovative success is also highly determined by characteristics of the innovation. Perceived value of change is an important determining factor of intrinsic motivation to set up creativity or to adopt innovations. In later stages innovation characteristics such as trialability, compatibility and observability are important in implementing the innovation. Healthcare innovation success is often determined by the professional’s perception of the patient’s benefit/appreciation and the idea whether patients will adopt the novelty.
Furthermore an important remark which needs to be made is the fact that the six determinant categories are not independent entities but rather interconnected parts of a system. Although the initial idea of an innovation derives from a single person’s idea, the total development, testing, commercialization, implementation etc. is embedded within a multifactor system. Once organization members recognize this system view on collaborative innovation, one can manipulate and redesign existing structures in order to ensure maximal effectiveness. Although the determinant categories are not succeeding steps in the innovation process with direct one on one output-input dependences, on a more conceptual level the idea of bottleneck management can be partially applied. When organizations commit to innovation focused partnerships but find themselves being unsuccessful in fulfilling the formulated objectives, determinant analysis can provide a guideline in analysing the restrictions (e.g. box 2). Managers are able to find a starting point to improve the PPP’s innovative power.
Box 2: Assigning partnership’s innovative power via determinants

Determinant analysis can provide a valuable framework when assessing the strengths and weaknesses of partnerships and their innovativeness. Managers can get a quick impression on the strength per determining category and compare the potency of the partnership and the innovation power. The TMT can assess the individual determinants by measuring in absolute terms (quantitative/qualitative) and compare the results to a peer group. Furthermore, the managers can analyze the partnership’s external environment and the specific innovation’s characteristics. Consequently, the partnership can translate this peer assessment into a rating (0=poor, 10=excellent).

An example (figure 16). The radiology department of a hospital decides to develop a new form of MRI scanning: “the MRI experience”. The head of the radiology department therefore chooses to partner a large scanner manufacturer. Resources are available, partners are motivated to improve the product, and all required processes and formalizations are organized. The radiologists and nurses will survey the patients and work closely with the manufacturers’ product design team. Additionally, there is a great interest among the patients in this more comfortable way of scanning and the legislation is no problem either. However, although the hospital TMT underlines the importance of the idea, they are weakly committed to the public-private character of the partnership. The head of the radiology department feels poor support to carry out his plans which is a major restriction on the vitality of the innovation since he will not fully able to exploit the partners’ opportunities. In short, one can say that the innovative strength of PPPs is as strong as the weakest link within the collaborative web.
3.2.2 Stage specific determinants

Managers can lead their strength and weaknesses analysis by the previously discussed generic determinant framework. But research showed that determinants for innovative success via partnership are often influenced by the stage of the partnership (Austin, 2000) and innovation (Volberda, 2008).

Whereas the partnership continues, the collaboration evolves via the collaboration continuum pathway (paragraph 2.4.2). With the development of the partnership, the nature of the collaboration changes, so do the determinants. Table 8 shows the importance of partnership determinants per collaboration stage.

<table>
<thead>
<tr>
<th></th>
<th>Philanthropic</th>
<th>Transactional</th>
<th>Integrative</th>
</tr>
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<tbody>
<tr>
<td>Alignment of strategy, vision and values</td>
<td>-</td>
<td>+/-</td>
<td>+</td>
</tr>
<tr>
<td>Personal connections and relationships</td>
<td>-</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Shared visioning</td>
<td>+/-</td>
<td>+</td>
<td>++</td>
</tr>
<tr>
<td>Continuous learning</td>
<td>-</td>
<td>+/-</td>
<td>+</td>
</tr>
<tr>
<td>Focused attention</td>
<td>-</td>
<td>+/-</td>
<td>+</td>
</tr>
<tr>
<td>Communication</td>
<td>-</td>
<td>+/-</td>
<td>+</td>
</tr>
<tr>
<td>Organizational systems</td>
<td>Community based</td>
<td>Specific activities</td>
<td>Integration, PPP manager</td>
</tr>
<tr>
<td>Mutual expectations and accountability</td>
<td>-</td>
<td>+/-</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 8: Importance of determinants per collaboration continuum stage (Austin, 2000)

In the early philanthropic partnership stages, the relation between the partners is mainly donor-recipient like. Private partners might have specific intentions to donate money, but mostly not the aim to establish immediate integrative institutions. The overall bilateral engagement to the partnership is relatively low, so alignment of scope, strategy and vision is less necessary to achieve the objectives. On interpersonal level, the interactions and communications are annually and mainly grant process related. The key idea however is that partners collaborate from a somehow shares vision based in the operating community.
Although transactional partnerships are in nature positioned in between the philanthropic and integrative partnerships, those collaborations are more than just a mix of those two. Transactional partnerships are mainly established in order to secure or optimize (periodical) resource transactions. This type of collaboration is goal-driven established. Although most attention is still situated at TMT level, further involvement at lower levels (e.g. communication channels, specific accountability requirements etc.) is needed too. The collaborations are mainly organized around specific activities or transactions and the organizational focus is mainly on top management agreements and personal relationships.

Additionally, the more the partners are able to integrate their individual resources into the partnership, the more potential value the partnership can generate. But the integration requires organizational adaptation too. The main requirement of successful partnerships is the ability of the partners to unite into an entity in which on all level continuous learning, exchange of core resources, effective communication and trust is present. The partner’s strategic and operational scope shall be aligned and the partners evolve into a situation of shared (social) value generation. Centralizing the partnership into the strategy creates greater commitment and congruent values enhance the alliance’s cohesion.

Volberda et al. analyzed the importance of specific partnership characters in different phases in biotechnology based research. They divided the innovation process into three phases: research/discovery phase, the development/clinical trials phase and the commercialization phase. Due to the different dynamics and objectives per phase, the enhancing and impeding factors were diverse too. Table 9 shows the importance of partnership’s characteristics per innovation stage (Volberda, 2008).

<table>
<thead>
<tr>
<th></th>
<th>Research/discovery</th>
<th>Development/trails</th>
<th>Commercialization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependence</td>
<td>++</td>
<td>+/-</td>
<td>+/-</td>
</tr>
<tr>
<td>Previous relations</td>
<td>+++</td>
<td>-</td>
<td>+/-</td>
</tr>
<tr>
<td>Equality</td>
<td>---</td>
<td>+/-</td>
<td>++</td>
</tr>
<tr>
<td>Communication</td>
<td>+</td>
<td>+</td>
<td>+/-</td>
</tr>
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</table>
Characteristics such as effective communication, trust among partners and solid contracting remain relatively important during the whole innovation process. On the other hand, in the commercialization phase the partnership relation changes, and trust and intensive communication becomes less important. Furthermore one can state that especially in the more unsure research- and development phase, TMT commitment and support is inevitable. During commercialization, the product is established and TMT commitment was not experienced as a key success factor anymore.

Another interesting outcome is the optimal inter-partner relationship which catalyzes the innovation process through all stages. Key determinants in the initiating research stage are resource dependences, previous collaborations and minimal equalities. Resource dependency is a classic objective of partnering. Once organizations are in uncertain environments with greater resource rarity, TMTs can decide to secure their input by partnering others. When shackles in complex biotechnological research intend to realize major breakthroughs they are strongly depending on other organization’s knowledge, capabilities etc.. Therefore partnering organizations choose to collaborate with actors with minimal resource equality and maximal resource complementarities. In later stages the partnership wants to refocus these differentiated resources into specified, tested products in order to bring it on the market. Therefore the complementarities are most determining in the early creative and explorative phases in innovation, whereas shared product and market scope are determining in development and commercialization phases.

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Table 9: Importance of determinants per innovation stage (Volberda, 2008)
The European Innovations Scoreboard (EIS) performed a benchmark exercise on the European biotechnology innovativeness: the Biotechnology Innovation Scoreboard (BIS). The BIS analyzes the innovative performance of the biotechnology sector in the EU countries, US, Japan, Switzerland and Norway (European Commission Enterprise, 2003). Besides the outcomes of the research (figure 17), another interesting aspect of the research is the analysis of the composition of the BIS assignment. As well as bibliographic analysis, the number of PhDs and patents, R&D expenditures, the researchers analyzed aspects of the network in which the countries’ innovations are generated. More specific they stated the importance of collaboration between public sector research organizations (e.g. universities, governmental laboratories etc.) and industrial firms. This aspect of innovativeness analysis contained an estimation of collaborative research agreements between public sector research organizations (PSROs) and industry per million capita (1), university spin-offs per million capita (2), joint scientific publications between PSROs and industry per million capita (3), and joint EPO patents applications between PSROs and industry per million capita (4). Although the data on these topics is often harder to extract than classic innovation parameters and therefore less present in the BIS analysis, the adoption of research driven collaboration indicator indicates the importance of this matter.

