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The impact of the European Medicine Agency relocation on Life Science and skill related industries and the residential real estate market

Masterthesis

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Acknowledgements

Dear reader,

Hereby I present my master thesis for the master program of Human Geography at Utrecht University, the faculty of Geosciences. Within the master of Human Geography I followed the track of Economic Geography: Business and Location. This thesis is a product of months work and the final project to finish the master program.

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I hope you enjoy reading this thesis,
Tom Hendricksen

Summary

Brexit is an interesting process with lots of uncertainties yet. The European Medicine Agency (EMA) relocation is one of the results of the Brexit decision, as it is a European institution it makes sense that it is settled on European soil. Amsterdam won the bid as the new location for EMA. In a close fight with Milan, Amsterdam came out on top and at the end of 2019 should host a fully operational EMA (AMA, 2017). The EMA is an important institution in the European Life Science network, as all medicine and medical equipment has to be tested and accepted by EMA before it can be sold on the European Market. Coupled with the uncertainty of the kind of Brexit, this causes issues for Life Science firms who are looking into their future. In case of a hard Brexit, UK produced goods have to be retested on European soil before it can be sold on the European Market. But not only Brexit is causing movements on the business climate of the UK versus Europe. The EMA itself is an important institution with a lot of interaction with firms in the Life Science industry. Not only the frequent interaction with EMA is a cause to settle near them, but it also allows firms to expand their networks more easily and it becomes easier to lobby (Faulconbridge, 2004; Grote, 2008). A path dependent process was witnessed in the case of Frankfurt, where the European Central Bank influenced other banking and financial firms to settle near them in Frankfurt. It is possible the same movement of firms (and an exodus of firms from the UK) towards the Amsterdam Metropolitan Area, or the Netherlands, happens. But is the Amsterdam Metropolitan Area ready for this movement? Issues with a shortage of residential real estate, high rental prices and a lack of office space show that there are challenges if firms are expanding into the region. Next to Life Science there are also other industries active in Amsterdam, who might profit from development in the Life Science industry (Neffke, Henning & Boschma, 2011; van Oort et al., 2015). This study focuses on two effects:

- The employments effects of the EMA relocation on Life Science and skill related industries in the Amsterdam Metropolitan Area
- The effect of the employment changes on the residential real estate market of Amsterdam

To explore these possible effects of the European Medicine Agency relocation on the Amsterdam Metropolitan Area, the following central research question is used:

"To what extent does the relocation of the European Medicine Agency influence the employment of Life Science and skill related industries and what are the further effects for the residential real estate market in the Amsterdam Metropolitan Area?"

The EMA relocation can be considered as a public spending project, as large sums of public money are used in attracting the EMA to Amsterdam. When it comes to public spending it is important to assess the input and output effects, especially when looking into the efficiency of the public spending (Afonso et al., 2005). Large public spending is usually with a larger goal like creating more employment or increasing international attention for example by hosting the Olympic Games (Afonso et al., 2005; Scandizzo & Pierleoni, 2017; Preuss, 2004). Important to notice here is that international attention is mentioned. This can be seen as an intangible effect, an effect that is hard or impossible to measure. Public spending can cause many effects, a

short term economic boost for example (Preuss, 2004). But promoting your country, city and receiving more international attention are also effects that follow from large public spending (Scandizzo & Pierleoni, 2017). Some of these effects also have their influence on the attraction of firms and labour to a region. Promoting your business climate, for example with large industrial plants and infrastructure investments, helps in attracting firms to your region and foster economic growth (Greenstone et al., 2010). So if Life Science is to develop the same the financial sector developed in Frankfurt due to the ECB, there are also other industries that can profit (Grote, 2008). Neffke, Henning & Boschma (2011) describe this as skill related industries. Central to this theory is human capital, one of the most important production goods of this age (van Oort et al., 2015). Based on the human capital, skills, of labourers, other industries can profit. For example, a person who has a certain skill working in industry A, can also work in industry B as the same skills are required in both industries (Neffke, Henning & Boschma, 2011; van Oort et al., 2015). By moving from a firm in industry A to a firm in industry B, crossovers are formed and it is possible to for firms to diversify their activity (Neffke, Henning & Boschma, 2011). Therefore growth in industry A can also cause growth in industry B.

When it comes to attracting and keeping labour in a region, the situation of the residential real estate market is crucial. Saks (2008) & Rupert & Wasmer (2012) argue that housing is important in attracting labour to a region, as people need a place to live. High rental prices or a low supply will cause no incentive to move to a region. It is therefore important that there is enough supply of housing available to attract and retain high-skilled labour. This is especially the case in economic development, as labour is crucial in economic growth (Saks, 2008). Issues with regulation (Glaeser et al., 2005) may cause issues in this regard, limiting the construction market and disrupting the equilibrium on the residential real estate market (Geltner et al., 2014). Therefore, no limiting regulations are important if a region is coping with economic growth (Saks, 2008).

This study has used a qualitative approach to assess the effects of the European Medicine Agency. Due to the fact that the relocation process is still happening, no actual effects can be measured yet. Therefore this study is exploring the effects on the basis of opinions by experts and actors involved in Life Science industries, related industries or the EMA relocation itself. The study also used secondary data to further explore the effects of EMA and situation of the Amsterdam Metropolitan Area. An important mention is the report of van Oort et al. (2015) that explored the industry space of Dutch regions and their crossover potential.

Findings of the study suggest that the EMA relocation will most likely impact the development of Life Science industry in the Amsterdam Metropolitan Area. Saturation in R&D activities of Life Science show the opportunity for MedTech to grow. Potential for MedTech is perceived by van Oort et al. (2015) but findings of the study also suggest that the sector is growing and the demand for IT services for example are growing too. This also provides opportunities for some of the skill related industries present in the Amsterdam Metropolitan Area, these industries consist of business services and IT services. The crossover potential of Life Science with these two related industries provide opportunities for new firms and employment growth. UK based firms will most likely not relocate anytime soon, but new entries for the European Market will start to look for a location in the vicinity of EMA. Another important effect caused by EMA is the influence on the intangible effects, improving the business climate of the Amsterdam Metropolitan Area and the Netherlands. In the first place, this will have influence on attracting more firms. But findings suggest that it will also influence the attraction of labour, as more attention and the presence of EMA will attract high-skilled

labourers to the Amsterdam Metropolitan Area. However, it remains important to invest in infrastucture. As the lack of housing, office space and lab spaces may cause issues when large quantities of firms start to expand in the Amsterdam Metropolitan Area. Findings of the study suggest that the Amsterdam Metropolitan Area will most likely not be able to handle all the growth by themselves. Therefore nearby cities and regions like Leiden and Utrecht are included in the follow up program of the Netherlands Foreign Investment Agency (NFIA) to guide the process. An important critical note to mention is that many of the effects can also be a result of the Brexit decision, not being influenced by EMA. Eventually, everything can also be considered a result of Brexit as the EMA is just a small part of the Brexit process.

The pressure on the real estate market of the Amsterdam Metropolitan Area due to these kind of developments are very hard to predict. Brexit uncertainty is the leading cause of this, as it is unknown on what timescale the events are to unfold. This does give the tense residential real estate market a chance to increase the supply of housing to limit constraints when new labour and firms are attracted. Current regulation are also providing incentives to increase the supply, not causing limitations as Glaeser et al. (2005) argued but providing conditions to increase building. The employees from EMA will also look for residence in the Netherlands, causing more pressure if they look for residence in Amsterdam on the short term. However, their choices for residence are still unclear as many employees have different needs and demands. Most likely, the employees will spread out over the Randstad area and thus spreading the pressure.

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1. Introduction

"Everyone tried to get this Brexit Booty" is what the NOS (20th of Novembre, 2017) wrote about the fact that Amsterdam won the fight for the European Medicine Agency (EMA). A huge opportunity for Amsterdam according to the lobbyists; bringing more than 900 jobs and many more externalities (NOS, 20th of Novembre 2017). The Amsterdam Metropolitan Area (AMA) prepared a bidbook to attract the EMA in which the positive aspects of settling in Amsterdam are discussed. The residential real estate market and the office space market in Amsterdam have been oversaturated for a while. The strong control of new buildings in Amsterdam also causes issues for firms willing to settle as they cannot build a new office themselves or find a house to live (Dynamis, 2018; NVM, 2017). The lack of office space is something that the main competitor for the EMA, Milan (Italy), tried to use for a possible reconsideration for the EMA location (Reuters, 29th of January 2018; NOS, 29th of January 2018). Amsterdam in the end won the bid and the resettling is in progress. The EMA as an institution will not only have a direct impact but will also have an indirect impact. Large public spending or settling of new institutions also allows other related industries to develop (Grote, 2008; Preuss, 2004). According to Neffke, Henning & Boschma (2011) the regional economic context or DNA is important when assessing economic growth. The network of related industries in a region could all profit from the growth in a specific industry. The same could happen with EMA and Amsterdam. Life Science firms have a lot of interaction with EMA and due to Brexit it may be possible that firms carry over. It is interesting to assess the possible broad economic impact of the EMA relocation. Especially considering the saturated real estate market situation in Amsterdam it is interesting to find out if the EMA will cause economic growth in Life Science and related industries and if Amsterdam is able to cope with the growth of these sectors. New firms and jobs means more demand for space, both in residential real estate as in office space (Saks, 2008; Rupert & Wasmer, 2012).

All kind of questions are raised considering the exodus of institutions and firms due to Brexit, in the middle of all of this it remains unclear what eventually will happen. With the uncertainty of the type of Brexit many scenarios are still plausible. This study will look into the matter of the European Medicine Agency relocation to Amsterdam and the Life Science industry in the Netherlands.

1.1 Problem and Relevance

1.1.1 Societal Relevance

With every public spending project the government has the duty to spend it properly. They are responsible of a sufficient allocation of tax money of inhabitants (Afonso et al., 2005). But not only the critics on government spending is what makes the EMA so relevant for society. It is the job creation involved with the new institution and regional development that follows (Saks, 2008; Neffke, Henning & Boschma, 2011). The labour market and residential real estate market are directly linked and influence each other (Saks, 2008). No housing stock means there is no room for labourers to live and they will not flock to the regions even if there are jobs available, but no jobs also means there is no reason to migrate to the region (Saks, 2008). With government regulations in place and a tight market present the pressure on residential real estate markets increases (Saks, 2008; Glaeser et al., 2005). What eventually might happen is a counterproductive way of

spending tax money. If there are investments in creating labour with the EMA attraction while other parts of public spending limit construction with strong regulation the public spending becomes counterproductive. Issues with unaffordable housing prices are one of the pinnacles of mismanagement between these two developments, something that has been witnessed in London for years with very high rents for residential real estate (NVM, 2017; The Guardian, 15th of January 2018). Adding to these issues is the focus of Dutch policy to strengthen activities that are already strong and settled in a region (Van Oort et al., 2015; CBS, 2017). Van Oort et al. (2015) argue that there should be more focus on the state of clusters and opportunities that arise from regional economic DNA. This increases the chances of effective economic development. It is therefore important to explore the effects on the labour market and the linked pressure on the residential real estate markets so policymakers can prepare for the upcoming scenarios involved with the EMA relocation. Adjusting policy to predicted developments will also help in an effective way of spending tax money instead of supporting counterproductive measures (Afonso et al., 2005).

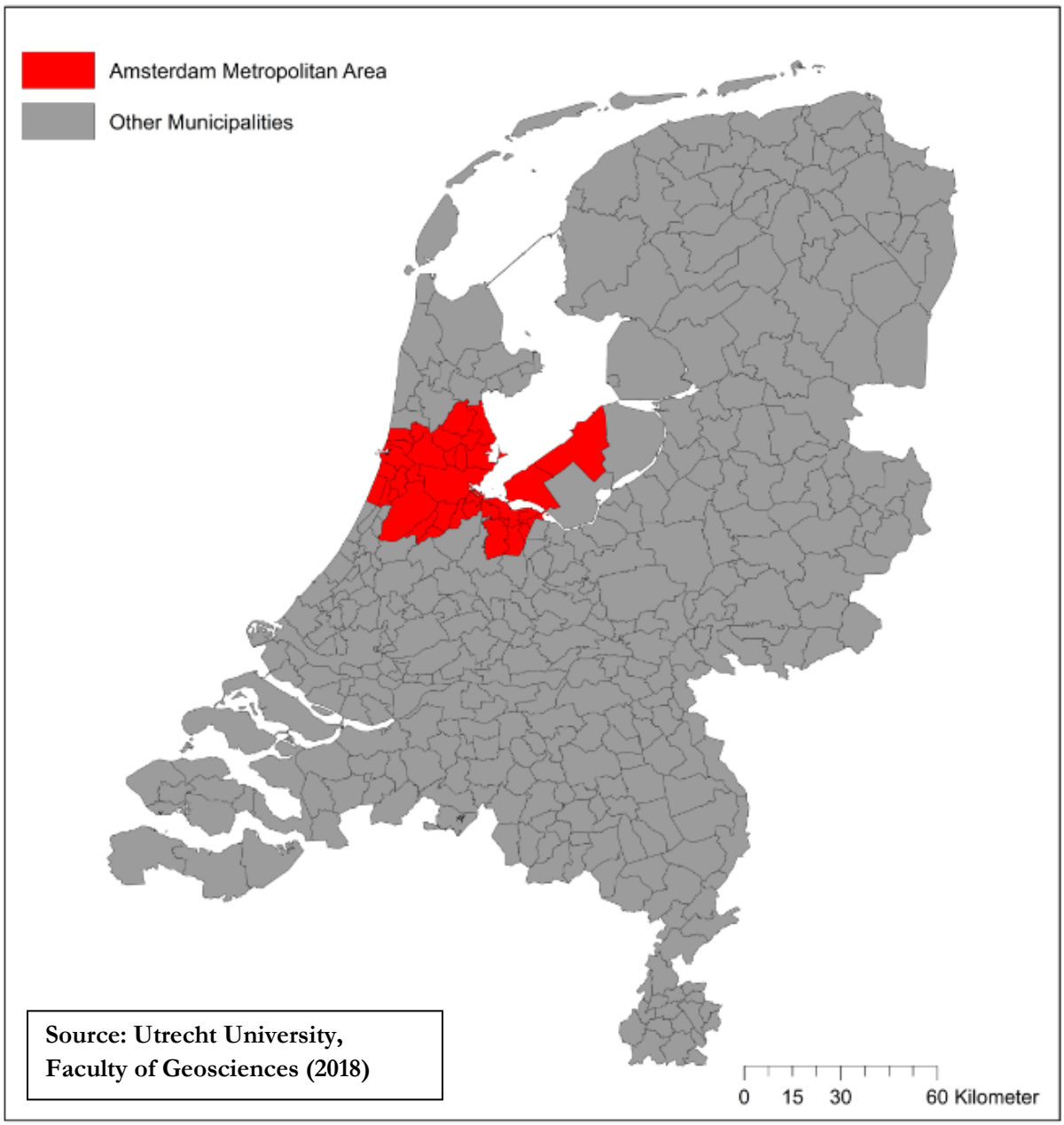
1.1.2 Scientific Relevance

Studies on the effects of large public spending projects are widespread in scientific literature. These large public spending projects are diverse and can include hosting the Olympic Games but can also include attracting large industrial plants with subsidies or just plain measuring of public spending effectiveness (Preuss, 2004; Scandizzo & Pierleoni, 2017; Greenstone et al., 2010; Afonso et al., 2005). While the direct impact of public spending on linked sectors are already explored, the effect on the industry space and skill related industries remains unknown. Many of the earlier public spending studies look into direct input and output effects. This study differs from usual studies on large public spending projects as it will also consider the effects on skill related industries. The idea behind this is that every region has an Industry Space, a network of linked industries present in that region. Industries that are present and directly linked to the Life Science industry in this case are likely to co-develop as they engage with each other and can profit from each other's development especially when it comes to human capital (Neffke, Henning & Boschma, 2011; van Oort et al., 2015).