Figure 17: The Biotechnology Innovation Scoreboard, an assessment of European biotechnology innovativeness (European Commission Enterprise, 2003)
3.3.1. Research based public-private partnerships in healthcare

Although PPPs might seem a novelty in healthcare to many, current healthcare delivery in most countries already involves some public-private collaboration. In systems in which care is delivered by public organizations, much of the care input is supplied by private organizations (medication etc.). In private operated healthcare suppliers, the government is the main regulator, professionals are trained by public institutes and many of the R&D is public based. With the increasing demands of bringing inventive therapies to patients and reducing costs at the same time, many healthcare organizations – in both systems – are driven into R&D partnerships. Nevertheless, most of the current research collaborations tend to be more ad hoc and on an opportunistic basis lacking a long term strategy (Melese, 2009). Research based partnerships often derive from personal relationships between (key) individuals in both organizations, but therefore they lack some multi-layer systematic. As a result of this approach, both PSROs and private partners are not able to fully capitalize the partnership’s opportunities.

University-industry relationships emerge from the 1980s, but gained political attention from the beginning of the 1990s. An important milestone was the adoption of the Bayh-Dole Act or University and Small Business Patent Procedures Act in 1980 in the U.S.. The Bayh-Dole act enabled U.S. universities, small businesses and non-profit institutions to control their intellectual property which resulted from governmental funding. Blumenthal surveyed in 1996 210 domestic- and international life-science companies in the U.S. and found that 92% of them was involved in any type of academia-industry relation. Besides consulting-, training, and equity faculty relationships, 58% of the firms was involved in a research based relationship (Blumenthal, 1996). Blumenthal’s findings are in line with the previous analysis of the ad hoc character of the collaborations. The partnerships are rather applied than fundamental. Moreover, most PPPs are targeted in time (84% is <2 years) and funding (75% is <100.000$) instead of integrative partnerships. More than 60% of the research’ respondents reported that they had been able to realize additional patents, products and sales out of the partnerships (Blumenthal, 1996). Due to the fact that patents, new products and additional revenues are important
measurements for innovativeness (research, development and commercialization) the organizations had been able to gain innovative strength out of partnering PSROs.

Academic medical centers (AMCs) can be a valuable partner in research based PPPs. AMCs are both healthcare providers and health schools and therefore interesting partners to develop innovative solutions from the roots of the system. AMCs are able to both train new healthcare professionals and sense the impact of implemented innovations. AMCs educate future researchers and top clinical staff which are the engine of hospital based research such as RCTs. Benefits of research based collaborations with AMCs are the building of well defined patient cohorts (also for rare diseases) and the establishment of biological specimen banks. When pooling resources the overall impact of the research can be leveraged when comparing to the partner’s individual researches.

3.3.2 Motives to establish research based PPPs

More often organizations collaborate because they are forced to, because they want to improve healthcare quality, establish new treatments, extend their treatment portfolio or to operate more resource efficient etc.. Top clinical specialized healthcare institutions gain most competitive advantage from state-of-the art based collaborations, whereas poorly specialized hospitals benefit from broadly implementable and cost per patient reducing innovations. The actual consideration whether to generate knowledge within the organization’s boundaries or to form partnerships is highly determined by the innovation characteristics, partners, industry and the society at large. Hagedoorn formulated a conceptual framework in which research based partnering motives are structured into transaction cost-, strategic management- and industrial organization related reasons (Hagedoorn, 2001).

Transaction costs: transactions cost analysis derives from the theory of the firm. The theory of the firm analyses the existence of organizations from the idea of firms as optimal entities for resource transaction and transformation. The organization’s boundaries are determined by the relative costs of transactions. The transaction cost theory is based on the idea that there are two types of relevant costs: production costs and transaction costs. In other words, whenever an entity possesses resources, one should consider whether to exploit these hierarchical within the organizations boundaries (production costs) or exploit these via transactions with external
parties (transaction costs). Research based partnerships can be analyzed as a hybrid organization form in which the partners remain autonomy while they establish structural resource exchanges. Partners are still facing transaction costs, since there is no certainty on the other’s performance. Therefore transaction costs such as bad quality research, opportunistic behavior with confident information, bad pricing and loss of control need to be considered.

*Strategic management:* most partnerships are established for strategic purposes. Especially when internal R&D is expensive and complex, organizations will broaden their scope to partner with external parties. Furthermore, 5 strategic aspects of strategic motivation for research based partnering can be distinguished:

1. *competitive force:* the competitive force argument derives from the industrial organization theory. In this paradigm organizations should optimize their position within the given competitive context. Organizations should both defensively and proactive adapt and reshape their competitive framework. When partnering, organizations increase their resource potential via creating access to resources rather than acquiring them within the organization itself.

2. *strategic network:* strategic network analysis states that besides the traditional internal and external way of organizing transactions, there is another way to transform resources: the network. Especially the quantity and quality of the network intra-connections determine the efficiency, synergy and innovative power which can be generated. In other words, organizations can differentiate into a specific role within the network’s value chain and reduce transaction costs due to shared value creation.

3. *resource based view of the firm:* another way of looking at a firm’s strategic position is by analyzing the value, rarity and substitutability of its resources. Key resources can provide the firm specific advantages when they want to differentiate or produce cost efficient. In life science technology, such capabilities can make a difference in whether organizations are able or allowed to exploit resources. Examples can be licensing or the temporary transfer of key researchers from universities to firm’s R&D unit.

4. *dynamic capabilities:* dynamic capabilities are the organization’s ability to internalize, generate and reconfigure internal and external competences to address rapidly changing environments. This so called organizational learning can be catalyzed by inter-organizational linkages. By internalizing other organizations’ competences firms are able to enhance their competitive position. An important value of research based PPPs is the possibility to learn
from other partners, combine information and to adopt a creative way of thinking by analyzing cross-relations resulting in innovations.

5. **strategic options in new technologies**: organizations might choose to diversify or renew their product portfolio in order to react on new market opportunities. A certain set of new resources, capabilities and competences is likely to be necessary to fulfill those objectives. Via partnerships, organizations are able to both gain access to those resources and to gain valuable experience for future strategic steps.

**Industrial organization**: the idea of research based collaboration motivation via the industrial organization theory derives from the idea of the market of scientific and technological knowledge. This theory explains research based PPPs out of the assumption of market failure. The public character of technologic and scientific knowledge, makes its generation relatively more expensive than its transmission. Hagedoorn furthermore analyzes this into 2 models:

1. **Non-tournament model**: when analyzing innovativeness, one can analyze the impact of specific resources on the organization’s cost efficiency, or their product quality and differentiation for example. The non-tournament model states that due to the great number of research paths and the heterogeneity of advantages, one technology can result in multiple winners. Although technologic innovation may lead to a firm specific advantage for the organization, knowledge might also spillover to other organizations. They might use this information in substitute research paths in order to gain other specific advantages. Therefore in some situations in which knowledge is somewhat modular and prone to other’s advantages, partnering might be valuable in order to internalize maximum value of this knowledge.

2. **Tournament model**: the tournament model states that the characteristics and timing of the innovation are race between organizations. In case of patents the first one to contract the innovation is allowed to gain monopolistic returns for a specified period. Drug patent is an example of a tournament model competition. Via partnering organizations are able to license technology from the winner, but also to enhance their position towards third parties in order to become the winner or to release some of the tournament pressure and create shared value (Hagedoorn, 2001).
3.3.3 Types of research based PPPs

Paragraph 2.4.7 made a first attempt to redefine the plethora of models of PPP characterization. Similar to non-technology driven PPPs, the research based PPPs are an umbrella term for many forms of partnering in which public and private partners collaborate to catalyze technological innovativeness. Innovation based partnerships can be divided by members of the collaboration (e.g., government, supplier, university, AMC) or organizational formalization (e.g., informal agreements, formal RJVs and research corporations) (Tidd, 1997; Hagedoorn, 2001).

*Informal partnerships*: although significant literature on informal research based partnerships lacks, informal partnerships form a great percentage of the collaborations. Research showed that approximately 90% of the U.S. based research based partnerships were informal in nature (Hagedoorn, 2001). Private organizations informally partner with other private organizations but also with public partners such as universities, AMCs in which the public partner can serve as an informal project-specific information supplier.

*Research consortia*: a research consortium is a partnering form in which multiple organizations work together on a well-specified project. Research consortia can be solely private based (industry consortia), public based (university consortia) or public-private based (multiple company-, multiple university consortia). The main objective of research consortia is the pooling of research in order to gain advantages such as cost- and risk sharing, increased impact etc. (Tidd, 1997). Research consortia are often relatively more focused on fundamental research.

*Research corporations*: research corporations are separately created research entities. Research corporations are equity joined ventures aiming to combine R&D and resources into a separate organization under shared control. Usually organizations establish research corporations when the parent organizations are in a transformative situation with major technology changes (Hagedoorn, 2001). Important advantage of research corporations are the organization’s ability to leverage existing knowledge and to increase the access to external resources.

*Research joint ventures (RJVs)*: RJVs are mainly contractual and strategic collaborations in the field of applied research and collectively developing new technologies. These strategic R&D pacts cover non-equity legal contract in which there is no new research entity created. Organizations remain their equity independence, but cooperate in order to share risks, and to pool resources to create a favorable mix of complementary resource capabilities and
knowledge. For example, public organizations might partner private partners in later stages of the development phase of an innovation to spur the commercialization and to co-invest in market research, distribution etc..

*Innovation networks*: innovation networks are a hybrid form of resource transformation somewhere between the hierarchical- and market approach. Organizations are able to specialize within the research network and leverage the sum of the innovation quality and impact. Networks often arise from long-term inter-organizational collaborations in which the independent organizations specialize and reform themselves towards the most synergy creating relations.

Furthermore a few other types of research partnerships can be distinguished. Partnerships between a private partner and one researcher or one university department can be an important starting point to create an organization-wide PPP. Another way in which public and private partners can joint forces is via VC fueled firms or via other collaborations with startups. Academic researchers are stimulated to commercialize their research and private organizations are able to gain returns, to systematically track the performance, and be the first one to internalize human capital, intellectual capital or an entire firm. A more pragmatic way of collaborating is the fee-for-service partnership. A private firm gains access to previously unavailable technology; whereas the public partner acquires financial resources and provides its knowledge to market applied problems (Melese, 2009).

### 3.3.4 Managing research based PPPs to innovation

In profit driven organizations, innovations are mainly driven by the economic potential of the idea. Investments in innovations can be often transformed in multiplied profit growths in the long run. Therefore large pharmaceutical- and biotech firms increased their R&D budgets by 147% from 1993-2004. Nevertheless, this increase in resource input resulted in only 38 percent increase in new drug applications (Melese, 2009). With this relatively low return on traditional internal generated knowledge, organizations seek for new approaches to create new innovative therapeutics. Organizations increasingly collaborate with external knowledge partners across a wide range of therapeutic and healthcare domains. However, effective collaborations require effective collaboration management. One can distinguish two collaboration management principles: managing partner selection and collaboration portfolio
management (1), and process management to create and remain innovative research based partnerships (2).

Recently, researchers argued that the current model for biomedical innovations is economic unsustainable (Melese, 2009). The historical blockbuster model derives from a strategy of product innovation via internal knowledge generation and full exploitation of this innovation in the market. However, due to changes in the competitive context this model developed into the current blockbuster model. In the current model, the generation of profitable innovations has become increasingly a struggle as well. Revenue markets have decreased due to shortened product life cycles (an increased number of knowledge intense flexible and innovative spin-offs), an increased number of me-too products (governments often stimulate doctors to prescribe generic versions of medication rather than the expensive original product), and also because of the lack of differentiation and impossibility of increasing the margins. Additionally, companies are faced with increasing costs due to the rising expenses of researches (e.g. RCTs), due to more late stage failures and restrictive regulations. In the new collaborative innovation model organizations broaden their perspective and partner with other actors outside the boundaries of the firm. Effective partnering can lead to the generation of additional revenues (via licensing, spin-offs etc.) and cost sharing or effective innovation (figure 18).

A fundamental aspect of partnership management is the choice of the incorporation of the partners. Features such as competitive context, geographic orientation and innovation life
cycle determine the partner choice. It is important to match the collaboration partners with the objectives of the partnership. For instance, in the life science sectors single organizations operate within different competitive contexts and therefore benefit from different partnership characteristics. Pharmaceutical industry organizations often partner within international networks. Pharmaceutical research is resource intensive and therefore commercialization over worldwide markets is necessary. Research expertise on specific diseases and treatments is often focused in several research centers over the world and not present in the local environment. Furthermore, pharmaceutical companies are often multinational operating firms which also explains the preference of international collaborations. On the other hand biotechnology and medical technology operating organizations operate within a local- and regional based network of suppliers. Organizations are able to find necessary resource nearby and form strong interconnected regional research network-like collaborations (Volberda, 2008). Companies can partner with local start-ups in order to gain access to knowledge and to outsource highly specific tasks. On the other hand these start-up companies secure themselves additional (financial) resources and experiences. Private organizations can partner universities, via partnering the private partner gains access to early stage technologic innovations, which decreases opportunistic behavior compared to private-private partnering (primary focus of universities is publication rather than commercialization of knowledge). Universities on the other hand gather additional resources (financial, laboratories etc.), ensure access for their student’s careers, and not in last place they are able to cooperate in the commercialization of research and share profits. TTOs can be important mediators in the resource transfers of intellectual property, human capital and financial charges. Another determinant of partner choice is the stage of the innovation. In early innovation stages technological and strategic uncertainties tend to be greater and companies want to remain their flexibility in terminating the innovation. Therefore VC investments and strategic alliances are being preferred. The research focus is more often on fundamental than on applied research. In later stages more commitment is required among the partners. With the development of the innovation and starting commercialization, the innovation’s benefits become more certain. Volberda studied the innovativeness per collaboration partner per sector (table 10). This research showed that large- and innovation-focused organizations mostly partner with universities. Moreover, actors operating within different life science sectors reported different innovative value per partner. Established knowledge partners and companies are of most value for biotechnology operating firms. Pharmaceutical companies mostly benefit form collaborations with start-ups, knowledge institutes and universities,
whereas medical technology organizations gain most innovative power by partnering knowledge institutes and universities (Volberda, 2008).

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Table 10: Innovativeness per collaboration partner per sector (Volberda, 2008)

Once the (multiple) partners have been selected the collaboration- and innovation management can evolve towards strategic partnership portfolio management. Whereas past collaboration management was mostly functional orientated, Melese argues that future collaboration portfolio management should be led by partnership’s characteristics such as partnership’s strength and –complexity (Melese, 2009). In the functional management approach, partnerships were allocated by functional area with each responsible for its own collaborations. In the more advanced management approach there is a organization-wide strategic portfolio management using multiple partnership models for multiple partnership characteristics.

Process management of existing research based collaborations is vital in focusing all involved actors on the shared objective of shared technologic innovativeness. Innovative organizations generally have some shared characteristics including an open minded, flexible, dogma free culture which in which people are willing to accept change. The TMT fulfills a leading role in carrying out these values, training and selecting new staff, and empowering (key) individuals. Furthermore managers should design flexibility throughout all facets of the organization. Communication lines need to be flexible in order to accelerate knowledge flows and enhance innovativeness in all organization layers, as well as between the partners. Managers can create certain proximity between partner’s members by enhancing reporting obligations, creating multifunctional and multi-partner teams, and to appoint a innovation-collaboration manager. Furthermore, in order to enhance the partnership’s flexibility the collaboration design should be rather flat and build around shared innovations. This should result in a knowledge friendly
and a risk-tolerant culture in which people are encouraged to act creative, explore, share knowledge, and take risks in order to create breakthroughs.