1.2 Study area

This study focuses on the effect of the new EMA facility in Amsterdam. Primarily the effects of the EMA on life science and skill related industries in the Amsterdam Metropolitan Area (Figure 1) will be assessed. The Amsterdam Metropolitan Area is the main study area. However, due to the nature of the EMA, being an institution for the European Union and the fact that increased globalization connects regions worldwide the study area also encompasses effects on the rest of the Netherlands. Especially regarding the life science sector and the effects on related industries. Relating to the real estate market the demarcations are limited to the Amsterdam Metropolitan Area. Figure 1 shows the study area, Amsterdam is displayed in red, the Amsterdam Metropolitan Area is displayed in blue and the whole of the Netherlands is grey.

Figure 1: Study Area



Source: Utrecht University, Faculty of Geosciences (2018)

1.3 Research goal

The goal of this study is to explore the effects of the government expenditure to attract the EMA to Amsterdam. Ex ante and ex post analysis of public spending usually show large differences due to overestimation in ex ante studies while ex post studies measure the effects that really happened (Walton et al., 2008; Porter & Fletcher, 2008). It is therefore the goal of this study to explore the opinions of different actors who might be affected by the EMA relocation or are involved in the process and create a discussion based on their argumentations. As the relocation is still ongoing and will not be finished until the end of 2019, it is not possible to measure any effects and create a quantitative study. Therefore the study will be qualitative and inform the opinions of experts on the matter and actors involved.

Based on the earlier studies on influence of EU agencies and institutions on regional development, industrial development, labour market developments and the influence of new actors on oversaturated Real Estate markets this study focuses on two possible effects of the EMA relocation to Amsterdam:

- The employments effects of the EMA relocation on Life Science and skill related industries in the Amsterdam Metropolitan Area
- The effect of the employment changes on the residential real estate market of Amsterdam

The effects on the labour market of Life Science and skill related industries and the residential real estate market are central to this study. To guide the study the following central research question will be used:

"To what extent does the relocation of the European Medicine Agency influence the employment of Life Science and skill related industries and what are the further effects for the residential real estate market in the Amsterdam Metropolitan Area?"

To answer the central question the following sub questions have been derived:

- What is the direct employment effect of the EMA relocation in the Amsterdam Metropolitan Area?
- What is the indirect employment effect of the EMA relocation on Life Science and skill related industries in the Amsterdam Metropolitan Area?
- What is the effect of the life science and skill related industries employment change on the residential real estate market of Amsterdam?
- Does the city image of Amsterdam change due to the EMA relocation?

The central question will thus explore the effects on the labour market and then the effects on the residential real estate market as these two are linked (Saks, 2008). The effect on the labour market includes both the direct and indirect employment effects caused by the EMA. This means the direct effect as in what the EMA creates in jobs, and indirect in the jobs created in the life science industry and industries skill related to life science. Job creation can both be in existing firms expanding their operations or new firms setting up business in the Amsterdam Metropolitan Area or the Netherlands. The intangible effects of Amsterdam, like city image, may also be affected by the EMA relocation (Walton et al., 2008).

1.4 Reading Guide

This master thesis is structured as follows. Chapter two provides the theoretical framework of this study. In this part of the thesis prior studies and concepts are discussed. The thesis will build further on these prior concepts. Chapter three provides the operationalization of the study. In this part every method used to collect data, which data is collected and why this data is important for this study is elaborated upon. Chapter four provides the results of this study. All data collected and all analyses are presented in this chapter. The fifth and final chapter provides the conclusion of the study, a discussion of results and recommendations for future research on this subject.

2. Theoretical Framework

In this chapter prior research on the subjects of this study are discussed and elaborated upon. The theoretical framework provides an insight in the literature and a framework around large public spending and regional economic effects, the impact of large (EU) institutions on skill related industries, pressure on real estate in high profile markets and the development of a regional economy. Explanations as why they are necessary to address will be given in the relevant chapters. Furthermore the theoretical framework will cover subjects like large public spending projects, labour markets, industrial and regional development and residential real estate and their link with labour markets.

2.1 Large public spending and regional economic effects

The economic effects of large public spending and its efficiency have been a subject of discussion for many years (Aschauer, 1989; Preuss, 2004; Afonso et al. 2005; Greenstone et al., 2010). Whether it is spending large sums of capital on attracting million dollar plants (Greenstone et al., 2010) or the spending on Olympic Games and the aligned economic effects (Preuss, 2004; Walton et al., 2008) the lasting effects and the efficiency are debatable. It is important to gain insights in the efficiency and effects of large public spending on the regional economy given the nature of the European Medicine Agency. The methods and results used in prior studies may prove valuable in the assessment of the EMA impact in this study.

It is important to set a framework around the phenomenon of "public spending". Public spending can be defined as the use of public resources, like tax money, to improve or develop activities that the government is responsible for (Afonso et al., 2005). The government is responsible for the efficiency and allocation of the public resources (Afonso et al., 2005; Romp & De Haan, 2007). Public spending comes in many different forms and can manifest itself in public capital (Romp & De Haan, 2007). An example is spending tax money on improving infrastructure like road systems or train tracks. Public spending also comes in different forms like hosting large sporting events like the football World Cup or the Olympic Games (Preuss, 2004; Walton et al., 2008). Therefore, the idea of "public spending" is a broad concept that involves every government expenditure. However, on measuring the efficiency or outputs there are methodological issues found by many scientists (Afonso et al., 2005; Romp & De Haan, 2007; Walton et al., 2008). This chapter will further elaborate on how the effects of public spending could be measured and what challenges arise.

Many economists have been concerned with the efficiency of public spending as a scarce resource (Afonso et al., 2005). According to Afonso et al. (2005) economists believe that the activities of public spending should achieve the maximum potential benefits for their tax paying population. Increased globalization and increased mobility of capital and taxpayers puts pressure on governments as they don't want to lose firms over poor policy and public spending (Afonso et al., 2005). Public spending is seen as the engine of economic activity by parties like the World Bank (Romp & De Haan, 2007). It was found in the US that public spending on military enterprises had a direct positive effect on the productivity (Romp & De Haan, 2007; Aschauer, 1989). The findings of Aschauer (1989) were questioned for example by Gramlich (1994), as certain estimations were deemed too high. These early studies may not be relevant in the current age but it shows the issues that arise when it comes to measuring the effect of public spending especially regarding the direction of

the causality (Romp & De Haan, 2007). This issue is also recognized by Afonso et al. (2005) as one of the culprits already lie in the demarcation of efficiency. Afonso et al. (2005) illustrate this with an example of cars, where efficiency is measured by the amount of kilometres the car can drive on a certain amount of fuel. The example shows that for a measurement of efficiency you need: (a) estimation of costs (usually associated with an input); (b) an estimation of output; and (c) the comparison between the two (Afonso et al., 2005). The adequate measurement of public sector efficiency is a difficult empirical issue and literature on it is scarce (Afonso et al., 2005). The issue found by Afonso et al. (2005) but also by Gramlich (1994) show that efficiency is easy to measure when it comes to machinery like cars, but hard when it comes to governmental expenditure as the benefits (outputs) could be in functions like public health and education. Not only outputs can be hard to measure, but the input and/or allocation of governments budgets can also be hard to track or tie to a certain input function (Afonso et al., 2005). For this study it is unknown what the exact output will be as the relocation of EMA is a process of two years. However it is important to understand how efficiency should be measured to identify what different actors think about the possible input/output relation and how to look at the expenditure.

Greenstone et al. (2010) measured this efficiency effect in their study on agglomeration spillovers and the effect of attracting large industrial plants with public money. The measured output effect however was in total factor productivity. Greenstone et al. (2010) argue that the natural advantages of a certain location are not sufficient enough to account for a certain degree of agglomeration. A classic Marshallian argument is made in the study of Greenstone et al. (2010) as agglomerations provide specialized suppliers, cheaper and faster supply of resources, proximity to workers and knowledge spillovers. Insights in possible spillovers such as the increase of productivity are of huge practical value as local governments compete with each other by offering substantial subsidies to firms (or large new plants) to relocate to their region (Greenstone et al., 2010). This can thus be considered as public spending. Following the reasoning of Afonso et al. (2005) the subsidies are input and following Greenstone (2010) the productivity increase is the output. Important to note again is identifying the input and the output when it comes to efficiency, but also how to even measure the effect of public spending. Cluster and agglomeration theories are common in the field of geography. The classic Marshallian argument is made but there are also different theories especially regarding competitiveness and innovativeness. It is possible that these effects take over the public spending effect as Greenstone et al. (2010) argued. There are critical notes when it comes to public spending and cluster creation. Cluster policies are unlikely to succeed in creating new clusters however they should focus on developing the potential industries already present (Martin & Sunley, 2003).

Eventually, different regional governments fighting over a certain plant will result in winning sites and losing sites. Greenstone et al. (2010) used both the winning and losing sites to benchmark the development of the winning and losing sites over the years. Any growth difference between the winning and losing sites would indicate that attracting a large firm may indeed have caused an effect on the growth. The idea of public spending increasing productivity already started with Aschauer (1989). Even though criticized, Romp & De Haan (2007) still found similar effects of public capital possibly raising the productivity. Especially when it comes to public investment in infrastructure which in their turn stimulate private investments (Romp & De Haan, 2007). The main findings by Greenstone et al. (2010) of public investment in attracting million dollar plants showed larger growth in the winning sites compared to the losing sites. It also appeared that there was

a significant effect on attracting new economic activity to the region. Greenstone et al. (2010) perceived a growth of 12% in productivity in winning sites compared to the projected 5% in all other sites. The attraction of these new million dollar plants seem to boost the productivity of existing firms due to agglomeration spillover effects according to Greenstone et al. (2010). However, a critical note is mentioned as in some cases it is hard to contribute the growth to agglomeration effects as public spending, for example investments in infrastructure or workforce education subsidies, may have caused additional effects for existing firms too. Therefore not only the million dollar plant profited and caused agglomeration spillovers, but also existing firms profited from the public spending. The increase in productivity that followed from these effects cannot be completely ascribed to agglomeration effects (Greenstone et al., 2010).

Preuss (2004) also calculated the effect of public spending on regional economies. However, this time the public spending is not on infrastructure, industrial clusters or an institution but public spending on attracting a huge event; the Olympic Games. The evaluation of economic importance of the Olympics to a host city and region has become an important aspect in the assessment of the valuation of hosting the Olympic Games (Preuss, 2004; Blake, 2005; Walton et al., 2008). However, Walton et al. (2008) also put a critical note to this as they believe not only economic effects should be considered but also the impact on factors as civic pride, prestige, community feeling and legacy of sporting facilities. Scandizzo & Pierleoni (2017) also put an addition to the economic effects in their analysis of Olympic Games impact by looking at cultural effects. These effects are hard to make quantifiable and therefore they are usually overlooked according to Walton et al. (2008). Despite the difficulties these effects still have an important impact on society. Walton et al. (2008) describe this effect by naming the example of the Rugby World Cup in 1996, which was hosted in South-Africa. The hosting by Nelson Mandela was observed as a symbol of the post-apartheid era. The same example is given with Mohammad Ali who lit the Olympic torch at the 1996 Atlanta Olympics, a sense of national pride as the intangible effect. The interest in these large events and the intangible effects cause an increased interest in sports, increasing engagement and eventually public health (Walton et al., 2008). The influence of intangible effects can also be found in the firm attraction literature as many firms favour a region with good living conditions (Zhu et al, 2015; AMA, 2017). Scandizzo & Pierleoni (2017) separated their cultural effect in tangible (sports facilities) and intangible (ceremonies, performances) effects. However, there are also negative externalities in this case, not only positive ones. A poor organization or a focus on negative effects such as in Brazil during the preparations of the 2014 world cup can give a negative image to the city or region (Reuters, 2014; Trouw, 17th of may 2013). Another negative example is terrorism as with the Olympic games in Munich in 1972, which resulted in increased security costs for the organization of these events (Walton et al., 2008). Findings by the study of Walton et al. (2008) strengthened the thought of intangible effects as being important by the respondents. Another finding was that inhabitants are willing to pay for these events if they can use it, or profit from it.

Preuss (2004) puts an emphasis on the economic effects and describes it as an enormous consumption and investment trigger for a region. However, Preuss (2004) also argues that it might only be a one-time major impact on the regional economy. Most cities have to adapt their infrastructure which brings in large investments but also an acceleration of infrastructure projects due to the time pressure. According to Scandizzo & Pierleoni, the influence of Olympic Games on external effects is important in the assessment of economic importance of Olympic Games as it improves productivity of tangible goods. A major point made

by Scandizzo & Pierleoni (2017) is the opportunity that the Olympic Games provide for a city or region. The Olympic Games are the perfect opportunity for a city or region to manifest themselves as a landmark for culture or sports or it can be used as a source of identity to manifest the region (Scandizzo & Pierleoni, 2017). The same could be said for any large public investment. Examples like the million dollar plants as positive externalities and attention make it plausible for regions to put themselves on the map (Greenstone et al., 2010). There should however be a critical view on the lasting effects of public spending. As Preuss (2004) already emphasizes that large public spending like the Olympic Games could be a one-time only investment trigger for a region and investments in infrastructure and buildings also call for maintenance. This effect becomes abundantly clear when looking at certain sports facilities like the stadiums in Brazil of which many are in disuse after the world championship of football ended in 2014 (Matheson, Schwab & Koval, 2018; Business Insider, 13th of May 2015).

Table 1 shows the different potential effects of the Olympic Games that could be applicable to all public spending projects. The effects are picked out of the potential impacts described by Scandizzo & Pierleoni (2017). In the light of public spending and the EMA relocation, not all factors in this table might be applicable. However, several impacts are mentioned in for example the EMA bidbook like job creation, increased economic activity, construction, infrastructure improvement and political attention (AMA, 2017). Every large public investment, or large project like an EMA, Olympic Games or a large production plant or infrastructure project will cause attention and economic externalities (Scandizzo & Pierleoni, 2017; Romp & De Haan, 2007; Greenstone et al., 2010). For any study looking into effects of public spending, several general impacts displayed in Table 1 should guide the researcher in what to look for.

Table 1: Potential Impacts

Domain	**Positive**	**Negative**
Economic Impacts	Increased economic activities	High costs of staging event/attracting an institution or firm
	Job creation	Increase in local authority debt
	Increase in labour supply	Tax increases
		Poor estimation of costs
Physical and environmental impacts	Construction of new facilities	Environmental damage
	Improvement of local infrastructures	Overcrowding
	Recovery of degraded areas	Unused or underused facilities
	Preservation of heritage	Destruction of heritage
Sociocultural impacts	Permanent increase of interest in local participation in the type of activities	Social displacement

	associated with the event or attracted firm/institution	
Psychological Impacts	Greater awareness of visitors' perspective on the city/region	Hostility and the tendency to adopt a defensive attitude for the region
Political Impacts	Enhanced international recognizability of the host country/region	Corruption
	Increased public-private partnerships	Failure to cover the costs
	Development of planners' skills	

Source: Scandizzo & Pierleoni (2017)

A difference between Olympic Games assessment can be found in the approach of the analysis: There is ex ante analysis and ex post analysis (Walton et al., 2008; Porter & Fletcher, 2008). Ex ante analysis is usually associated with economic assessments and is carried out using input-output models. The ex post studies are usually the assessments after the event, critically reviewing the positive outcomes of the ex ante studies that are often carried out in the name of the organizing party (Walton et al., 2008). Porter & Fletcher (2008) also critically review these input-output models as many of them tend to overlook important aspects like additional taxes or increased government debt to fund building facilities. Incomplete modelling of the government sector exaggerates the net public benefits of government investment (Porter & Fletcher, 2008). For any public investment analysis it is thus important to critically look at the state of the investment, arguments and effects advocated before the event and the actual effects after the event. Again, methodology is important and a clear demarcation of input and output factors is important to analyse the right effect caused by the public investment. The study of Porter & Fletcher (2008) show that many of the ex post studies overestimate the effect. In addition to that most of the projected economic effects are hard to handle for inelastic markets like the hotel industry. This is due to the fact that the supply cannot suddenly increase in a few years as construction of new supply in the hotel industry takes several years (Porter & Fletcher, 2008; Geltner et al., 2014). It is therefore important when assessing the impact of public spending on the regional economy to be critical on the estimations made in ex post studies as they have a tendency to overestimate the impact on the regional economy (Porter & Fletcher, 2008; Blake, 2005).