In general two aspects of successful innovation focused collaboration process management can be determined (Volberda, 2008; Eaton, 2006):

1. **organizing flexible**: other than the traditional hierarchical organizational design, flexible partnerships should be flat open network-like entities. Partnership managers and partner’s TMTs evolve from autonomous decision makers to coordinators and facilitators of semiautonomous decentralized decision making units. While organizing partnerships flexible, TMTs should take a few things in mind: the distinction of immediate efficiency and innovation, horizontal cooperation, and shared decision making.

2. **dynamic management**: the main objective of dynamic management is the effective identification, development and capitalization of opportunities for the partnership and its members. Via long-term strategic commitment and adopting innovation and shared development in the mission statement, dynamic management can initiate innovation. Key capabilities of dynamic TMTs are experience, diversity in expertise, and visionary leadership.

3.3.5 **Triple helix model of PPP innovation**

With the increased environmental complexity resulting in changing organizational boundaries and -strategies, more contemporary cooperation models, such as the *triple helix theory* derive (Etkowitz, 2002; Etkowitz, 2008; Leydesdorff, 2003). The triple helix model is an analytic tool which enables managers, researchers and policy makers to optimize public-private collaborations in order to generate innovations. The triple helix theory distinguishes three actors in PPPs, namely government, university and industry. These three entities evolve in a classic helix curve while remaining intertwined. Due to this co-evolution of public- and private partners, member’s roles tend to be less ossified and a dynamic and innovative partnership will arise. Governments and universities are likely to evolve into more entrepreneurial roles by transferring technology, incubating new firms and taking lead in commercialization of technologies (e.g. by attracting VC funding, via establishing science parks or TTOs). The major strength of this model is the controlled reconfiguration of actor’s
roles and consequently resource flows. Innovation generation is often characterized by major paradigm shifts or the recombining of existing resources. The triple helix approach can be a valuable guide to control inter-organizational and inter-paradigm reconfiguration. Although governments have been centralized in many innovation partnerships in the past, the triple helix places the university-industry-relation in the centre of the theory and prescribes a more facilitating role for governments. This centralized position of universities is legitimated by the great importance of knowledge in technological innovations and the great knowledge density in universities. Despite the general premises of the model, the actual institutionalization causes divergent preferences among researchers (Etkowitz, 2008; Leydesdorff, 2003). Some authors describe the importance of institutionalization in the creation of new organizational formats to create innovative products. When defining the governmental, university and private institutions as separate institutions, one can capture their transformative roles relationships while remaining linked. However, others prefer a more informal, flexible and less descriptive approach. With a tradeoff between flexibility and institutionalization TMTs can choose to which extend they want to loosen their organizational structure and empower partners and decentralized organization units to act autonomously. The flexible deinstitutionalized approach empowers employees at all levels to be involved in the innovation process and contribute creatively, but TMTs might feel like they lose grip of the process. In the more flexible organized triple helix partnerships managers will guide the innovation process in more informal and persuasive ways, but in the institutional view TMTs can follow a clear pathway towards the innovative co-evolution. The first step in the triple helix evolution is the collaboration of the institutional partners through their conventional roles. While the partnership produces technological innovations, knowledge becomes more crucial, and consequently the university becomes the key spine of the helix. By contributing additional resources and supportive activities to the university institution, the partnership’s output is leveraged. In the next phase of the helix, bilateral institutional transformation within the partnership will be accelerated. In this stage, partners gradually exchange (core) roles in the innovation process. For example, the university’s key role remains knowledge generation and transmission, Figure 20: Working field of triple helix government-university-industry relations (Etkowitz, 2008)
but the university’s activities also involves commercialization of knowledge and academics can help establishing supportive policy. This so called entrepreneurial university consists optimally on four key capabilities (Etkowitz, 2008) namely strategic academic leadership, legal control over academic resources, organizational capacity to transfer technology (via patenting, licensing and incubation), and entrepreneurial ethos among researchers, managers and students. The private partner’s core function remains the production and distribution of products, but they might also be involved in additional internal R&D, joint publications and traineeships. Private organizations evolve into knowledge-based firms characterized by capable and research-driven human capital, availability of supportive assets and organizational adaptation.

As the partnership evolves in time and in payoffs (innovations, additional profit/publications etc.) the partners co-evolve from transformative roles in the external field space into transformations in the core competence field. This does not imply that partners loose their own core competences, rather it can be analyzed as a further extension of core objectives and competences. In this late stage helix collaboration, shared objectives are integrated into comprehensive mission statements, resulting in optimal synergies and maximal impact. In this stage of institutional movement of organizations, resource movement will result in hybridization (optimal mix of interdependence and independence), invention and innovation of new social formats. The government fulfills mainly a supportive role in the triple helix theory. Instead of centralized top-down innovation regulation policies, governments should adopt a more decentralized and pragmatic innovation policies. These triple helix policies should recognize the regional- and sector differences and stimulate bottom-up initiatives evolving from the triple helix approach. Furthermore, governments can shape a supportive policy framework of favorable legal regulation, taxes, funding and a adequate matching educational policy.
Case 5: Medicon Valley, Denmark/Sweden

Since the development and success of Silicon Valley, California, numerous of life science organizations have emerged worldwide. However, effective clustering and networking amongst them has become a valuable tool in leveraging the individual technological innovativeness and stimulating local economic growth. Michael Porter, the main proponent of the network model, defines a cluster as “a geographically proximate group of interconnected companies and associated institutions in a particular field, linked by commonalities and complementarities”. Furthermore he argues that cluster participation allows members to gain advantages in terms of innovation performance through close contact with others. Recognizing the multiple appearances of such bionetworks, much of the cluster’s success is determined by the ability of stakeholders to form effective trans-sector linkages. The Scandinavian bionetwork Medicon Valley (MV) is one of the striking examples of the successful application of the triple helix theory. The 1996 established MV in Copenhagen, Denmark and Malmö/Lund, Sweden aims to be the most attractive bioregion of Europe. The Öresund bridge between the two countries has become the symbol of the linkage of 100 biotech-, 25 pharmaceutical- and 100 medical technology companies, 12 universities, 32 hospitals, 7 science parks and ten thousands of public and private researchers, PhDs etc. MV members benefit from the cluster via network- and training opportunities, via intra-cluster communication, documentation and benchmarking, but also via external branding the MV members as superior partners. Furthermore, the MV networking organization actively establishes partnerships of all kinds between involved partners. In general the cluster enables multiple stakeholders to collaborate and combine scientific, entrepreneurial, financial and infrastructural resources to enhance their competitiveness. Examples of these collaborative stimulating initiatives are regular meetings, conferences, educational programs, postgraduate stipends, joint PhD programs, establishment of science parks and incubators, and the matching of high potential researchers to venture capitalists. Some of the initiatives are triple helix specific forms of collaborating such as the joint public-private PhD projects in which companies take a significant role.

Within the MV cluster, one can analyze a rather generalized pathway via which basic ideas transform into businesses (figure 21). Whereas most innovations start with public research and inventions, technology transfer via TTOs/science parks/incubators etc. results in seed financing and in start-up companies. Since start-ups might be weak due to major investments
and lack of experience, private and public partners enforce the firm with subsequent funding and favourable tax regulations.

Figure 21: Evolution of innovations within Medicon Valley (Medicon Valley Alliance, 2009)

Besides the local collaboration, MV has become a part of global connections with other major research foci around the world. Both local and non-local collaborations are crucial to catalyze innovation processes. Especially tacit and non-codified knowledge is favourably shared in collaborations with relative spatial proximity, in order to minimize opportunistic behaviour. Nevertheless, due to improved mobility and communication possibilities proximity becomes a rather relative concept. On the other hand, highly specialized research or clinical research on extremely rare diseases requires international collaboration and resource pooling. This all is being modelled in the idea of local buzz and global pipelines. The local buzz contains the local (tacit) knowledge flows and the international pipelines contain the canalized extra-local knowledge flows. In general the balance of local versus global resource flows is highly depending on environmental characteristics such as the (extra-)local availability of complementary resources such as VC, skilled labour, adequate suppliers, supportive policy, and adequate infrastructure. Researchers found that more spontaneous brainstorming, knowledge
protection, and product design happen mostly in the local network, whereas more transformative problem solving, multiple integrative innovations, and product commercialization mainly happen within the global network. A global initiative of the MV network is the Life Science Ambassador Programme which aims to create close and long-term relations between clusters by exchanging representatives. The so called life science ambassadors simultaneously exchange for at least 3 years between partnering clusters. Partnering clusters are in the U.S., Europe, India, China and Japan.