It is important for this study to find the lasting effects of public spending. Especially concerning the kind of investment that is made and what impact it will have on the economy. It is also important to acknowledge the fact that some intangible effects can be outputs of public spending and not only economic outputs (Walton et al., 2008; Scandizzo & Pierleoni, 2017). These intangible effects may be hard to measure but should nonetheless be sought after. Several methods can be used to quantify the intangible effects (Scandizzo & Pierleoni, 2017). A critical view on the longevity of the effects is also important as some effects can only be considered as a one-time impulse for the economy without any lasting benefits (Preuss, 2004; Porter & Fletcher, 2008). As Scandizzo & Pierleoni point out the marketing of a city/region that comes with a large public investment is an important factor. The EMA relocation also received a considerate amount of attention and this effect influences the city image of Amsterdam or the image of the Netherlands as a whole.

Identifying the right input/output factors are of value to find causality between public spending and its impact.

2.2 Impact of public spending on agglomerations, cluster cycles and industry space

Public spending on attracting firms has already been discussed as seen in the article of Greenstone (2010). However, there are also public investments to attract large institutions like the European central bank in Frankfurt or the case of this study the EMA (Grote, 2008; AMA, 2017). The earlier studies on the ECB in Frankfurt provide insights in what role the ECB played in the development of Frankfurt and how to approach European Institutions and the possible effects on their corresponding industry. It is important for this study to discuss earlier studies on the impact of European Institutions on the development of a region. Especially the way the European Institution is approached and why it is deemed important. It is also important to explore the Industry Space of regions which is important in regional development (Neffke, Henning & Boschma, 2011). This will make it clearer whether the EMA will play a central role in the development of life science and skill related industries in the Netherlands or not.

Grote (2008) and Faulconbridge (2004) analysed the development of Frankfurt (Faulconbridge also analysed London) as a financial centre. Findings of Grote (2008) corresponded with cluster theories and especially with evolutionary economics in the way that a path dependent process is witnessed in the development of Frankfurt after the establishment of the European Central Bank. The European Central Bank was seen as an important factor to settle near it, in geographical proximity (Grote, 2008). Banking firms acknowledged that the reason they would resettle to Frankfurt was because other banks and the European Central Bank were located there. This is a path dependent process according to Grote (2008) as other banks make the location more attractive for new banks to settle. Both Grote (2008) and Faulconbridge (2004) argue that (geographical) proximity to other financial firms and proximity near the European Central Bank is important for setting up links and expanding the network. Especially social proximity profits from co-location, according to Faulconbridge (2004) this is seen as critical to the success of firms. Another major important factor is the accessibility of information when co-located, knowledge spillovers are an example but also market developments (Faulconbridge, 2004; Breschi & Lissoni, 2001). These effects fit the findings of Greenstone et al. (2010) who argue that a large public investment in an industry has positive externalities for existing firms and new firms settling there. However, this public investment can come in different forms. In the case of Frankfurt it is the investment in settling the ECB but it can also be invested in improved infrastructure or subsidies for firms (Greenstone et al., 2010).

Faulconbridge (2004) argues that all theories lead to the thinking that financial activity should have diminished in London as Frankfurt was assigned the European Central Bank and would become the heart of the European Monetary Union. However, this did not happen. Frankfurt did grow according to Faulconbridge (2004) but in a different role than the theory would suggest. Grote (2008) found an 'U'-shaped relationship when it comes to international financial firms settling in Frankfurt, which shows growth in the beginning but eventually shows that it is diminishing again and some firms are even moving away from Frankfurt especially if they only serve local markets. Faulconbridge (2004) argues that by analysing the European system as a network, it is explainable that London stayed as a leading financial centre while Frankfurt gained an important regional role in this system. Most of the growth of Frankfurt can be attributed to the European Central Bank according to Faulconbridge (2004). This also confirms the findings of Grote

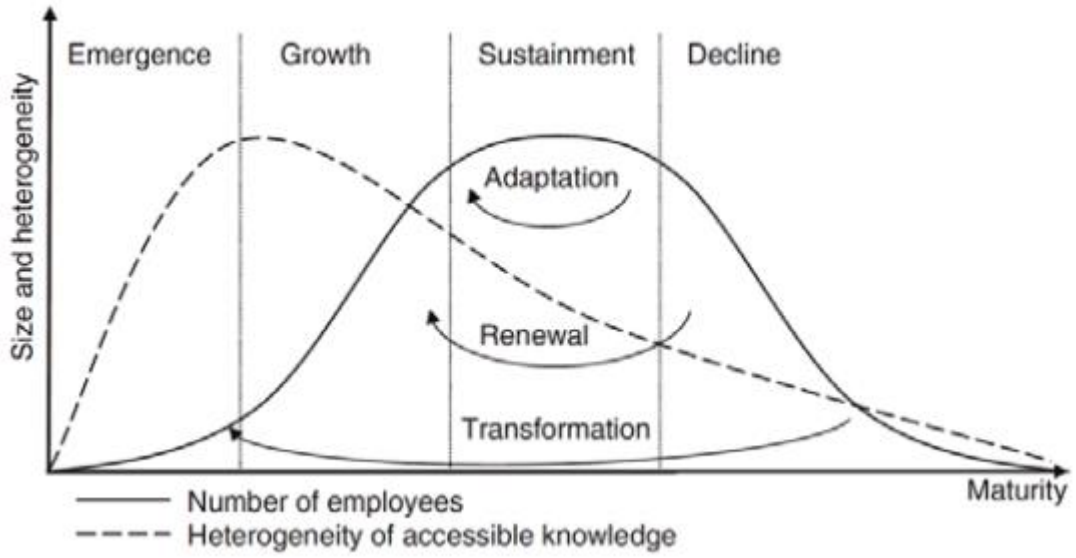
(2008) that firms tended to move towards Frankfurt due to the path dependency and attractiveness of other banking firms (or one large institution like the ECB). Public spending plays a role in the development of regions as described by Greenstone et al. (2010).
The public investments in attracting large industrial plants to a region seems to have positive effects on the region where it is settled (Greenstone et al., 2010). The productivity of firms existing and settling near the large plant is higher than of the firms of losing sites, adding to that is the development of firm concentration as the firms are settling near the large plant (Greenstone et al., 2010). A European institution can thus be an important factor in attracting firms due to the advantages of proximity (Faulconbridge, 2004; Grote, 2008; Engelen & Grote, 2009). In the case of the EMA several parallels can be found, as London (and the UK) is currently the main centre of life science activity (KPMG, 2016). Following the reasoning of Faulconbridge (2004) the system should be analysed as a network. The EMA is in this case also in the centre of the life science of Europe, as firms have to interact with them to approve their products (AMA, 2017). The position of Amsterdam is also of importance especially post-Brexit, as this changes a lot for the city of London. For this study it is important to consider the role of the EMA as a European institution and that it might influence the location of firms in the same industry as the ECB did for Frankfurt.

Regional economic context is important when assessing or studying the economic growth of a region (Neffke, Henning & Boschma, 2011). The development of a region is path dependent following the line of reasoning of evolutionary economics, therefore the local context is of importance (Boschma, Frenken & Lambooy, 2012; Neffke, Henning & Boschma, 2011). Industries that have (technological) relatedness benefit from developments in linked industries for example due to spillover effects (Frenken & van Oort, 2007). An industry space of the region shows the network of existing industries in the region with links between the related industries or closely related industries being located near each other in the network (Neffke, Henning & Boschma, 2011). Closely linked industries can form a technological cluster in the network which means that spillovers are more likely to occur between these industries (Neffke, Henning & Boschma, 2011; Frenken & van Oort, 2007). This does not necessarily mean that the industries are geographically clustered. This only suggests that regions develop from earlier activity and existing industries. The public spending on large projects are thus likely to benefit existing industries and linked industries to develop (Neffke, Henning & Boschma, 2011). The spillover effects are identified as Jacobs-type externalities, these externalities are focused on diversity of industries and spillovers between different sectors (Van der Panne, 2004). These Jacobs-type externalities were associated with the stimulation of employment creation in the study of Frenken & van Oort (2007). Related variety in a region enhances the employment growth in the region which is due to the co-development of linked industries (Neffke, Henning & Boschma, 2011; Frenken & van Oort, 2007). The element of skill related industries lie in the factor of human capital, the most important production resource nowadays (Neffke & Henning, 2013). Industries that require human capital with the same kind of skill set belong to the category of skill related industries. It is easier for labourers to switch between jobs in skill related industries since it allows the labourer to utilize his/her skills in another industry (Neffke & Henning, 2013). This can also be referred to as labour mobility (van Oort et al., 2015).

For the potential of a certain industry in a region it is important to assess in which cluster cycle the industry currently finds itself (Menzel & Fornahl, 2009; van Oort et al., 2015). A region can be strong in a certain industry but also have a weak potential for the same industry to grow, even if there are agglomeration effects

catering the industry (Van Oort et al., 2015). Menzel & Fornahl (2009) describe the cluster cycles in different stages as shown in figure 2. A cluster matures over time and can find itself in different stages. The Emergence and Growth phases showing the largest potential to grow in size, while in sustainment and decline phases the potential decreases and so does the size. Clusters can escape this decline by different processes like Adaptation, Renewal and Transformation. The potential in early clusters is also due to the larger availability of knowledge at that point, providing knowledge spillovers for entry firms. All of the three processes to escape the decline phase are based on diversification of industry activity. This does not mean the firms have to enter a completely new industry, but this is where crossovers between different industries fuel the processes like Adaptation, Renewal and Transformation (van Oort et al., 2015). It is therefore important to assess the state of a certain industry in a region to a certain extent so policymakers do not focus on attracting the wrong activity that have no potential to grow in their region (van Oort et al., 2015).

Figure 2: Cluster cycles



Source: Menzel & Fornahl (2009)

A specific industry like Life Science may have different factors for success as the general cluster theories suggest. For this study it is important to analyse the role of the EMA in the network of life science in Europe. The position of the ECB in the network is an important factor to analyse the development according to Faulconbridge (2004). The earlier studies on Frankfurt and the financial sector already show that the ECB is thought of as an important factor in the development of the financial industry in Frankfurt. Financial firms tend to follow a self-reinforcing process of settling near other financial firms and institutions in Frankfurt (Grote, 2008; Engelen & Grote, 2009; Faulconbridge, 2004). Following regular theories, this would have meant that the centre of attention should have shifted away from London to Frankfurt which did not happen (Faulconbridge, 2004). Therefore it is important to pin down the role of the EMA for Life Science firms and find out if it has the potential to cause the same effects as the ECB did in frankfurt. The Industry Space of a region is also of importance, what Life Science firms are present, which industries are linked and present? Assessing the industry space gives a broader perspective on the possible impact of the EMA as linked industries are likely to co-develop if Life Science is developing. Assessing the state of regional industries gives

information about the potential of the region to grow (Menzel & Fornahl, 2009). It is therefore important for policymakers to not focus on industries that are already in a saturation state, a sustainment phase, but focus on diversifying the activity and foster crossovers between skill related industries to provide new potential to grow and escape decline (Menzel & Fornahl, 2009; van Oort et al., 2015).

2.3 Real estate markets and regulation

Next to regional economic effects, there are also other markets that will notice the effect of large public spending and labour market developments (Saks, 2008). The real estate market is one of those markets, whether it is the demand for sports facilities when it comes to the Olympic Games (Preuss, 2004) or the development of a certain industry due to public spending that attracts more firms (Grote, 2008; Engelen & Grote, 2009). It is important to determine what governments can do to influence the real estate market next to public spending, as regulation and the public sector are also a factor in the functioning of the real estate market. Understanding the functioning of the real estate market is especially important in tight markets like Amsterdam.

As almost all markets, the real estate market is a product of demand and supply but regulations can add a constraint (Glaeser et al., 2005). To properly picture the development of pricing on the real estate market a common used model is the four-quadrant model by DiPasquale and Wheaton (1992). Figure 4 depicts the four-quadrant model as defined by Geltner et al. (2014) and always shows an equilibrium. The model depicts every stage of development which affects the real estate market. The model is about supply and demand and what authorities can do to force the equilibrium when certain developments threaten the stability of the real estate market (Geltner et al., 2014). Equilibrium is achieved over the long run as it involves the real estate market in which time to build more supply determines the long term equilibrium (Geltner et al., 2014). The long-run example allows the market the time to adjust. The real estate markets tend to act in a cyclical way, periods of excess supply are followed by tight markets (Geltner et al., 2014). According to DiPasquale and Wheaton (1992) the asset market and the space market are interrelated and comprise the full real estate market. The easiest way to make a difference between the two markets is by assuming that the buildings are not occupied by the owners. Figure 3 gives a visual representation of the following explanation of the real estate market. The needs of tenants and the type/quality of a building determine the rent for the space on the space (sometimes called rental) market (DiPasquale and Wheaton, 1992). Tenants account for the demand side in this market, looking for space to live or work for example while the supply side consists of real estate owners who rent out space to tenants (Geltner et al., 2014). This is a classic price/quantity diagram in the space market. The transactions of buildings being sold or exchanged occur on the asset (or sometimes called capital) market, this determines the asset price of space (DiPasquale and Wheaton, 1992). The asset market is usually considered as a part of the larger capital market (Geltner et al., 2014). The real estate space market is thus defined by the usage of real property, in this market tenants exchange rent with landlords to use the land and/or built space (Geltner et al., 2014). The real estate asset market is defined by the transactions of real property, in this market buyers exchange money for ownership rights of the land and/or built space (Geltner et al., 2014).

Figure 3: Market overview

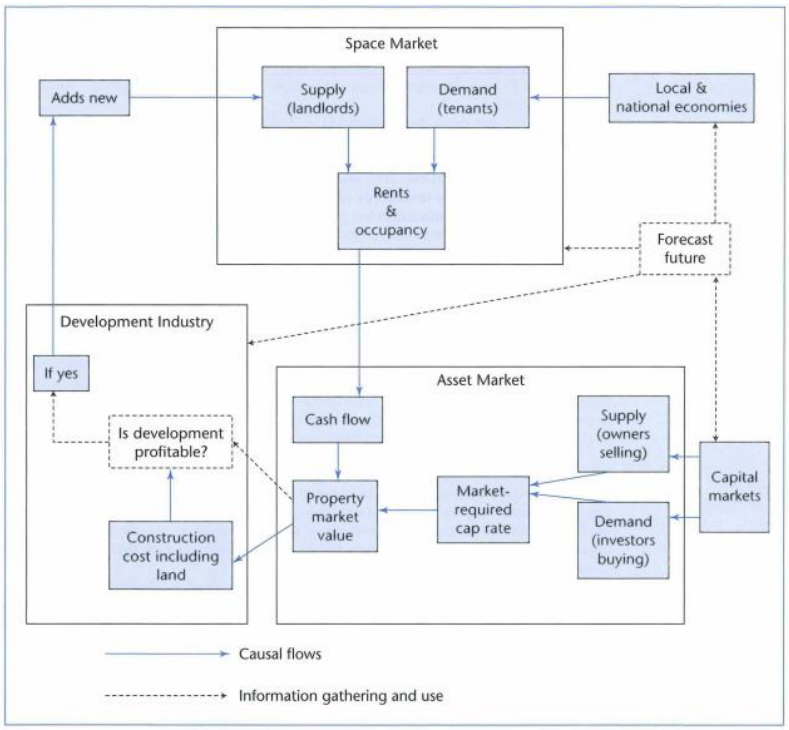
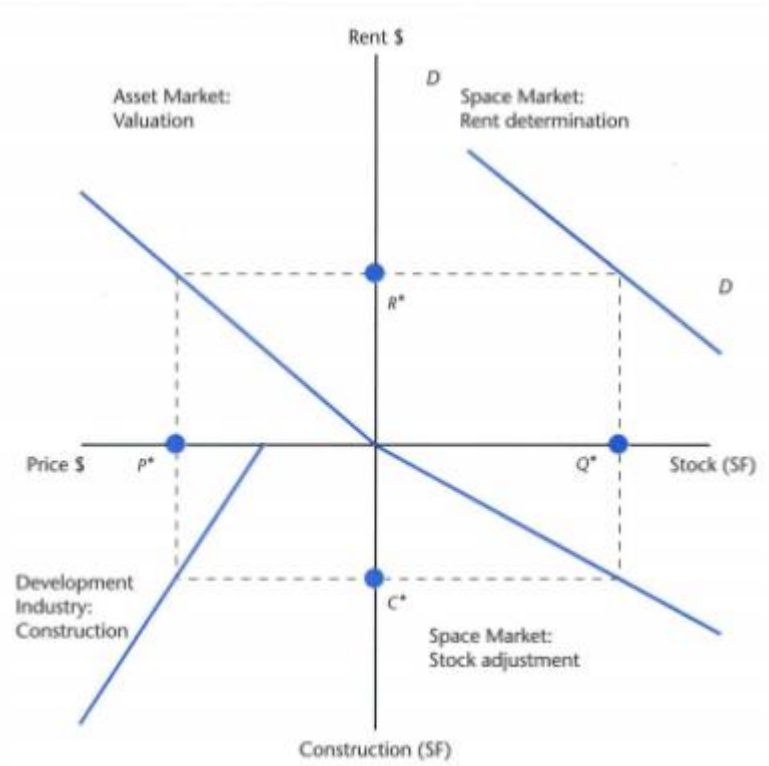


Figure 4: four-quadrant model



Source: Geltner et al. (2014)

The general system of the market and the four-quadrant model means that an equilibrium will be achieved over time. However, the equilibrium is always moving since developments never stop as time goes on (Geltner et al., 2014). Large impacts on the market disrupt the system and cause temporal shifts and even high rise of prices due to the fact that construction industry is a market that needs time to adjust the supply (DiPasqualle & Wheaton, 1992; Geltner et al., 2014).

Due to the dependency on the real estate situation, it is important to assess what government regulation causes on the real estate market. Besides the public spending to make existing supply a better fit for the market, there are also regulations that limit the move of the market towards an equilibrium (Glaeser et al., 2005). Glaeser et al. (2005) argue in their article about the real estate market in Manhattan, New York, and how regulation has caused a rise in housing prices. In the sprawling cities in the American heartland, land remains cheap and construction costs are low, by expanding the supply the housing prices are kept low (Glaeser et al., 2005). Referring back to the four-quadrant model, the stock is adjusted for the increased demand for space usage. By increasing the stock the rental prices are kept low and this keeps property value in check (DiPasquale & Wheaton, 1992; Geltner et al, 2014). The same used to be the case in New York according to Glaeser et al. (2005). Growth of the city resulted in demolition of old blocks in favour for denser residential construction. However, this equilibrium is interrupted by government regulation, as construction in Manhattan is not seen favourable by the government. The restrictive regulatory environment created by government regulation results in a constrained construction market in which the stock of spaces isn't adjusted properly when following the market equilibrium of the four-quadrant model (Glaeser et al., 2005; Geltner et al., 2014).

Quigley and Rosenthal (2005) also write about government restrictions in the form of land use regulation. The issue of environmental goals and sustainability requirements also manifest into the use of expensive building materials which marginally raise costs again (Saks, 2008). Therefore, government intervention on real estate markets may harm the equilibrium and cause issues for construction.

For this study it is important to consider the role of the public sector on the real estate market. Large public spending projects influence the development of a region and this causes labour market developments (Greenstone et al., 2010; Engelen & Grote, 2009). To understand what certain regulations cause on the real estate market the four-quadrant model is useful. Government regulation can seriously restrict the elasticity of the real estate market and may be harmful in the long run causing rising rents (Glaeser et al., 2005; Geltner et al., 2014).

2.4 Public spending and the labour market

In this chapter the influence of public spending on the labour market will be discussed. Public spending as already explained, is a broad field were investments can come in many forms and on many markets (Afonso et al., 2005). However, in the past few years and especially since the 1990's many governments have invested in national- and regional investment agencies to attract FDI with the goal to create more jobs and increase economic efficiency (Miskinis & Byrka, 2014; Almond et al., 2015). The creation of jobs and attracting firms does also pressure the residential real estate markets, as employees need a place to live (Saks, 2008; Rupert & Wasmer, 2012). For this study it is important to consider what effects public spending have on job creation and what the impact of labour market developments are on the aligned real estate market.

The labour market is a crucial market when considering employment effects in a study. Therefore it is important to first define the labour market. The labour market as any market consists of supply and demand. On the labour market, supply is the availability of workers and demand are employers looking for workers. This is a dynamic market in which supply and demand constantly change, supply can for example increase or decrease because of migration or demand can rise when there is economic growth and firms look for more workers. (Saks, 2008)

Investment agencies use a wide arsenal of promotion, the EMA bidbook can also be considered as one in this regard. The focus is not only on the economic benefits for firms to settle in a region. According to Zhu et al. (2015) the economic benefits are usually quite clear and the role of investment agencies is to smoothen transition of firms and highlight other conditions of the region. One of those important highlights are the living conditions of a city or region, as firms bring over some employees which they presumably care for (Zhu et al., 2015). A positive image of living is important in attracting both labour and firms (Zhu et al., 2015). Public spending does not end with just investment agencies. Investment agencies are also responsible to allocate state funds and invest them in attracting more firms and create more jobs (Zhu et al., 2015; Miskinis & Byrka, 2014). The prime examples are the Dutch national investment agency (NFIA) and the local agency in Amsterdam (AmsterdamInBusiness), cooperating to create the bidbook and promote the investment and attraction of the EMA. The attraction of the EMA will also cause service industries to develop and this also increases the amount of jobs (Goerzen et al., 2013). As discussed earlier linked industries are also likely to develop and thus create even more employment (Neffke, Henning & Boschma, 2011) Public spending in this case has a goal of creating more jobs and this is not only achieved by attracting one firm but the goal is that the investment in one large firm (or institution in the case of the ECB and EMA) will attract more firms and thus more jobs (Goerzen et al., 2013; Greenstone et al., 2010). The findings of Greenstone et al. (2010) correspond with this line of reasoning as one of the highlighted examples show that the direct impact of $2 billion public spending directly created 2000 jobs and another 2000 jobs would indirectly follow in the future. These jobs were not only in the same industry, some were from existing firms in the same industry expanding and some from new entrants but another part was in service industries corresponding with the theory of Goerzen et al. (2013). Public spending can thus have a direct impact on jobs, like attracting a large plant. But public spending can also create jobs through the investment agencies and promotion of intangible effects like living standards. Another indirect effect is caused by the co-development of linked industries, not directly impacted by the public spending but able to benefit because the directly impact source is linked to them

(Frenken & van Oort, 2007). Even labour market policies to create a better fit of the market demand can be interpreted as public spending on labour markets (Card et al., 2009).

Public spending in the example of Greenstone et al. (2010) is used as direct tools for job creation. These labour market developments also have an impact on the residential real estate market (Saks, 2008; Rupert & Wasmer, 2012). Rupert & Wasmer (2012) argue that local employment growth is directly linked with the capacity of the construction industry to accommodate in housing demand. If firms fail to meet the demand the housing prices will rise as seen in the four-quadrant model (DiPasquale & Wheaton, 1992; Geltner et al., 2014). Increase in housing prices will discourage labour migration. The mobility of workers is also important when assessing the labour market (Rupert & Wasmer, 2012). The mobility of US residents for example is three times higher than the mobility of EU residents (Rupert & Wasmer, 2012). The costs of commuting also play a role in the labour market dynamics as lower costs of commuting increase the distance in which workers will accept jobs (Rupert & Wasmer, 2012). Saks (2008) found a strong positive correlation between housing stock and employment. Even when controlled for increased people per household and shared housing units the correlation remains strong. In the long run employment will increase as long as there is enough housing stock (Saks, 2008). It is therefore important that local authorities are not counterproductive when it comes to public spending as many ways of government interference on the real estate market are able to seriously cripple the construction market (Rupert & Wasmer, 2012; Geltner et al., 2014). An example could be investments in attracting large firms but not being able to house all the new workers. By limiting construction the investment in attracting a large firm is wasted as the area does not meet the demands of the firm. Regulation has a crucial effect on the housing and labour market dynamics (Saks, 2008). Raising costs of construction or imposing land use restrictions lower the elasticity of housing supply. As a result of the labour migration patterns change and employment growth will be lower in places were housing supply is more constrained (Saks, 2008).

Public spending on labour markets and residential real estate markets comes in many different forms. Either by labour market policies or attracting firms, there are many incentives to improve labour market supply (Greenstone et al., 2010; Card et al., 2009; Zhu et al., 2015). However, the labour market supply is not a free functioning market as the residential real estate market may limit the growth (Saks, 2008). The relation between the labour market and the housing market flows both ways. Having enough housing supply will ensure the long run growth of employment but the pressure on construction and housing increases when the supply of employment is growing (Saks, 2008). It is therefore important for this study to assess the situation of the residential real estate market and the labour market and if there are any government restrictions on the construction market.

2.5 Conceptual model and expectations

To conclude the theoretical framework, a conceptual model has been developed for this study. It incorporates the effects mentioned in the theoretical framework when it comes to public spending and its influences. Figure 5 shows the conceptual framework. Central to the framework is of course the EMA relocation, which is a public investment. The thick arrows are the direct connections of the central factor in this model; the EMA relocation to the subfactors. The thin arrows are the connections between subfactors. Public investments influences other factors, such as real estate markets and labour markets as seen in the study of Greenstone et al. (2010) but also influence attracting other firms as seen in Frankfurt (Grote, 2008). Scandizzo & Pierleoni (2017) argue about the many effects that large public investments like Olympic Games can have on a region. Not just the direct economic effects are of importance but also the intangible effects are important when it comes to measuring and determining the effect of public spending (Scandizzo & Pierleoni, 2017; Walton et al., 2008). Some of these effects are the city/region image or political attention. These effects can be positive or negative as seen in table 1. Co-development of the industry space in a region shows the indirect effect of public spending, as life science will develop and the linked industries will develop too (Neffke, Henning & Boschma, 2011).

The two important markets for this study are the labour market and the real estate market. Both influence each other as discussed by Saks (2008) and Rupert & Wasmer (2012). Increased labour market growth calls for more supply on the residential real estate market while low supply of residential real estate discourages labour migration (Saks, 2008; Rupert & Wasmer, 2012). The interaction between these two markets (and the real estate market by itself) can be influenced by government interference and regulation (Saks, 2008; Geltner et al., 2014). This eventually limits the ability to attract firms if government regulation is limiting construction and labour supply cannot grow or fit the demand for new firms (Glaeser et al., 2005). Availability of labour is an important factor when it comes to attracting firms, as they need qualified employees for their vacancies (Greenstone et al., 2010). Intangible effects are also of importance when it comes to attracting firms, as positive city image or a good living environment is favoured because they will not only use local supply of labour but also bring over employees which will have to live in the new area (Zhu et al, 2015).

From the conceptual model and the theoretical framework several expectations arise for this study. First and foremost the key of this study; the employment effect. The EMA as an important European Institution for Life Science will have a positive effect on employment in Life Science as in skill related industries. This is to be expected due to earlier studies in Frankfurt and the theory about skill related industries co-development (Grote, 2008; Neffke, Henning & Boschma, 2011). The second expectation is that due to the highly pressured and regulated residential real estate market in Amsterdam and proper accessibility to other areas in the Netherlands, other Life Science specialized areas in the Netherlands are more likely to profit from the EMA relocation. This does not mean that Amsterdam will not profit but other Life Science clusters in the Netherlands are more likely to profit since they have enough housing supply to keep up with the growing labour market (Saks, 2008). The third expectation is that the EMA employees will try to directly compete for residence in the city of Amsterdam, increasing pressure on the Amsterdam real estate market. The fourth and final expectation is that the EMA will have a positive effect on the intangible effects in Amsterdam like city image and the image of livability.

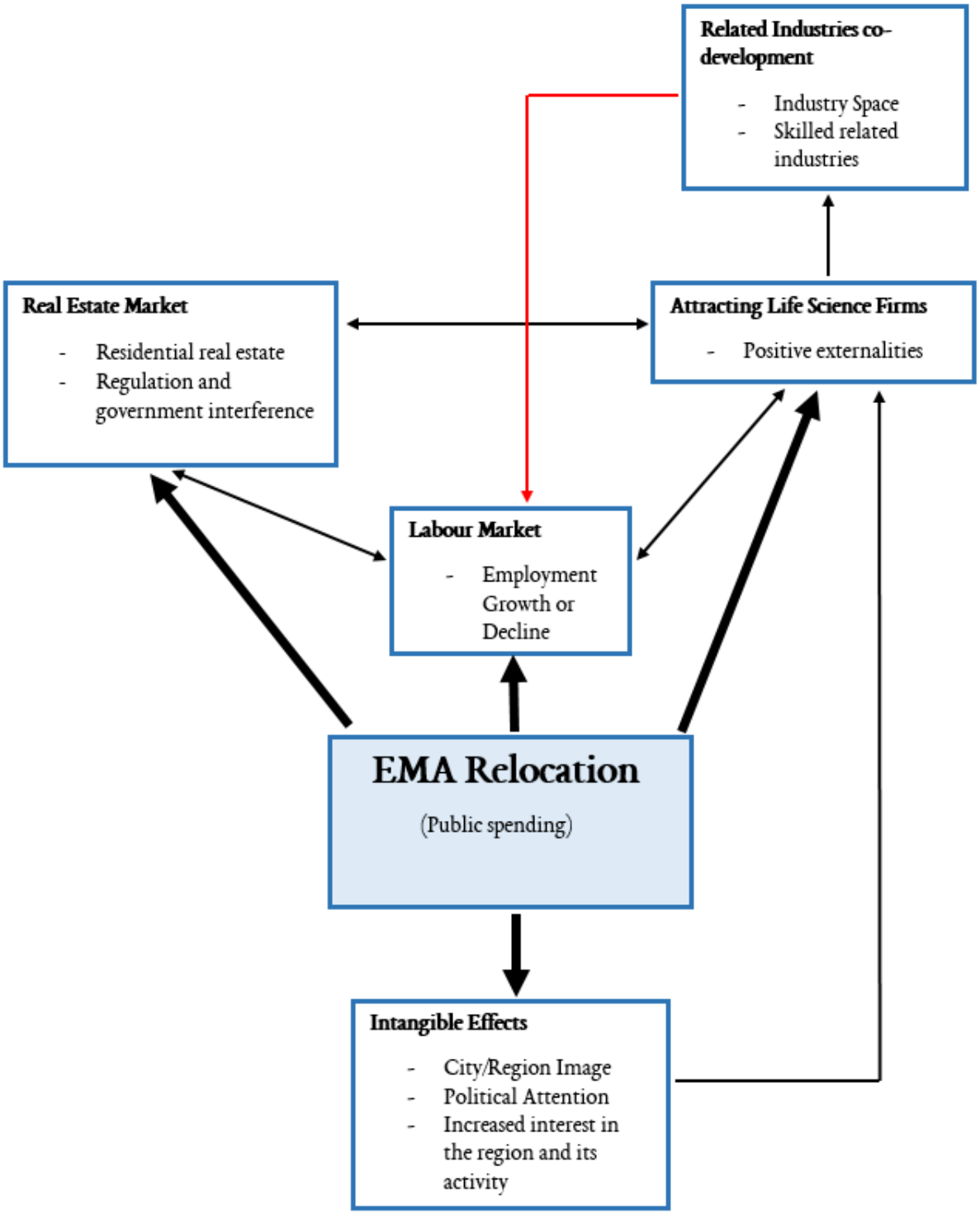
Expectation 1: The EMA relocation has a positive influence on the attraction of firms and jobs in Life Science and skill related industries in the Amsterdam Metropolitan area

Expectation 2: Life science clusters and other regions in the Netherlands profit more from the EMA relocation than the Amsterdam Metropolitan Area

Expectation 3: The EMA relocation creates more pressure on the tight residential real estate market in the Amsterdam Metropolitan Area due to EMA employees finding residence.