Figure 22: Publishing collaboration chart (Cooke, 2006)

Figure 22 shows an example of a publishing collaboration chart of major bio scientists in leading research institutes in top 10 indexed journals. The density of the lines shows the great complexity of the cooperation at top research level and the great number of institutes involved. MV is the world’s number 8 leading biotech cluster based on number of DBFs/life scientists/VC funding/big pharma funding.

Despite the successful application of the triple helix- and local buzz/global pipeline concepts, MV faces significant challenges due to the bi-national character of the network. Apart from the different languages, the two countries have different innovation policies and intellectual property rights, which complicates intra-cluster international collaborations. Especially the smooth alternation of the multinational partners creates tension in the helix and decreases local proximity and favourable innovation conditions.
Source: van Geenhuizen, 2007; Bathelt et al., 2004; Cooke, 2006; Medicon Valley directory, 2009; Moodysson, 2008; Coenen et al., 2004; Moodysson et al., 2008; BCG Copenhagen, 2002; Ørum et al., 2004; Gestrelius et al., 2006; Smaglik, 2001; Frank, 2002; Matthiessen, 2004
3.4 Social innovation and private finance initiatives

When analyzing the innovative possibilities of public-private partnerships in healthcare, one can distinguish the ability of PPPs to initiate technological and social innovations, but a second view is the idea of PPPs as an innovative model of financing and operation itself. In the first view PPPs have the opportunity to unite multiple stakeholders from public and private signature to combine resources in order to develop comprehensive healthcare solutions. Besides the technological innovations PPPs can also foster process based innovations (e.g. organization- and process design, product commercialization). Private partners can be of added value for hospitals in their search for providing more differentiated care. Private partners can act as supportive partners in writing business plans, marketing plans, and when negotiating with insurance companies. Another view on PPP’s innovativeness is the idea of PPP, as innovations itself. Intensive and systematic partnerships of public healthcare providers with private orientated firms can help redesign the public organization’s operational and financial basis. Private finance initiatives for example change the organization’s asset basis, risk profile, annual investments and therefore it’s cost profile.

3.4.1 Innovation via private finance initiatives in healthcare

The private finance initiative was introduced in the U.K.’s public sector in 1992 with the aim to transform the public sector from asset owners and service providers to purchasers of those services from the private sector. Although the PFI is in the initial stages mostly applied to infrastructural investments, NHS support services followed later. NHS land, buildings, IT systems are often sold to private organizations (or private investors are responsible for initial investments) and NHS leases those assets back in 20-60 years at market rates. In this model the public sector does not buy the assets, it buys the services. The private sector is responsible to choose the most effective model to provide this services complying with the contractual price and quality. Furthermore, when studying PFIs in healthcare and their innovativeness one can differentiate 4 aspects: costs, quality, flexibility and complexity.
An important incentive for public authorities in participating in PFIs is aim for better services and improved value for money, which is a result of the costs saved by the health authorities when transferring the risks of assets to the private contractors. Six determinants of value for money can be distinguished, namely: risk transfer, long-term nature of contracts, the use of output specification, competition, performance measurement, and private sector management skills (Grimsey, 2005).

![Diagram of PSC and PPP](image)

Figure 23: Public sector comparator of financial attractiveness (Grimsey, 2005)

In the public sector comparator (PSC) analysis one can systematically combine all value for money elements in order to judge the (financial) attractiveness of PFIs (figure 23). The project’s or asset’s risk can be divided into transferrable and non-transferrable or retained risks. The transferrable risks are asset-owner specific risks which are being transferred to the private contractor in the PFI (e.g. the risk of cost-exceeding or major investments due to technical aging). Any risk that can not be transferred to the contractor is to be retained within the public sector. This risk closely relates to the public obligation of sustainable healthcare. Usually the lease tariffs are homogeneous over the time not regarding changes in risk over time. The risks of building constructions is much higher than the risks of operating the services related to the asset. On the other hand, some argue that the likelihood of some of the risks to appear are small, especially when considering the financial backing of federal governments (McKee, 2006). This makes the distinguishing of transferrable and retained risk
even more relevant to the PSC analysis. Furthermore the base costs analysis provides a good insight in the overall cost basis of traditional public operation and the PFI alternative. Base costs include preliminary costs (planning, permits), design and capital procurements, opportunity costs, overhead costs, operating costs and decommissioning costs at the end of the project. Non-differentiating costs such as wider socio-economic costs will not be included into the PSC analysis. Despite the conceptual visualization of cost savings by Grimsey & Lewis, the transfer of a project or asset to a private contractor would not necessarily make the PFI construction cheaper for public partners. When considering the financial costs; corporate bonds used to finance PFIs are often BBB+ awarded, whereas West-European government bonds are generally AAA rated. Therefore the private contractor faces higher interest rates, which might result in higher lease fees for the public partner. Especially in poor performing PFIs, refinancing bonds at lower ratings and higher interest rates might put further pressure on the projects. Other costs to include in the PSC analysis are the costs resulting from competitive advantages government businesses favor such as tax adjustments. Nevertheless, the PSC method should be approach with care since it is difficult to make accurate cost comparisons between the costs of PFI procurement and more classical methods. Some authors argue that PFIs are systematically significant more expensive than public based alternatives due to higher financing costs and profit margins (McKee, 2006). In conclusion, healthcare authorities can balance the tradeoff between instant initial investment cash inflows and long-term operational cash outflows.

Although cost and liability reduction, and improved value for money are strong incentives to join PFIs, quality driven motives are other important motives. When public partners contract private providers to outsource certain assets or projects, they can benefit from this company’s experience, network etc. and leverage quality- and service levels. Most hospital managers only seldom involve in development of IT systems or the design new hospitals, private partners can be involved in multiple of such projects and pool experiences, specific capabilities, facilitating R&D, and enhance their bargain power. In the most contemporary developed PFI contracts, innovation can even be adopted into the agreement. In IT service contracts for example parties can add clauses such as guaranteed state of the art technology, annual technology refreshes, and continuous new hard- and software. Furthermore parties can index specific characteristics and specify detailed growth factors of performance.

Another aspect of PFI agreements is the objective of increasing organization’s flexibility. The public partner can obtain greater flexibility while transferring the major capital investments to the private contractor and retaining lower risk due to the changed cost structure. The
healthcare provider can narrow its role to its core competence: providing care, rather than on designing IT systems and building infrastructure. Nevertheless, the organizational flexibility is a rather relative subject since the public-private contracts are often specified in very great detail. The contractual complexity further complicates the organizations aim for flexibility. Additionally, one can easily calculate that greater flexibility has a price for the public partner too.