Expectation 4: The EMA has a positive effect on the city image of Amsterdam

Figure 5: Conceptual Model


Related Industries co-development
- Industry Space
- Skilled related industries
Real Estate Market
- Residential real estate
- Regulation and government interference
Attracting Life Science Firms
- Positive externalities
Labour Market
- Employment Growth or Decline
EMA Relocation
(Public spending)
Intangible Effects
- City/Region Image
- Political Attention
- Increased interest in the region and its activity

3. Operationalization

This chapter contains the explanations as to why certain research methods have been used in this study and why those methods contribute to answering the main research question. This chapter will also operationalize constructs & concepts and sets the field of indicators in what is searched after. The operationalization is guided by the conceptual model and the theoretical framework as the factors and relations are subject to this study.

3.1 Methodology

This part of the chapter will cover the different kind of actors that have been subject to questioning and/or analysis and why they were relevant. For every actor there will also be a justification as to why the certain research method fits the analysis. Table 2 shows the complete list of actors and the research method. For all of the actors there is chosen to go with qualitative research methods. One of the main reasons for using qualitative research is due to the fact that the EMA relocation is currently in progress. This means that no time has elapsed since its full relocation and there are no things to measure yet as it will all play out in the future. This study is therefore exploring the opinions and argumentations of involved actors and experts. This will allow the researcher to critically reflect on the large public spending project and to find out if it will reach the goals that are assumed to be achieved by this project or if there even are any. It will also look into opinions of experts and actors not directly involved with the EMA relocation but who are active in markets or sectors that possibly are influenced by the EMA relocation. This includes Life Science firms and firms active in skill related industries of Life Science. Justification and more elaboration for every research method will be given further in this chapter. Table 2 shows actors and secondary data that is used to collect and analyse data. The table also provides information as why the actors or data were valuable to this study.

Table 2: Data Collection

Research Method	Actor/Item	Explanation
In depth (Expert) Interview	Maarten Stevelink (NFIA; Netherlands Foreign Investment Agency)	As Senior Project Manager Maarten is one of the key actors in the creation of the EMA bidbook and the attraction process around the EMA. His insights in the bidbook, goals of the attraction of the EMA and further expertise was valuable when assessing the impact according to the story of the NFIA. The NFIA also has information on all of their FDI projects and firm attraction. This was valuable when assessing the Industry Space and determining the impact on skill related industries.
In depth (Expert) Interview	Jan Zuidema (Invest Utrecht)	Jan Zuidema is the Life Science and Health expert for Invest Utrecht. Utrecht is one of the Life Science clusters in the Netherlands, while Jan Zuidema is an expert in the field of LSH in

		Utrecht but also the Netherlands his insights were valuable to this study. He and his organisation are involved in the EMA follow up project. This provided insights in the effects of EMA on LSH in a broader context than Amsterdam, as it also explored the impact for the rest of the Netherlands and the situation of regions involved in the follow up program.
In depth (Expert) Interview	Sandra de Wild-Chardonnens	Sandra de Wild-Chardonnens is the Life Science and Health expert within the NFIA. Therefore she has knowledge on the LSH sector in the Netherlands and is involved in the activities of the NFIA revolving around LSH. This knowledge was valuable in assessing the possible broader impact of EMA on the Netherlands, LSH and skill related industries.
In depth (Expert) Interview	Stefan Ellenbroek	Stefan Ellenbroek is the Life Science and Health business developer within InnovationQuarter, the investment agency for the province of South-Holland and is especially involved with the LSH cluster in Leiden. Therefore his knowledge was valuable in assessing the impact of LSH industries on Amsterdam, the Netherlands, as well as the possible impact on Leiden. This also provided information from an expert who is not directly involved with the EMA follow up program.
In depth (Expert) Interview	Friso Hennings Backer	Friso Hennings Backer is the Life Science and Health expert within OostNL, the invest agency for the eastern Netherlands. He is also a senior project manager in the EMA follow up program and involved in the process of how to spread the impact of EMA over the Netherlands. Therefore he was able to discuss the chances of the Eastern Netherlands but also elaborate on the recent developments in and around the EMA project.
In depth (Expert) Interview	Harry Flore	Harry Flore is the CEO of HAL Allergy and the chairman of the Leiden Bio Science Park entrepreneurial board. As a CEO of a pharmaceutical firm and the chairman of the Leiden Bio Science park he is involved in LSH activities in the Netherlands. The perspective of a pharmaceutical firm was valuable to this study to gain more insights in the thinking of firms about

		location and the possible impact of EMA.
In depth (Expert) Interview	Richard Post	Richard Post is the co-founder of Zentis Medical, an IT service firm who produces software for LSH firms especially active in MedTech. This activity counts as one of the skill related industries of LSH, thus being a part of the LSH industry space. The insights of skill related industry firms in their chances to profit from EMA and the possible developments for their sector was valuable to assess the broader impact of EMA on the skill related industries of Life Science. Also, the perspective of a smaller firm gave valuable insights in how those firms view the EMA relocation and their chances.
Interview	Relocation Team EMA employees	To find out whether employees will find residence in Amsterdam or not, it was useful to interview the employees who are involved in guiding EMA employees who carry over to the Netherlands from London. This allowed the researcher to find out whether Amsterdam is chosen as the new location of residence or not by the EMA employees. Also, the factors that are of importance for EMA employees on choosing their new location of residence and the current issues they face were valuable to assess the impact on the residential real estate market.
Secondary data analysis	Dutch Bidbook for the EMA	The Dutch bidbook for the EMA provided information about the amount of jobs being carried over, their perspective on the influence of the EMA and what their motivation is to acquire the EMA. It also provided information about the setting of EMA and LSH in the Netherlands and provided a context for the interviews.
Secondary data analysis	Report on specialized industries in Amsterdam	The report on specialized industries gave insights in the aligned and active industries in Amsterdam. Therefore it was possible to link these industries to the Life Science industry. These industries are also keen to development as skill related industries evolve as mentioned by Van Oort et al. (2015). It also provided insights in the industry space of other regions in the Netherlands, exploring the possible opportunities for EMA impacts in a broader context than just the Amsterdam Metropolitan

		Area.
Secondary data analysis	Vision on living for the Amsterdam Future	Vision of the Amsterdam municipality on living for the upcoming years was an important document to explore the future of the residential real estate market in the Amsterdam Metropolitan Area. This provided insights in the position of the Amsterdam Metropolitan Area on how to address the issues facing residential real estate in their area for the coming years (till 2025 in this vision). It also provided insights in the perspective of the local government on issues in the local residential real estate market. Any information about possible regulation also contributed to the prediction of further development on the residential real estate market in this region.
Secondary data analysis	Real Estate reports by JLL, Dynamis, and Colliers international.	Reports gave insights in the real estate market and expected developments for the coming years. It was also valuable to set the context for the current issues and developments on the residential real estate market of Amsterdam from the perspective of large real estate firms. This information was valuable to predict the impact on the residential real estate market.
Secondary data analysis	Data from the Dutch central statistics bureau and other data about Life Science employment in the Netherlands. This also includes reports regarding Life Science in Europe from consultancy firms or scientific journals.	The data about Life Science employment and establishments in the Netherlands portrays the spatial distribution of Life Science activity in the Netherlands. This was important to get context about how large Life Science is in the Netherlands and where there is a possibility of impacts due to EMA.
Secondary data analysis	Websites belonging to EMA, NFIA and other Dutch Investment Agencies.	The websites of the EMA, NFIA and other investment agencies provided information on the current developments of EMA and provided data, articles that contributed to the analysis or just provided context for the interviews.

3.2 Indicators and focus

In this part of the chapter the domains and their indicators are explained and operationalized. The focus on Life Science and what Life Science encompasses is also explained in this part of the chapter.

The Statistics Netherlands (CBS) provides statistics on the number of firms (or rather establishments) in the Netherlands. Following the CBS (2017) report on the top-sectors in the Netherlands the corresponding SBI digits (SIC: Standard industrial classification) for Life Science are the following: 21, 26.60, 32.50, 72.11.2 and 72.19.3. Table 3 shows the corresponding industry per digit. Whenever there is a reference to Life Science (LSH) in the analysis or the operationalization it encompasses activity in any of the industries mentioned in Table 3.

Table 3: SBI Digits life science

SBI Digit	Industry	Field
21	Manufacturing of pharmaceutical resources and products	Pharmaceutica (BioPharma)
26.60	Manufacturing of radiation equipment and electromedical/therapeutical equipment	Medical instruments (MedTech)
32.50	Manufacturing of medical instruments and tools	Medical instruments (MedTech)
72.11.2	Biotechnological research and development of medical products, pharmaceutical processes and nutrition	Research and development (BioPharma)
72.19.3	Research and development of health and nutrition (non-biotechnological)	Research and development

Source: CBS (2017)

As seen in Table 1 of the theoretical framework, Scandizzo & Pierleoni (2017) have identified several potential impacts when it comes to large public spending projects. There are different positive and negative impacts of large public spending projects divided over several domains. This study will only focus on some of the effects as mentioned in Table 4 below. These effects are the main domains in which the study will commence, as the sub questions are also (partially) under this domain.

Table 4: Impact focus

Domain	Potential Impact
Economic Impact	Job creation
Physical and Environmental Impact	Construction of new facilities / real estate; pressure on real estate market

Political Impacts	Enhanced international recognizability of the region

Source: Scandizzo & Pierleoni (2017)

For every domain and potential impact there are also several indicators that fit the domain according to the literature review in the theoretical framework. These indicators are important guidelines in the analysis as they guide the researcher in what to look for and to which domain it belongs. They can also be placed (and some are shown) in the conceptual framework. Table 5 shows the different indicators that are derived from the theory and show to which domain they belong. It is also mentioned which actor is presumed to give insights into that matter either through interviews or secondary literature and data. All of the indicators and concepts relevant to this study are demarcated in Table 5. By analysing the results on these indicators the research question(s) will be further explored and answered.

Table 5: Indicators

Indicator and domain	**Why?**	**What/item**	**Who?**
Job Creation (Economic impact)	One of the main drivers and main focuses of this study is on the effect of public spending and industry development on the labour market. Job creation is a major factor in this regard especially since the EMA attraction is mainly considered due to the fact that it creates more employment in the Netherlands.	Finding out what different actors think about the amount of direct employment that will be created by the EMA relocation. Finding out what different actors think about indirect employment that will be created by the EMA relocation. Finding out the longevity of the EMA investment; one time investment surge or not?	Life Science experts EMA project managers Life Science and skill related industry firms EMA bidbook Related industry report (van Oort et al., 2015)
Life Science Development (Economic impact & political impact)	Linked to the job creation is the Life Science sector development. Following from the knowledge about the EMA position it is important to analyse if it actually provides an incentive for firms to move to Amsterdam and locate close to the EMA. Grote (2008) found the path dependent process in	Finding out if the EMA provides Life Science firms with an incentive to move to Amsterdam. (Path dependent process, do other life science firms and the EMA attract other life science firms) Finding out the longevity of the EMA investment; one time investment surge or not?	Life Science experts EMA project managers Life Science and skill related industry firms Related industry report (van Oort et

	Frankfurt where financials firms were likely to relocate to Frankfurt because of the ECB and other banks nearby. The same effect could apply to the EMA.		al., 2015)
Life Science Development of Amsterdam versus development of the Netherlands	The EMA as a large institution may settle in Amsterdam, but that does not mean it can have a broader impact than just the Amsterdam metropolitan area. It is therefore important to analyse if respondents think other areas in the Netherlands may also profit from the EMA relocation or not.	Finding out where other Life Science clusters in the Netherlands are Finding out	Life Science experts EMA project managers Life Science and skill related industry firms EMA bidbook Related industry report (van Oort et al., 2015) CBS Data
Skill Related industry development or Industry Space (Economic impact)	According to Neffke, Henning & Boschma (2011) the industry space of a region is important to analyse the development of the region. Many of the related industries in the networks are likely to benefit from growth in another linked industry. This further increases the effect of growth in one sector as it allows linked industries to co-develop.	Finding out which industries are linked to Life Science Finding out which linked industries are present in the Amsterdam Metropolitan Area. (Identifying the Industry Space) Finding out whether related industries are likely to co-develop or not. Finding out the longevity of the EMA investment; one time investment surge or not? Finding out the state of the industries to assess their potential.	Skill-Relatedness report by Van Oort et al. (2015) Life Science experts EMA project managers Life Science and skill related industry firms
Intangible Effects (Political impact &	Literature about the large public spending projects	Finding out if the EMA will impact intangible effects (city	Life Science experts

economic impact)	suggest that not only tangible effects are important but also the intangible effects. These effects are hard to measure or to be made quantifiable but are therefore not less important (Walton et al. 2008; Scandizzo & Pierleoni, 2017). These effects may also be found while looking into the other indicators.	image) of Amsterdam (or the Netherlands as a whole)	EMA project managers Life Science and skill related industry firms EMA bidbook Related industry report (van Oort et al., 2015) Relocation Team
Real Estate development (Economic impact & physical and environmental impact)	The residential real estate is directly linked with the labour market according to Saks (2008). It is therefore important to look into the current situation of the Amsterdam real estate market, but also the future predictions. Government regulation is also an important factor as it can cause serious constraints for construction or the supply in general but can also have regulations to better guide the market and foster growth (Glaeser et al. 2005).	Finding out the current situation of the Amsterdam residential real estate market. Finding out the future predictions for the Amsterdam residential real estate market. Where will EMA employees live? Finding out the government regulation on the real estate market in Amsterdam and how it is going to develop over the coming years. Finding out if the regulation is a constraint or not. Finding out the longevity of the EMA investment; one time investment surge or not?	EMA project managers Life Science and skill related industry firms EMA bidbook Relocation Team

To address the intangible effects, the choice has been made to use a few intangible effects that create the umbrella term of "City Image". In table 6 these effects that create "City Image" are shown and are elaborated upon. Whenever there is mention of City Image in the interviews or results, the effects mentioned in the table are what is sought after.