3.4.2 Public-private partnerships in strategic hospital management

Private organizations can be valuable partners when healthcare institutions want to transform into more economic sustainable or business-like modes of operation. Some of the current private investors in healthcare criticize lack of incentives to outshine as a healthcare provider in cost efficiency and/or quality. In their vision many healthcare providers are rigid budget-focused instead of dynamic flexible patient-focused. In order to break open this situation private partners invested their capital and knowledge in healthcare and via public-private consortia they started to have joint ownership and control over the healthcare facilities. Private partners can introduce their specific business capabilities such as strategic activity portfolio management, marketing of healthcare services, HRM initiatives and commercializing in-house developed innovations. Furthermore the private partner can help implementing strategies such as differentiation of cost-leadership. In general, the innovative more business-like public-private consortia mostly focus on transforming the healthcare providers into patient- and process orientated organizations rather than the traditional functional orientated providers. In these process-orientated organizations, the organization is designed around clinical paths the patient follows. Initiatives such as centralized multi-specialism planning, multi-disciplinary disease-specific teams, and the more proactive service orientation, can foster this patient orientated approach. Other improvements deal with the more efficient practice of business, such as the optimal use of imaging equipment to shorten waiting lists, or the efficient patient orientated planning to reduce the lead time and increase the patient turnover. Initiatives both improve the patients’ satisfaction (shorter waiting lists, fewer consultations, consultation-examination-diagnosis all on one day etc.) and are cost efficient too (higher efficiency of infrastructure, less physician fees etc.). Additionally, the existence of a patient friendly healthcare provider which markets its products can catalyze other healthcare providers’ performance improvements as well (in a healthy competitive context and transparency). A complicating factor in the development of these private financial
involvements is the non-compliance of this idea with political morals. When getting back to the triple helix, one can state that it takes three to tango. The regulatory framework often withholds private partners from being fully involved in all aspects of the hospital management. In some countries too much private interference in the healthcare sector is officially forbidden. Furthermore, in other countries private investors are not allowed to withdraw money from healthcare and pay dividends. Concluding, future adjustments in the regulatory framework are required for optimal functioning of PFIs if governments choose to stimulate PPPs in healthcares.
Case 6: MC Group and the IJsselmeer hospitals; Flevoland, the Netherlands

In 2009, the collaboration of the DC Group – specialized in radio diagnostic clinics in Amsterdam – and Sequoia – PPP and healthcare specialized VC organization, with extra governmental funding acquired the IJsselmeer hospitals in the Netherlands. The hospitals were in financial and operational weak position, but critical in the healthcare providing for the Flevoland province. The MC Group partners had gained experience in running stable and successful (mainly private) healthcare projects, but were motivated to become one of the first Dutch (public-)private operated hospitals.

In addition to the aim of improving the financial performance of the hospital (annual cost reduction of 6-7 million euro), the hospital’s TMT initiated drastic changes in the hospitals’ operational modus in order to enhance the quality. In a 2009 interview, MC Group’s and IJsselmeer hospital’s CEO, Winter, criticize the organization’s bureaucratic and budget focused culture and announces a few major changes:

1. healthcare delivery processes: the central objective of all process modifications is making the healthcare deliverance less bureaucratic, more dynamic, and faster. Winter declared that he does not doubt the professional’s motivation, but rather focuses on transforming the hospitals into client focused organizations (e.g. clinical integration, patient orientated resource pooling). The hospital management aims to concentrate the power at the organization’s bottom to make decisions at the organization’s root, to empower employees to be involved and creative. In order to improve the service level the TMT introduces incognito patients to secretly check quality bottlenecks. Other process changes such as the smoothening and standardization of repeating actions via IT systems and introducing protocols should enable the IJsselmeer hospitals to reduce their waiting lists. Introduction of advanced e-services and the availability of adequate online information should enable the IJsselmeer hospital to differentiate in both quality and accessibility. This smoothened delivery processes should result in targets such as: all telephone calls picked up within 10 seconds, maximum waiting of 15 minutes at appointments, and the “now-principle” which ensures that if patients call, they can have a consult, and a first diagnosis on the same day if
The IJsselmeer hospital case clearly illustrates some of the key changing points on which private investors in healthcare PPPs often focus. The more business-like operational modus involves objectives such as an improved equity position, process- and patient focused organization structure changes, and establishment of complex adaptive flexible organizations. Furthermore, TMTs often introduce the principle of doing what you are best at and leave the rest to others. In this philosophy one can reduce the hospital’s activities to its core competence: providing care. Hospital TMTs should distinguish the organizations’ core- and facilitating activities and benchmark these to other relevant organizations. Core functions mainly correspondent with the hospital’s medical specializations, whereas the supportive activities can be both medical related (pharmacy, laboratory services, R&D etc.), and process- and infrastructural related (IT, laundry services, catering, hospital infrastructure etc.). Figure 24 illustrates such a summarization of core- and facilitating activities for a hospital. In this example, the TMT might have decided after benchmarking that external (public or private) partners perform better on relevant quality or cost indicators in certain niches (shaded in the figure), and that therefore outsourcing via public-public- or public-private partnerships is beneficial for the organization and patient. Additionally, managers can use this strategic partnership management to optimize the organization’s resource utilization. Strategic partnership management enables managers to use the advantages of different types of PPPs to match different types of risk-, costs-, and quality objectives. Facilitating functions such as catering, postal services, technical services are supporting functions which might be possible.

2. infrastructure: in MC Group’s strategy the IJsselmeer hospital’s infrastructure will be used more efficiently and for multiple purposes. To facilitate maximal utilization rates of infrastructure the TMT announces a pilot to explore the possibilities of X-ray scanning during night time. Other initiatives to improve the return on infrastructure investments are the improved and more efficient planning to reduce unused capacity, and the idea to find creative new transmural solutions.

transferred to a private partner and formalized in contractual agreements. Facilitating functions which go along with resource-, risk-, or knowledge intensive assets can be transferred to private parties via hybrid-, lease- or PFI contracts, whenever this goes along with improved quality or resource efficiency. This idea of strategic partnership management of parts of the organizational functions can be extended into the organization’s core functions. Hospital managers can compare their own medical departments to other healthcare providers and decide to integrate external hospital dependences within the own organization if appropriate. In this view, the hospital becomes a building which houses and bundles multiple organizations into managed care networks, which cooperatively provide healthcare with optimal resource utilization and maximal quality.

![Diagram](image)

Figure 24: Overview of a hospital’s core- and supportive activities and the in-house and partnership performed functions (white= internally provided, shaded= outsourced via strategic PPPs)
4. Ethics and empirical issues in public-private partnerships in healthcare

Which limitations can be analyzed considering public-private partnerships in healthcare?
4.1 Introduction

Despite the potential benefits of public-private partnerships on healthcare innovativeness, not all partnerships are equally desirable. Previous chapters have shown that PPPs can be an interesting tool for managers to enhance the organization’s corporate responsibility via the creation of social value. However, collaboration between public sector organizations, and for-profit organizations can be perceived as moral unwanted when it comes to providing healthcare. Critics argue the threat of loss of key values of the healthcare system such as accessibility and quality of care. In order to establish legitimate partnerships, moral considerations of the partnership’s social environment should be incorporated into the deliberating whether to create partnerships in first place.

Besides the conceptual moral objections, collaborating partners and all partnership stakeholders should clearly recognize other more practical partnership issues. When recognizing the fundamental differences between partnering organizations and the implications of long-term commitment to the partnership, partners can be able to anticipate proactive and to form realistic expectations. Therefore, an analysis of opportunity- and switching costs will regularly be incorporated into the broader cost-benefit analysis before entering the partnership. Despite the effort, conflicts might arise any time with the potential opportunistic behaviour of partners and its consequences. Knowledge of common issues in PPPs formation and continuation might help actors to quickly recognize problems and anticipate adequate.

This chapter will discuss few of the moral considerations when organizing healthcare delivery via public-private channels. In stead of discussing the comprehensive moral contemplations, two evident ethical remarks will be discussed to point out the issue. Additionally, some of the previously experienced difficulties in healthcare PPPs will be reflected on. The aim of this overview is to provide a starting point to understand and recognize the complexity of public-private cooperation in healthcare.
4.2 Ethics in public-private partnerships in healthcare

*Which ethical remarks can be made when analyzing public-private partnerships in healthcare?*

*For-profit organizations in healthcare*

An important concern in public-private collaboration in healthcare is the concern of maintenance of public sector values when private partners enter the system. Public organizations are generally characterized by a broader set of objectives and values compared to for-profit organizations. Public partner’s moral values are often a matter of democratic participation, social responsiveness, openness, and equity. Critics question whether the PPP concept will be able to maintain these core public sector values. Others respond that private organizations’ managers should have both economic- and ethical goals when establishing public-private alliances. Those ethical goals increase the social accountability, since other stakeholders are enabled to evaluate the partner’s and partnership’s actions. These ethical goals should incorporate ethical obligations considering the arena of economic activity, but also the aim of providing healthcare for at least a minimum level of quality (Reich, 2002; Vrangbaek, 2008).