Table 6: City Image

Intangible Effect	Description
International recognizability	The international recognizability consists of several intangible effects that together create the perspective of a city or region (Scandizzo & Pierleoni, 2017). This includes the awareness of a city or region worldwide, in the case of this study; is it well know to the world of Life Science? This also includes the attention the region or city will get worldwide due to this "fame" or international recognizability. An example could be in tourism reputation for example.
Quality of life (living conditions)	The quality of life is an important intangible effect as it provides the view of the living conditions in a certain city or region. Especially when it comes to attracting firms or employment the living conditions are important since people will continue their life there and is seen as a location factor in FDI literature (Goerzen et al., 2013). Quality of life and living conditions also applies to the ease of finding residence and setting up your life once resettled to a certain region. This also includes amenities (activities to spend free time for example cinema's) which are important for the quality of life in urban areas.
Business Climate	The business climate of a region is an important intangible effect as this is one of the main focuses for firms whether to invest in a certain region according to FDI literature (Goerzen et al., 2013; Zhu et al., 2015).

3.3 Interviews

The in depth interviews have been conducted in a semi-constructed manner, this allowed the researcher to decompose the exact argumentation behind the motivation of an actor (Bernard, 2013). Qu & Dumay (2011) write that interviews give an interesting insight in the world of others, especially people involved in the studied subject. By analysing the opinion of experts on the matter of the relocation of the EMA and linked industry development a discussion can be made about the matter. It is therefore important to interview actors from different positions towards the EMA, offering a broad perspective of opinions.

A critical note on the use of interviews is the assumption that interviewees truth tellers about the matter discussed (Qu & Dumay, 2011). Alvesson (2003) describes this as follows:

> Although this stream of research offers great benefits for qualitative researchers, there is a danger of simplifying and idealizing the interview situation based on the assumption that interviewees are competent and moral truth tellers acting in the service of science and producing the data needed to reveal" their experiences (feelings, values) and/or the facts of the organization under study. (p. 14)

Therefore it is important to critically analyse interview results and as a researcher take background and/or perspective of the respondent into consideration. It is important as a researcher to properly prepare interviews as it takes several skills like intensive listening and note taking to gather results (Qu & Dumay, 2011). Laying out foundations and planning ahead on topics for example. Table 2: Data collection shows the different kind of actors that will be interviewed in this study.

To answer the sub questions it is important to look for certain elements, indicators, in the reasoning of respondents. These elements refer to situations involving the EMA relocation based on the earlier done literature study in the theoretical framework. The complete topic lists and prepared semi-constructed interviews can be found in appendix 1. The transcripts of all conducted interviews can be found in appendix 13 to 20. The focus of these interviews was to breakdown the reasoning and argumentation of experts or actors on the matter of indicators mentioned earlier in table 5. It could either be in the domain of the real estate development, looking into the projected development of Amsterdam or labour market growth from their perspective. But it could also be in the domain of the industry space and analysing the view of actors on the impact of the EMA on Life Science industries and their linked skill related industries. The topic list consisted of questions and elements based on table 5 as all of the important indicators are demarcated there.

3.4 Secondary literature and data

Next to the conducted interviews there was also secondary literature and data to be reviewed. Especially the EMA bidbook was of importance as it is a first-hand document on the attraction of the EMA that will show the perspective of the Dutch government. The EMA bidbook also provided data on the transition, the new location and its development and the amount of direct jobs involved with the EMA. Regarding the real estate sector several reports of real estate firms have been analysed in their future predictions of the residential real estate market as well as the development of Amsterdam for the years to come. Any numbers provided in these reports have been regarded as secondary data and were analysed. It was important to critically analyse these documents and data at all times as all of these are ex ante predictions and projections which are usually overestimated when it comes to large public spending (Walton et al., 2008; Fletcher, 2008).

Table 7 shows the different kind of documents that have been analysed to answer the research question. Several indicators were given in what to look for and the relevance. The EMA bidbook and the report of Van Oort et al. (2015) about skilled related industries in Amsterdam are mentioned in full titles as they are important documents to answer the research question(s). The reports and data by real estate firms are not mentioned by title but will be ascribed to the organisation of heritage in the analysis and will be mentioned in the reference list.

Table 7: Secondary Literature and Data

Topic of the Document(s)	**Relevance**	**Indicator**
EMA Bidbook	The EMA bidbook is a document used to attract the EMA in the first place. This document was thus useful to analyse as it showed the strong points of Amsterdam and why the EMA should relocate there. The discourse in the document is important to analyse the stance of the NFIA and the Dutch Government towards the EMA. Also any data and/or information in the document gave insights in the labour market developments.	Job Creation Life Science Development
Labour mobility and skill-relatedness in Dutch regions (By Van Oort et al., 2015)	This report by Van Oort et al. (2015) is about the skilled relatedness of industries in the Netherlands goes into more detail as to why they are linked and were they are present. This thus shows the *Industry Space* as discussed by Neffke, Henning & Boschma (2013) in the theoretical framework. By assessing the *Industry Space* of Amsterdam more insights have been gathered on which industries are likely to co-develop with Life Science and/or the EMA.	Job Creation Industry Space (skilled-relatedness)

Residential real estate reports by real estate firms (visions of the future)	Reports by real estate firms about the future of the residential real estate market in the Netherlands gave insights into how real estate firms predict the growth of Amsterdam, its real estate market and possibly the labour market. The view of a non-public organization on the matter was valuable as they may act on different information or have different opinions on certain developments.	Residential Real Estate Real Estate Developments Job Creation
Municipality vision on living (Only municipalities within the Amsterdam Metropolitan Area are taken into account)	The visions of municipalities on how to deal with residential issues in their corresponding municipalities gave insights in how the municipalities are approaching the growth of their residential real estate market and how they are going to handle it. This may also give insights in regulation that municipalities impose on the construction market for example which are really important when assessing the situation and growth of the real estate market (Geltner et al., 2014; Glaeser et al., 2005).	Residential Real Estate Real Estate Developments Government Regulation on Real Estate Markets
Data from the Dutch central statistics bureau, EMA websites, NFIA websites, Life Sciences websites, Life Science cluster reports and other investment agencies or bio clusters in the Netherlands.	Data from all of these internet sources provided insight in the Life Science environment of the Netherlands. This included both the quantity of firms and the locations within the Netherlands, but also how Life Science in Europe looks like. Websites from all mentioned organizations periodically release statements, reports and updates about the EMA relocation process.	Industry Space Job Creation

3.5 Limitations

This part of the chapter will go into detail about the limitations of this study regarding the operationalisation and data collection. Furthermore this will also go into detail about limitations regarding objectivity and the shortcomings of qualitative research.

First and foremost elaboration on the part of the expert interviews. During the process of gathering data and acquiring respondents initially there were low response rates. At first sight, eight interviews do not seem like a lot. However, for the group of Life Science experts a level of saturation has been achieved. Whenever no new data from the same group of respondents is found, saturation is reached and more interviews are no longer valuable (Baarda et al., 2013; Guest, Bunce & Johnson, 2006). Therefore for the group of Life Science experts, the level of saturation was fairly high and this increases the validity of the interpretation as no new information on the matter has been found in the latest interviews, validity in this case meaning if the majority of the argumentations and reasonings have been presented (Baarda et al., 2013). The background of the experts from different organisations and some not being involved in the EMA project also increases the validity of the results for this group (Baarda et al., 2013; Guest, Bunce & Johnson, 2006). This group would especially be very well represented when a Life Science expert from a consultancy (or private) firm would have been able to be interviewed for this study. However, the shortcomings are largely in the group of (Life Science) firms, with only one firm active in Life Science and one firm in a skill related industry as a respondent. The validity of this group is smaller than that of the LSH experts. The insights however, are trustworthy and valuable to the analysis. The study would have profited from more respondents in the group of (Life Science) firms, as the level of saturation is unclear with only two interviews in this group while still gathering new information from both respondents. The relocation team involved with the housing of EMA employees thought that an interview would not be fruitful. However, they responded to several of the interview questions through email. This email has also been used as a data source from their perspective and is included in appendix 19 as an interview. For the intangible effects attempts have been made to interview someone involved in the city marketing of Amsterdam. However, the person suggested by other respondents involved with the marketing never responded to any attempts of contact. The trustworthiness of all the collected data is strengthened by the addition of the interview transcripts in the appendices (Baarda et al., 2013). The majority of the interviews have also been recorded and all respondents who are recorded agreed to this. Several respondents also requested to review the quotes of them used in the thesis and in what context. Therefore the used quotes and data of these respondents have also been confirmed by them increasing the validity of the results.

Another limitation can be found in the statistical data used to support this study. While all the data presented and analysed in this study are without doubt very clear and usable, one of the most important data subjects is missing. Unfortunately any regional data on employment in different kind of industrial activities are unavailable. The main issue with this data was the fact that only for the larger SBI (SIC) digits any data was available. A certain digit from those lists would include not only the activity this study is interested in, but also all other activities which correspond with that digit. An example is manufacturing, which included all type of manufacturing and not just the Life Science activities as mentioned in this chapter. The CBS and Amsterdam Statistics have no regional data on this matter, making it difficult to properly depict the amount

of employment in Life Sciences for the Amsterdam Metropolitan Area and the Netherlands. Contacting AmsterdamInBusiness and their LSH expert also resulted in the same conclusion, no data on this matter.

The final limitations are those of objectivity and the shortcomings of qualitative research. The first issue is about the objectivity of the analysis. The study has tried to analyse and present the results in an objective way, presenting the quotes from the right context and how the respondent meant them according to the researcher. However, as in all qualitative studies the researcher has to accept that it is never possible to be fully objective as every human being has developed their mind over time and developed their own perspective (Baarda et al., 2013; Bernard, 2013). Therefore the perspective of the researcher is always present and may unconsciously affect the results. Then again it is important to state that the analysis of the results has been conducted with an objective approach and the researcher tried not to let their own perspective or opinions taint the results in any way that the objectivity is in harm. Striving for objectivity and being clear in how measurements and analyses are done helps others to critically reflect on the findings to increase the objectivity (Bernard, 2013).

Qualitative research has the shortcoming of portraying several 'truths' (Baarda et al., 2013). As the results portray the 'truth' of the respondent it explores the reasoning and argumentation from their perspective (Baarda et al., 2013; Bernard, 2013). This does not mean that the results of the study portray the actual events or effects, but they portray the effects or events from the perspective of the respondent. It is therefore important to state that this study in no way tries to predict the exact impact of the European Medicine Agency in Amsterdam and the Netherlands. This study explores the possible predictions and scenarios from different perspectives of actors who are either involved in the EMA relocation process or actors/experts in Life Science and related industries. At the end, anything that is mentioned by respondents and in the analysis could happen but also none of it could happen.

4. Results

In this part of the study the data of the interviews and secondary data will be analysed and presented. This chapter starts off with an overview of Life Science industries in the Netherlands. After this overview the results and data will be analysed following the order of the sub questions and expectations to eventually answer the main question. To recap, the direct impact of EMA will be first discussed, the impact on Life Science and related industries second and at last the impact on the residential real estate market.

4.1 Life Science Clusters

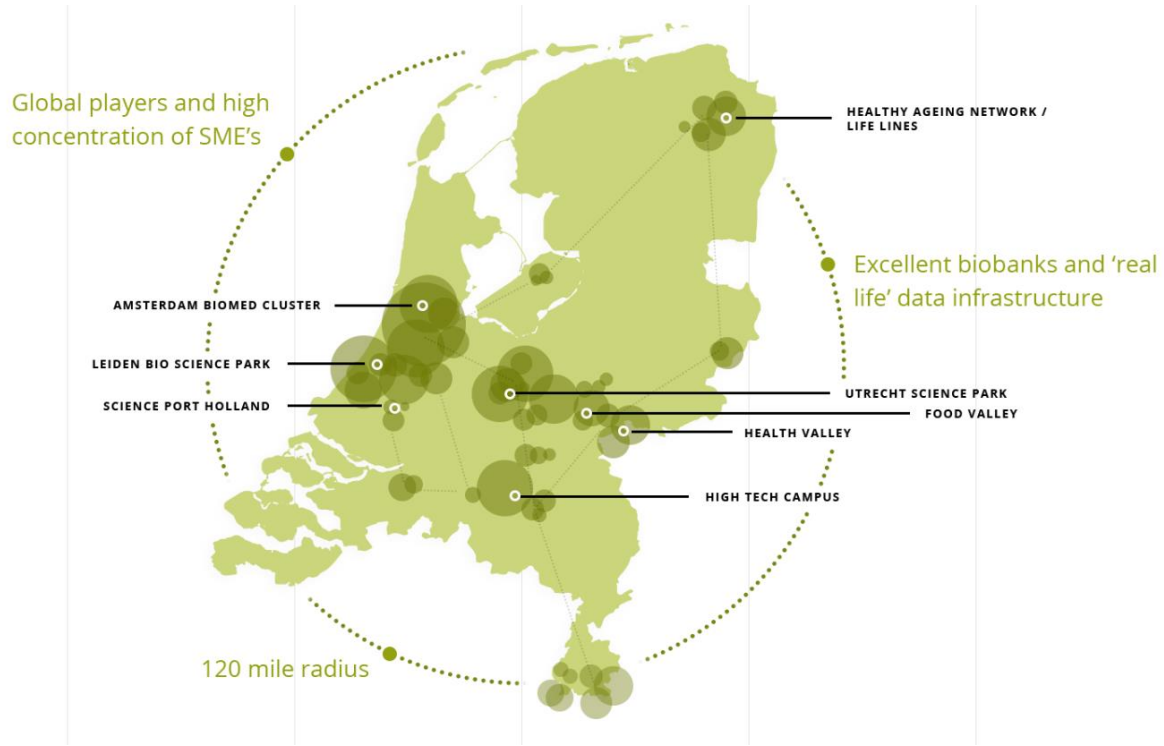
The Netherlands is home to several Life Science clusters. Figure 6 shows the spatial distribution of these clusters throughout the Netherlands. Collectively the clusters belong to the Dutch Life Science & Health "top"- sector as identified by the national government. Dutch economic policy is focused on further strengthening economic sectors which have above average economic performance compared against international benchmarks (AMA, 2017). Dutch classification of Life Science & Health encompasses pharmaceutical industries as well as producers of medical equipment and biomedical research (CBS, 2017). BioPharma consisting of Pharmaceutical industries and R&D while MedTech consists of manufacturers of medical equipment (See table 8, p. 38). It is important to take into account that the EMA provides a service for the scientific evaluation, supervision and safety monitoring of medicines in the European Union (EMA, 2018). Life Science clusters are dependent on several important factors to be counted as successful (KPMG, 2016). The most important factors mentioned by KPMG (2016) area: financial investments, available human resources, innovation climate and diversified industry players in close proximity. The importance of human capital is also stressed by van Oort et al. (2015) and in related industry theories.

As figure 6 shows the majority of the clusters are in the vicinity of Amsterdam while other major clusters are within the 120 mile radius. Besides the concentration around Amsterdam/Leiden another concentration can be seen along the Utrecht - Arnhem - Nijmegen corridor in the centre of the country. Considering the central position of the Netherlands, Amsterdam and the close vicinity of the mainport of Schiphol, the locational choice of EMA is catering for the clusters in the Netherlands. Also the EMA and Dutch regions are in close connection with the rest of Europe through Schiphol airport.

In a report by Science and Business (2015) the leading life science clusters of Europe are discussed and analysed. Figure 7 shows the map of the spatial distribution of these clusters over Europe. An observation when comparing the map with the spatial distribution shown in figure 6 is that the Netherlands as a whole is seen as one life science cluster. The spatial demarcation may thus be of importance when talking about life science clusters. The report of Science and Business (2015) uses a larger demarcation than the AMA (2017) uses for the spatial distribution in the Netherlands. However, every larger cluster shown in figure 7 is also elaborated upon separately. In the analysis of Science and Business (2015) in the Netherlands four clusters are identified: Leiden, Delft, Utrecht and Amsterdam. According to Science and Business (2015) the Netherlands has more than 900 life science firms within a 200 kilometre radius and counts about 63 life science parks.

The Amsterdam metropolitan area is leading the Dutch cluster list with 120 life science firms and 51 life science institutions like universities and hospitals, the area also counts about 36 university spin-offs (Science and Business, 2015). Leiden has a combined 85 life science firms and institutions, Science and Business (2015) also claims it has the largest number of bioscience start-ups in the Netherlands however the number is not specified. The Leiden cluster is still in development and in the future will house the largest number of private healthcare facilities and a new medical technology campus. The latest numbers (which are 2 years after the data of Science and Business (2015)) used by the AMA (2017) for the bidbook also show that Leiden is developing. The bidbook elaborates that Leiden Bio Science Park is among the top 5 science parks in Europe with a total of 190 firms. It is still advertised as a large and fast-growing life science cluster. Utrecht has a combined 50 firms and institutions in life sciences. Utrecht does house several of the largest institutions though including the Hubrecht Institute, the Netherlands Organisation for Applied Scientific Research (TNO) and Deltares (Science and Business, 2015).

Figure 6: Spatial Distribution Life Science

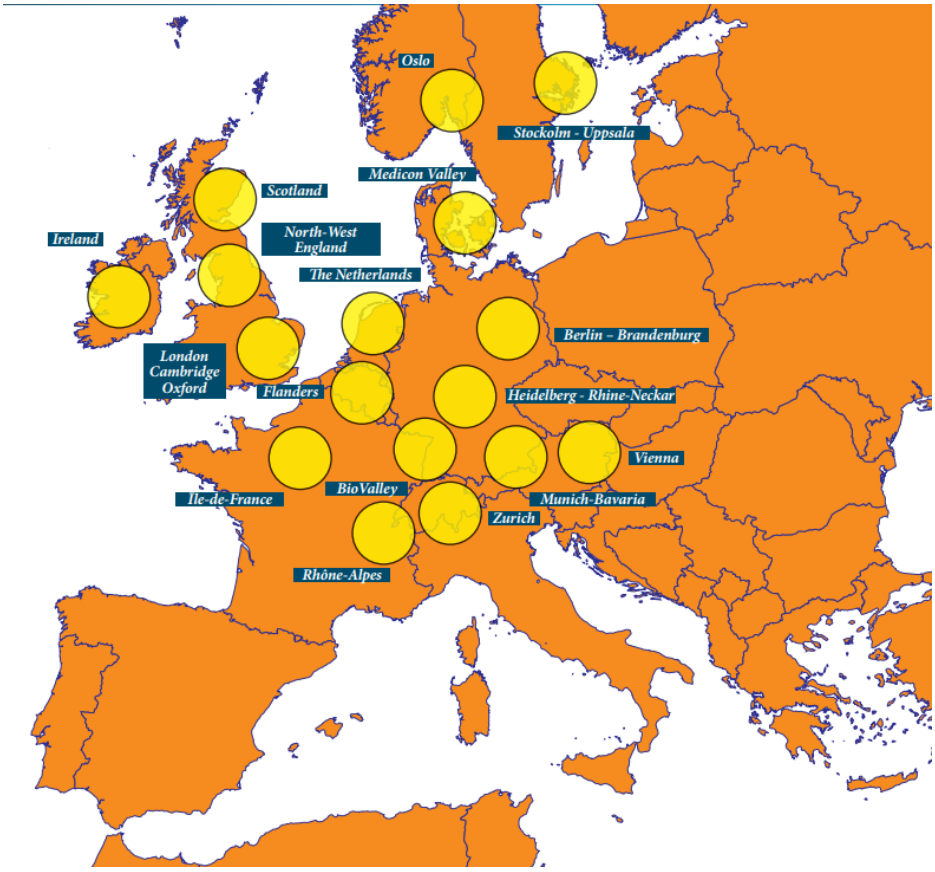


Source: AMA (2017)

The most important activity of the EMA is scientific evaluation and monitoring of medicines (AMA, 2017). New drugs or equipment that are looking to enter the market profit from the proximity to the EMA for quick testing. Accessibility for the EMA is important which it gets through railway connections and Schiphol when settling in Amsterdam (AMA, 2017). Life science research & development in the Netherlands thus profits from the quick accessibility, with 42% of the Dutch life science firms in R&D (KPMG, 2016). This number is in line with averages of Europe according to KPMG (2016) as the average is 43%. Innovativeness is another point mentioned by KPMG (2016), their report shows that the Netherlands fall into the category of "innovation followers". This group still performs above average in innovativeness but is behind the

"innovation leaders" like Switzerland. The Science and Business (2015) report mentions that the Netherlands struggle with insufficient capacity to innovate and also being limited by government bureaucracy. These are perceived as the two main barriers to invest in life science firms in the Netherlands.

Figure 7: Life Science clusters in Europe



Source: Science and Business (2015)

Figure 8 shows the distribution of all Life Science (all SBI digits) establishments in each COROP-region. For the classification of each COROP-region and a map with the names of each COROP region, see appendix 2. As seen in figure 8 the most Life Science establishments can be found in the Greater-Amsterdam area and Utrecht (See appendix 2 for regional classifications). The northern regions (Groningen & Friesland) seem to lag behind when it comes to the number of establishments in life science sectors. The two green regions in Gelderland are the Veluwe area and Arnhem-Nijmegen. While the city of Nijmegen (Health Valley) is the main pusher of life science in their corresponding region the city of Wageningen (Food Valley) is the main pusher for the Veluwe area (AMA, 2017). The CBS statistics follow the pattern of the map proposed in figure 6, with all the mentioned clusters being in green(er) areas of the Netherlands.

Figure 9 shows the distribution of the various establishments over the mentioned industries of table 8. One of the major observations is the fact that in all areas the majority of the establishments are active in the industry corresponding with SBI digit 3250 (Manufacturing of medical equipment and tools). The second largest group in most regions seems to be industry 72193 (Research and development of health and nutrition (non-biotech)). What is interesting to see is that in the veluwe area the number of establishments in research and

development on health and nutrition is not so large as in Greater-Amsterdam, Utrecht or even Arnhem-Nijmegen despite Food Valley being located in the Veluwe area. However, a critical note must be made as the numbers do not say anything about size or quality of the establishment. The area around Eindhoven shows a large quantity of manufacturing of medical equipment firms while the area around Leiden and Amsterdam show large parts of activity in pharmaceuticals (SBI 21) and pharmaceutical R&D (SBI 72112)

Figure 8: Life Science Establishments

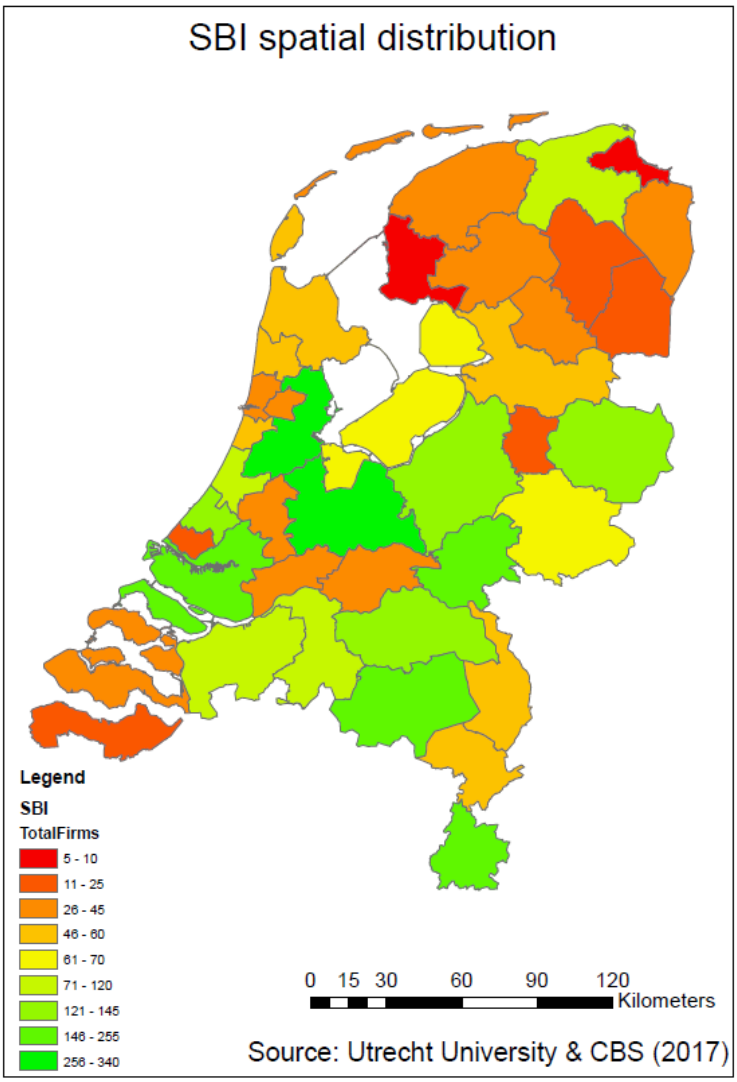


Figure 9: Life Science Establishments Charts

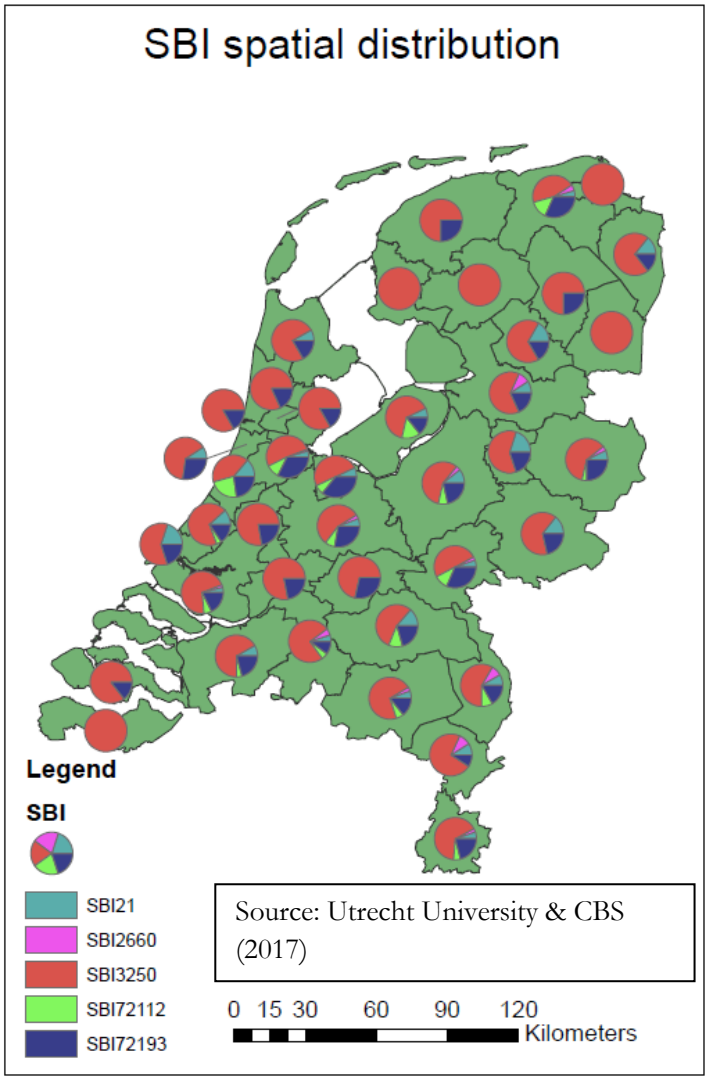


Table 8: SBI Digits life science

SBI Digit	Industry	Field
21	Manufacturing of pharmaceutical resources and products	Pharmaceutica (Biopharma)
26.60	Manufacturing of radiation equipment and electromedical/therapeutical equipment	Medical instruments (MedTech)
32.50	Manufacturing of medical instruments and tools	Medical instruments (MedTech)

72.11.2	Biotechnological research and development of medical products, pharmaceutical processes and nutrition	Research and development (BioPharma)
72.19.3	Research and development of health and nutrition (non-biotechnological)	Research and development

Source: CBS (2017)

4.2 EMA direct impact

The first effect of the EMA that is important to this study is the direct employment effect that it will cause in the Amsterdam Metropolitan Area. According to the EMA bidbook about 890 full time employees are involved with the current setting of the EMA excluding the visiting experts (AMA, 2017). This means that the direct effect is 890 new jobs. The number of jobs available for expats and local labour however may differ and especially over time as not all employees from the EMA come over to Amsterdam according to Maarten Stevelink and Friso Hennings Backer:

"An intern study of the EMA last year showed that 81% of the employees was willing to relocate to Amsterdam if the EMA would go there. However, lately there are some new concerns which may lower the amount, about 800 people however is expected." (Maarten Stevelink)

"900 People work at EMA, between 600-800 families will come to Amsterdam. But I think it is rather 600 families that will come to the Netherlands." (Friso Hennings Backer)

The earlier study of 81% (see appendix 3) was rectified recently as an overestimated figure as new issues have risen mainly concerning uncertainty with practicalities (Bloomberg, 23th of May 2018). Among these practicalities are finding residence, finding a right location for their kids to go to school and finding jobs for partners. The issue with space in international schools for example is also an opportunity for existing construction firms in the Netherlands as a minimum of two extra international schools are probably needed, also creating new employment in education roles.

"There is also need for space in international schools, a minimum of two will probably need to be built to provide this space for the EMA families." (Friso Hennings Backer)

Assuming the short-term effect of 600 - 800 jobs carrying over, it could be the case that about 100 - 300 vacancies open for local job markets and be filled. Rasi (executive director EMA) already mentioned that the EMA has a shortlist of 1000 people ready to fill new vacancies, therefore the effect for current inhabitants of Amsterdam or the Netherlands is unclear (Bloomberg, 23th of May 2018). What is clear is that the EMA will certainly create 900 jobs as all of the jobs need to be active to ensure the business continuity of the EMA (EMA, 2017; Bloomberg, 23th of May 2018). The 900-flat employment increase for the Dutch economy is thus a fact.

An important aspect of public spending is the longevity of investments (Porter & Fletcher, 2008; Preuss, 2004). According to Maarten Stevelink the EMA is not done with just the initial 900 jobs, they are growing and will continue to grow in the future:

"Rasi at the time already declared that the EMA is still growing, currently having 900 employees but this number will grow in the future. In the talks we had with him and the EMA it was also becoming clear that they are planning on growth since they demanded a certain amount of office space they need now and the amount of office space they need in the future, declaring that they will grow." (Maarten Stevelink)

The EMA is planning to grow in the future, the investment thus seems to be one for the long term as well. This can also be found in the EMA bidbook, where specifics surrounding the new EMA facility are elaborated upon. The building is projected to have 1300 workspaces when completed, exceeding the amount of the 900 current employees. One of the direct effects that comes with EMA is the yearly influx of 36000 - 40000 expert visitors, an effect that will be lasting over time since EMA will probably not relocate again.

"About 36000 visitors every year who spend about 12 million in the Dutch Economy." (Maarten Stevelink)

"About 40000 visitors every year will visit EMA who will also need space to sleep and have to eat." (Friso Hennings Backer)

One of the differences when it comes to public spending with regards to hosting sporting events, is the fact that the EMA pays for their new office. A major positive as the government does not have to invest large sums of money in sporting facilities for example, which may lose their value after the event (Preuss, 2004; Scandizzo & Pierleoni, 2017). Adding the lasting effects mentioned above, it is clear that attracting and hosting the EMA probably has a larger and long lasting effect than public spending on large events (Preuss, 2004).