The narrow view of private organizations as solely profit seeking entities within the partnership is a matter of moral discussion too. When private organizations invest in healthcare related projects, it is likely to understand that many organizations will do this with motives which go further than the solely pursue of profit. A central argument of social appropriate corporate behavior is to enhance the corporate legitimacy of operation. However, corporate actions which do not maximize shareholders value are from a narrow economic view presented as market imperfect and Pareto inefficient, reasoning that social responsibility will withhold organizations from profit maximization and economic efficiency (Reich, 2002). Recognizing discussions on the applicability of theories of perfect competition on healthcare, paragraph 2.3 overviews the theory of social responsible acting and the ability to enhance the firm’s competitive position.
Another ethical consideration concerning public-private partnering in healthcare is the implication of these alliances on public sector independency. In first place one can analyze the *de facto* restriction on the scope of future democratic decision making, as PPPs create long-term contractual obligations. From a narrow investment scope this long term commitment might be acceptable, but when adapting a broader scope of service delivery decisions, public politicians are excluded from exercising their democratic duty (Vrangbaek, 2008). Additionally, the intense triple helix cooperation between academy, industry and government changes the objective of government independence towards private partners. In principle, governmental institutions are legitimated by democratic processes and it is their duty to primary focus on the outcome of these democratic processes, rather than to modify regulations in order to facilitate PPPs.

Research based PPPs and other forms of academy-industry relationships merit special attention because of their potential restrictions on academics. Intellectual vitality is crucial for independent and effective (medical) research. Some of the consequences of academia-industry relationships, such as shutting down profitless research programs or preventing publication of data, might create disadvantageous situations for society (Streiffer, 2006). Two common problems occurring in research based partnerships, which influence the academic vitality are:

1. *decreased focus on fundamental academic research*: in order to remain their intellectual vitality academics should not be fully dependent on industrial support. Academics should sustain their capabilities in maintaining their level of excellence on fundamental academic research. Industry funded research is often near market research which is easier to commercialize. Nevertheless fundamental research enables applied research, since these researches form the foundation of further research and development.

2. *consequences of information secrecy*: an other matter of concern is the implication of research secrecy in medical research. Blumenthal surveyed that 82% of the companies involved in partnerships required academics to keep information confidential in order to allow adequate patenting. Additionally, more than fifty percent of this group said that they often require academics to keep information confidential beyond the patent procedure. Although this secret information mostly contains methodologies and experimental know-how, the information withheld may affect findings of general interest to academic colleagues, including those useful in repeating and confirming the work (Blumenthal et al., 1996).
4.3 Empirical issues in public-private partnerships in healthcare

Which empirical issues have been described in past and current practice of public-private partnerships in healthcare?

Since public and private partners join forces and commit to generate value via shared operations, both partners are likely to be confronted with alike some issues. Multi-partner agreements are often characterized by multiple incentives and objectives. Despite the fact that some convergence of problems is inherent to the partnering process, public and private partners will be confronted with different obstacles on their road towards succeeding their partnership goals. Table 11 overviews common reasons for failure of alliances, derived from a meta-analysis of 16 studies (Tidd, 2005).

<table>
<thead>
<tr>
<th>Reason for failure</th>
<th>% studies reporting factor (n = 16)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategic/goal divergence</td>
<td>50</td>
</tr>
<tr>
<td>Partner problems</td>
<td>38</td>
</tr>
<tr>
<td>Strong–weak relation</td>
<td>38</td>
</tr>
<tr>
<td>Cultural mismatch</td>
<td>25</td>
</tr>
<tr>
<td>Insufficient trust</td>
<td>25</td>
</tr>
<tr>
<td>Operational/geographic overlap</td>
<td>25</td>
</tr>
<tr>
<td>Personnel clashes</td>
<td>25</td>
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<tr>
<td>Lack of commitment</td>
<td>25</td>
</tr>
<tr>
<td>Unrealistic expectations/time</td>
<td>25</td>
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<tr>
<td>Asymmetric incentives</td>
<td>13</td>
</tr>
</tbody>
</table>

Table 11: Common reasons for the failure of alliances (Tidd, 1997)
1. Shared issues

*Difficulties in measuring the partnership’s costs and impact*: The first issue deals with the difficulties in measuring the costs and impact of public-private collaborations. Especially in larger scale- and multi focus projects comprehensive value for money analysis are impossible to perform. For this reason, policy makers, and public and private TMTs often limit their analysis to parameters such as operational performance, cost-efficiency, and outreach (Keramidas, 2007). Consequently outcomes which are harder to measure, as well as secondary effects (e.g. the additional regulatory- and monitoring costs when transferring authority to the private sector) remain outside the analysis. Nevertheless, these more qualitative costs or impacts are not less important when judging the partnership. Due to the relative novelty of the concept, and therefore smaller empirical research basis, long-term consequences of contract durations on the monopolies of private operations are often unclear. Furthermore, the documentation of effectiveness in achieving health and health system related goals has been a difficulty as well. Research on overall effectiveness has not led to a consensus that the partnership method is significant superior or inferior compared to traditional single-partner alternatives (Lasker, 2001).

*The free rider problem*: With the potential of partnerships to create partnership specific competitive advantages, associated actors might want to benefit from created capabilities and innovations. Among those interested partners are both supportive companies who can be of great value in creating an effective network, but as also direct competitors. Therefore companies need to study carefully their investment’s (transaction)costs, risks, and potential benefits. At the baseline, Porter & Kramer argue that the created competitive advantage most of the times relatively overshadows competitors abilities generated. Especially in cases of highly specified collaborations, the formed clusters will induce disproportional firm-specific advantages and relation networks. On the other hand partnership members might choose to transform partnership specific resources into regulated collective resources with the intention of cost and risk sharing and tackling the free rider problem (Porter & Kramer, 2006).

*Conflicts*: academic-industry relationships and public-private collaborations in the broader sense are often complicated by conflicts which derive from organizational differences. This friction mostly illustrates substantial differences between the public- and private partner’s cultures, values and norms (Melese, 2009). Disputes might be a result of conflicts of interests when the academic institution becomes involved with other companies. Other conflicts are a
result of changes in direction of academic research and intellectual independence. 34% of the academia-industry conflicts are a result of issues with intellectual property rights and ownership (Blumenthal et al., 1996). Conflicts also arise when academics are required to remain scientific and social relevant knowledge internal for economic reasons. Other potential triggers for academia-industry conflicts are leakage of information, unrealistic expectations, poor governmental regulation, divergent objectives, and inadequate communication amongst the partners.

**Shared risks:** Vrangbaek defined a few relevant shared risks for public- and private partner whenever they enter into a PPP. The negotiation risk involves the economic and prestige related risks and transaction costs tied to the negotiating process. Organizations also need to calculate the construction- and implementation risks. These risks are a result of unforeseen events in the implementation process which may negatively impact the economic results (e.g. environmental issues, construction errors). These unforeseen effects often lead to conflicts over the determination of partners’ responsibilities. Contract risks; all collaborating partners run the risks of committing to a suboptimal long-term contract. These contracts might create high switching costs and reduce organizational flexibility. Another risk which policymakers and other involved parties should calculate is risk of erosion of trust relations in case of repeated failure or misconduct, and additionally the risk of monopolies and loss of control or ownership (Vrangbaek, 2008).

**Institutionalization versus flexibility:** in order to tackle uncertainties in partner’s behavior and external complexities, TMTs often choose to institutionalize and formalize collaborations. However, in practice organizations which operate in complex and changing (competitive) environments mostly benefit from adaptive and partially institutionalized organizational structures. Therefore one can analyze that there is a certain trade-off between institutionalization, uncertainty reduction, control, and formalization on one hand, and flexibility, empowerment, adaptation, organizational creativity but also greater uncertainty on the other hand.

Other empirical collaboration issues described in literature are budget and staffing problems, conflicts concerning sharing of costs and benefits, and failure due to unrealistic expectations. The chance of issues is concerned to be higher when incompatible partners decide to collaborate. Underlying risk factors of conflicts resulting from unsuited partners are:
imbanced strong-weak relations, insufficient trust and commitment, personal clashes (Tidd, 2005; Melese, 2009; Blumenthal et al., 1996).

2. Private partner related issues

The risk of cream skimming: an important social issue is the risk of cream skimming by private organizations. If private partners solely select investments based on the potential of profit, these partners will only enter activity areas where they can foresee a potential for return. Although this is understandable and not illegal, it might result in a thinned out public sector, as the most interesting and lucrative activities are being moved to private spheres. Public sector, and for example public hospitals, will end up as the sweepers taking care of problematic areas or non-lucrative patients and projects (Vrangbaek, 2008).

Reliance on public partner: although some academia-industry collaborations will generate instant innovations with immediate commercial value, many private partners feel themselves being tied to the long-term orientation of university research. They rely on public partners for access to ideas, knowledge, talented researchers and marketable products and services. Since private organizations are depending on the research flow for new products, they are depending on the rapidity of university’s output in to translate this into commercial products. University bureaucracies are often mentioned issues in establishing and continuing academy-industry partnerships. Other issues concerning the private partner’s reliance on the public partner involve lack of business-like orientation, university regulations interfering contract features, and changes in the direction of research resulting in divergent scopes and consequently decreased partnership value for the private partner (Blumenthal, 1996; Kok, 2005).

Private partner’s risks: three private partner-specific risks can be distinguished when analyzing PPPs: operator risk, regulatory risks, and lock-in of resources. The operator risks includes the risk of changes in contextual factors for business assessments (e.g. changes in volume due to unexpected circumstances or reversals in political strategies). In the healthcare context this might involve patent regulation for innovations or insurance companies’ procedures on covering treatments within the policy. Regulatory risks are the risks of negative changes in the regulatory framework and policies which affect the economic potential of the partnership or innovation (e.g. quality requirements, building prescriptions, tax regulations). The issue of lock-in of resources states that partners are at risk when they lock-in their resources into long-term contractual commitments. While locking-in they reduce their
flexibility and adaptive capability due to higher switching costs and contractual obligations (Vrangbaek, 2008).

3. Public partner related issues

*Issues concerning governments:* due to the multi-layer and multi-partner characteristic of many PPPs a number of governmental institutions is involved in the regulation of the collaboration. Authorities often demand that many conditions are met before the awarding subsidies or formal authentication. Additionally these departments have many different monitoring regimes to ensure collaboration continuation (Klijn, 2005). These continuous governmental requirements put limitations on the alliance’s adaptive capacity, and therefore effective partnerships require adequate and capable TMTs. Another issue. In general it is not unlikely for successful partnerships to achieve breakthrough output on product characteristics or market developments. But the institutional infrastructure and legal framework going along with moral and practical understanding, establishes more gradually. Therefore, government regulation might have inhibitory effect on innovation and developments (with effective policy a stimulating effect). The lack of knowledge on long-term implications if PPP-based services complicates PPP judgment. Especially the question whether healthcare services via PPP constructions are sufficiently robust to continue healthcare delivery in difficult times is an important matter of discussion. Additionally, authorities and involved stakeholders should contemplate what happens if the private partner within the partnership goes bankrupt or fails to deliver the contractual obligations (Vrangbaek, 2008).

*Public partner’s risks:* the risks for public partners in public-private collaborations can be analyzed into 4 categories. In first place the risk for tax payers. The initial incentive for governments to transfer public tasks into private sectors is generally to cut healthcare expenditures. Nevertheless, PPPs go along with the economic risk of private partner insolvency and additionally public funding. Other expenditures are high switching costs and penalties if future policy makers decide to leave the partnership. The regulatory- or legitimacy risk is the risk that the use of regulatory interventions erodes trust relations and lead to negative or immoral reactions by private partners. The political risk involves the risk of democratic consequences of the implementing PPP idea in healthcare. Another important issue for public partners when transferring public authority into private sector is the risk of competency erosion within the public sector (Vrangbaek, 2008).
Conclusion

Last decade’s social, demographic and medical technologic developments have caused major changes in traditional paradigms of providing healthcare services. The objective of remaining healthcare quality and accessibility levels along with decreased collective expenditures, forces all healthcare stakeholders to cooperatively seek for economic and medical sustainable healthcare institutions. Despite the difficulty of the challenges, this renewal might also create opportunities for the same players in enhancing their current position as well for new entrants in obtaining a position in the system. Innovation is considered to be a key tool in redesigning organizations into competitive and financial sustainable entities. Public-private alliances can be a valuable tool in designing effective and efficient unconventional organizations with significant innovative potential and impact.

Traditional innovation analysis – with a fundament in the production process view on organizations – often focuses on technological based innovation. Although regarding the fact that technological innovation in life science industries is of major importance for healthcare, 70 percent of the sector’s innovative power is determined by social innovations (Volberda et al., 2009). In both organizational- and economic social innovations, private partners can transfer useful resources, capabilities and knowledge to the public sector.

Public-private partnerships (PPPs) are in general a medium to long term relationship between the public and private sectors, involving the sharing of risks, benefits and the utilization of multi-sectoral skills, expertise and finance to generate social value. PPPs are a relatively new organizational form, and within most European countries applied with certain reservation and prudence. PPPs can enable public parties to absorb private sector resources and experience, share risks and costs, and transfer authority to external parties, whereas these alliances enable private partners to strategically enhance their corporate social responsibility basis replacing traditional one-way philanthropy. Whenever public and private organizations adopt the integrative partnership in their core strategy, maximum impact can be expected. A characteristic pathway of partnership evolution over time can be analyzed, whereas early
stage partnerships are often philanthropic, in later stages intensively resource exchange and partnership in core activities is present. These partnership stages correspondent with different partnership characteristics and partner’s objectives. In general one can distinguish three types of partnership objectives: patient or customer related (improvement of therapies, and quality-cost balance etc), partner related (resource pooling, cost/risk sharing, diversification etc) and environment related (reaction on regulations, competitive changes etc). A special model of partnering is the private finance initiative (PFI) in which a private partner invests and maintains an asset, which is leased back over a long-term period by the public authority. In these PFI contracts, risks and quality features are commonly included as well as innovativeness and state of the art technology guarantees.

The simultaneous determinant analysis of effective PPPs and successful innovations can provide a valuable basis in assigning, judging and modifying partnerships towards innovativeness. Important shared determinants are management commitment and trust, adequate supportive facilities, realistic expectations, empowerment, and flexible change driven organization culture. Determinants are found to be of variable importance in different partnership and innovation stages. Furthermore, when analyzing PPPs and their innovative possibilities, one can differentiate specific opportunities for technological and social innovations in healthcare. In technological innovations universities and other public sector research organizations can partner or cluster in research networks of multiple forms. Due to progressive regulation and a changing scope among scientist, universities improve the commercial basis of their research. Via initiatives such as resource pooling, knowledge exchange, licensing, shared PhD programs, science parks, technology transfer offices, and shared product commercialization public and private partners can leverage their innovative power and outreach. Partnership managers should focus on organizational flexibility and dynamic management to establish innovative partnerships.

The triple helix theory is a model to analyze how government-academia-industry relations can evolve over time and form in order to generate innovative collaborations. PFIs can be analyzed as either an innovation generating entity or as an innovative way of organizing healthcare resources and authority. PFIs allow healthcare organizations to narrow their activities to their core organization specific competence: curing people. Via multiple strategic partnerships are healthcare institutions able to outsource all facilitating activities (and even some core activities) in which they perform suboptimal in quality and/or costs compared to
external parties. Additionally, whenever private partners get involved in managing those organizations, those partners can contribute resources and knowledge to transform traditional functional organized organizations into process orientated institutes in which the patient remains a central position.

Despite of the potential benefits of public-private partnerships on healthcare innovativeness, not all partnerships are equally desirable. Moral contemplations on the willingness of involving for-profit organizations in public services such as healthcare, and the principles of academic and governmental independence are important points of consideration whenever designing and analyzing PPPs. Moreover, the fact that a number of issues (e.g. cost measurability, conflicts, risks, opportunistic behaviour etc.) with past PPP experience have been described, legitimizes the current prudence but should not withhold further research on the subject.
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Appendix A – List of science fields

Agrotechnology
Bio-engineering
Biochemistry
Biocomputing
Biocontrol
Biodynamics
Bioinformatics
Biology
Biomaterials
Biomechanics
Biomedical sciences
Biomolecular engineering
Biomonitoring
Biophysics
Biopolymers
Biotechnology
Botany
Cell biology
Cognitive neuroscience
Computational neuroscience
Developmental biology
Ecology
Environmental science
Evolutionary genetics