Besides their direct employment effect, EMA also does a lot of research on new evaluation techniques for example. This provides R&D firms in the vicinity of EMA possibly with new work, collaborating with EMA to do research for them.

"EMA does a lot of extra research ... EMA will ask a lot of the local knowledge structure in the Netherlands as they do additional research. For them it is important to find out the new evaluation techniques, it asks a lot of the knowledge that settles in their vicinity. Initially they might still use UK based knowledge, but this will have to shift in the future." (Jan Zuidema)

Regarding the longevity of the investment most respondents agreed on the fact that EMA would most likely not relocate again in the near future, thus providing their initial impacts for a long time. Adding the growth of EMA as Maarten Stevelink declared it will have lasting effects of people working in the Netherlands.

"EMA will not relocate again probably as it is a huge operation, they will be part of the Dutch ecosystem for a while. This is something that we can really use in acquiring foreign investments and strengthens the attention for the Netherlands and the Dutch LSH ecosystem." (Friso Hennings Backer)

In regards to the effects of EMA on the intangible effects most experts and actors agree on the fact that the EMA is a brilliant addition to the Dutch Life Science and Health environment. This can also be seen as an effect that will last, in comparison to the literature were many of the effects were more or less short term or something that would fade away over time (Scandizzo & Pierleoni, 2017; Preuss, 2004).

"I'm sure that some sectors in Amsterdam always will be linked to EMA. And in return EMA causes more recognizability and attention for Amsterdam." (Maarten Stevelink)

"EMA is surely positive for the Dutch Life Science and Health Image. But also for the Netherlands as a nice place to live with high-educated people." (Harry Flore)

"With the confirmation of EMA the Dutch Life Science and Health ecosystem gains an enormous boost." (Jan Zuidema)

Also EMA is not a large public investment like hosting the Olympic Games as it is not an event but a lasting institution. Therefore the issue with inelastic markets as Porter & Fletcher (2008) declared is irrelevant as those markets are able to adjust over time, like for example the building of additional hotels. Real estate markets are inelastic due to construction taking years (Geltner et al., 2014), but EMA will not leave after the relocation is done so the market has the time to adjust and add supply. However, it is also questioned whether it will have a significant impact next to the boost for the Life Science and Health:

"It will have an impact, but if it will be significant I don't know. The Netherlands is already well known as a Life Science country. For LSH it could be important but overall I am not sure." (Stefan Ellenbroek)

"I think Amsterdam already has a strong city image and I don't know if EMA will add something to that." (Sandra de Wild-Chardonnens)

Maarten Stevelink and Harry Flore however, think that next to just EMA the highly-educated workforce that is associated with it will also have a positive impact on the city image of Amsterdam or the living conditions overall in the Netherlands.

"I think more high educated people have a positive effect on the image of the Netherlands. High educated people are usually more inclined to invest their money in more expensive goods, also cultural events." (Harry Flore)

"EMA is a prestigious institution with a large high educated workforce. These high educated people fuel a strong image of the Netherlands." (Maarten Stevelink)

Respondents also argue that the EMA will attract high-skilled labour due to the attention for Amsterdam and the Netherlands, bringing in high-skilled labour from all over Europe. The effect on intangible effects like city image being of huge importance in attracting more high-skilled labour

"EMA is an organisation with a high stature, attracting high-skilled labour and attracting attention to the Amsterdam Metropolitan Area." (Maarten Stevelink)

"A self-reinforcing effect, employees from EMA are attractive for firms. EMA needs more employees too and may lose some to firms, this calls for more labour. More attention for Amsterdam with EMA, attracts more high-skilled labour". (Friso Hennings Backer)

All together EMA is most likely not going to move away and the people working there will cause a long-term effect for the Dutch Economy as they will be residents for the time EMA stays. EMA is also growing, so next

to the 900 jobs it initially will create it will also create more employment in the future. With regard to the intangible effects and city image, EMA seems most likely to have an impact on the Dutch Life Science environment and business climate. The high educated workforce associated with EMA is also thought to provide a positive image of the Netherlands and Amsterdam.

4.2.1 Conclusion

To conclude this part of the results chapter the involved sub questions are revisited and discussed with the results presented earlier. This part provides a brief review on the results presented and how to view them.

Involved with this chapter were the following subquestions:

- What is the direct employment effect of the EMA relocation in the Amsterdam Metropolitan Area?
- Does the city image of Amsterdam change due to the EMA relocation?

With these subquestions the following expectations are involved as defined in chapter 2.X: Conceptual Model and expectations:

Expectation 1: The EMA relocation has a positive influence on the attraction of firms and jobs in Life Science and skill related industries in the Amsterdam Metropolitan area

Expectation 4: The EMA has a positive effect on the city image and livability image of Amsterdam

The direct effect of EMA is 900 employees who work there. Not all employees are coming over to Amsterdam from London as expected by some respondents. However, 900 jobs are guaranteed to come over. The shortlist of the EMA allows to fill up the gap created by people not willing to come to Amsterdam. There are also some direct effects involved with EMA due to their demands or demands for their employees, this includes the new building that is created on the Zuid-As, but there is also demand for new international schools on the short-term. There are also other impacts caused by EMA, next to their direct employment. Involved with EMA are a lot of other firms and professionals will visit on a regular basis. These people all invest in the Dutch Economy, providing employment for services like hotels, restaurants and travelling services. Expected is about 36000-40000 travellers who spend 12 million euros on an annual basis according to Maarten Stevelink. This is a huge long-term effect besides the jobs directly created by EMA. People working at EMA also invest their money in the Dutch Economy, in cultural events for example. The EMA also does additional research themselves, collaborating with firms in their vicinity. This will provide Dutch R&D firms with new work, asking a lot of the local knowledge structure according to respondents. Eventually all of their additional research should be conducted in the EU, while initially EMA may still use UK based knowledge. The lasting effects differ from public spending on large sporting events, as the longevity of the investments become more evident (Preuss, 2004).

The largest direct impact will be on the intangible effect of city image. And especially regarding the business climate of the Amsterdam Metropolitan Area and the Netherlands. Being a part of the Dutch ecosystem brings positive attention to the city, thus increasing the international recognizability. This is also reflected in the thought that EMA will attract more high-skilled labourers and especially in the field of Life Science and

Health. These high-skilled labourers also contribute to a positive and strong image of the Netherlands according to Maarten Stevelink, further increasing the city image of Amsterdam.

Expectation 1 can be considered true according to the opinions of the respondents. First and foremost, the creation of about 900 jobs by EMA themselves. There are also effects due to the people involved with EMA, spending their money in the Dutch Economy and creating employment in the service industries like hotels and restaurants. These effects will continue on the long term and thus create an opportunity for the Dutch Economy. This also answers one of the sub questions, as the answer to the first sub question is straightforward: The direct employment effect is 890-900 jobs in the short run. Long term the EMA might expand and create even more employment, this is however something that still has to unfold in the future and the effect is not predictable yet.

Expectation 4 and the second sub question involved with this chapter are also answered by the thoughts of the respondents. Yes, the city image of Amsterdam will change, how significant? That is a matter of debate. But there is no doubt among any of the respondents that the EMA will have a positive influence on the city image of Amsterdam and also the image of the Netherlands. High-skilled labourers for example setting a strong image of the Netherlands as explained earlier, but also the stature of EMA attracting attention from the Life Science industry in Europe and for life science firms interested in the European Market. Expectation 4 is therefore labelled true as the majority of the respondents think that the EMA will positively affect the city image. On what scale depends on which respondent you ask; some respondents think just for the Life Science industry and some respondents think on a broader scale as it is also interesting for firms who are not active in Life Science.

4.3 Skill Related industries and crossovers

As argued by Neffke, Henning & Boschma (2011) the industry space of a region is important to analyse its economic development or to predict further developments. It is therefore important for this study to identify which industries are linked to Life Science and which of those linked industries are present in Amsterdam. In a study done by van Oort et al. (2015) these linkages between industries have been researched. Several links have been identified between different kind of 'top-sectors' in the Netherlands, including the Life Science and Health sector (which encompasses the Life Science demarcation used in this study). By analysing the linked industries and their availability it becomes clearer how Amsterdam will develop after the EMA relocation as linked industries are likely to co-develop (Neffke, Henning & Boschma, 2011).

The availability of crossovers between different industries are central to the regional development and regional economic renovation. The interaction between different industries allows for diversification opportunities in the regional economy (Neffke, Henning & Boschma, 2011). An important measure in this regards is labour mobility. Labour mobility in the study of van Oort et al. (2015) is not in geographical terms per se, but labour mobility in this regard is in the skills of human capital. This is best explained by giving an example of two related industries which require the same set of skills. The potential employee working in industry A has a certain skill set, this same skill set is required for linked industry B. This allows the employee to switch between jobs from industry A to industry B. Labour mobility in this regard is thus the mobility between different industries based on the skills and knowledge of an employee. This can be measured by how many employees have switched jobs for example. The labour mobility is included in the study by van Oort et al. (2015) to show the potential of a region. Every region has its own specific "DNA", this not only includes existing industries and firms but also the skills and expertise of labour in the region. Local human capital is crucial as they help flourish certain industries and contribute to business processes (van Oort et al., 2015). There are several important factors when it comes to the potential of an area according to van Oort et al. (2015). Some of those include traditional locational factors like access to knowledge (spillovers) and accessibility. However, van Oort et al. (2015) also mention the importance of housing, amenities and availability of space as important factors especially in areas with tight real estate markets. Finally the (cluster) state of the industry is important as this gives insights in the potential of the same industry to grow or not (see figure 2, Menzel & Fornahl, 2009). Clusters can be in an emergence phase, showing large potential growth or a decline phase, indicating a need for diversification. Crossovers and diversification may be especially important for some industries to diversify and grow instead of go into decline.

It is important to note that there are several identified "top-sectors" in the Netherlands but also some industries not classified as "top-sectors" which are still high-skilled. Appendix 4 shows all the different identified clusters and sectors in the Netherlands as described in the study conducted by van Oort et al. (2015). Several industries that are not identified as "top-sectors" and important for this study are: business services, financial services and information technology (IT) (van Oort et al., 2015; CBS, 2017). The reason that these industries are important is due to the fact that they provide services to all industries in an area and are strongly concentrated in larger metropolitan areas (van Oort et al., 2015). Especially when it comes to the northern Randstad area (in which Amsterdam can be found) there is a strong concentration of these firms.

These industry clusters are also providing bridging opportunities as they are in a unique position to link certain industries through their business networks (van Oort et al., 2015).

4.4 Industrial network of Life Science

The analysis of Life Science and the skilled related industries is important to this study. But what industries are exactly linked? In the study conducted by van Oort et al. (2015) these industries have been identified. In this part of the chapter the skilled related industries according to the study of van Oort et al. (2015) are analysed. Table 9 below shows all the major linked industries of Life Science, appendix 5 portrays the industry space in a network model.

According to the study conducted by van Oort et al. (2015) Life Science and Health in the Netherlands has a diverse network and strong ties with ICT sectors and manufacturing industries. The ties with the manufacturing are strong due to the fact that manufacturing of medical tools are in the Life Science industry. Manufacturing is closely tied as it demands the same skills from their employees. Especially manufacturing of medical instruments is a multifunctional industry. This can be perceived in Appendix 5 as there are many connected purple dots which indicate manufacturing industries. Van Oort et al. (2015) describe manufacturing of medical equipment as a bridging industry as many employees in this industry require skills that are also useful in many linked industries. However, most importantly there is also an important link with another high-skilled industry; Chemistry. Being identified as a top-sector in the Netherlands means that it is largely represented in the Netherlands. Nutrition and food industries are also linked to Life Science on basis of R&D activities. The final linked industries are based on services provided to Life Science firms, as they are linked with IT consultancy firms, business services and software programming. The link with business services and IT however is perceived to only be strong in large urban areas like Amsterdam, but is less apparent in smaller regions like Wageningen. The Life Science industry is also linked to some smaller fractions of certain industries as can be seen in appendix 5. Some of those include general healthcare and hospitals (based on R&D) but also consumption articles if the firm is mass producing medicine. Closely linked industries can form a technological cluster in the network which means that spillovers are more likely to occur between these industries (Neffke, Henning & Boschma, 2011). This increases the chances for skilled related industries to profit from growth in one of the linked industries. Specialized regions like Eindhoven and Leiden (Southern Randstad) have a strong High-Tech systems and materials sector which also has crossover potential on a local level and is included in the manufacturing umbrella term.

Spatial coherence and crossover potential of Life Science with the earlier mentioned skill related industries (those shown in Table 9) is important to create cross-overs. It is important to mention that Life Science has strong crossover potential with healthcare instances, research institutes and universities. Van Oort et al. (2015) identify the availability of research institutes, university campuses and quality of universities as important locational factors for the Life Science industry. Table 9 below shows all the industries that are skill related to Life Science.

Table 9: Skill related industries

Industry	Description
Manufacturing industries	All large manufacturing industries, this includes the sector of high-tech systems and materials. Strong ties with manufacturing of medical equipment (which is Life Science).
IT consultancy and software development	This sector is related due to the fact that it provides large quantity of services towards Life Science firms. All IT services like server hosting or IT consultancy and software development belong to this industry.
Business services	Strong ties with IT sector and provides services to Life Science. Also includes financial services like accountancy and management consulting but can also be legal advice.
Nutrition and food (Agrofood)	Lab-based food industry that shares ties through Chemistry and R&D based activities. Skills required for lab-work in Agrofood are also providing potential to work in lab-based Life Science industries.
Chemistry	Chemistry has strong ties to many lab-based industries like Life Science and food industry. It comprises of R&D in chemistry but also supplies for pharmaceuticals as an example.

Source: van Oort et al. (2015)

4.5 Life Science and skill related industries in the Netherlands

The skilled related industries according to van Oort et al. (2015) have been identified. In this part the regional analysis and potential will be discussed. This also includes the results from conducted interviews especially regarding related industries and how Amsterdam and the Netherlands will develop (or not).

Figure 10 shows the existing clusters for the northern Randstad area. The identified large clusters (industries) are the following: business services (Z), financial services (F), logistics (L), creative industry (C) and information technology (ICT). The small cluster (industry) is Life Science and Health (LSH). All the identified high-skilled industries in the area are strongly embedded and all of them have a chance to grow further. Life Science and Health is the only industry that has the chance to have new and quick growth compared to the other existing industries identified. The Life Science and Health cluster in Amsterdam has potential to create crossovers with IT & service industries and other R&D activities in the region. The potential of the northern Randstad within Life Science is great since it has availability to a broad scale of universities and academic hospitals. The northern Randstad also has complementary neighbouring regions with Leiden and Wageningen which allows for even more development of Life Science industries in all of these regions (both Life Science clusters). The current issue in the Northern Randstad area is the saturation of the large service industries (van Oort et al., 2015). The Northern Randstad area is in need of diversifying industries to grow further. Many of the service industries provide opportunities to foster bridges between different industries and foster crossovers. Life Science is one of these potential clusters that provides the ability of crossovers and diversify the economy. Shown in appendix 6 is the enormous cluster of service industries in the north-western and (north-)eastern part of the figure. Further underlying the importance of diversified economic activity, where Life Science may play a crucial role. In appendix 7 the industry space of the LSH sector in the Northern Randstad is shown. The many links with the earlier mentioned business services becomes very clear in the figure, what is also visible is the links with the large dots belonging to healthcare and hospitals. The two academic hospitals of the two universities in Amsterdam are important factors for LSH firms according to van Oort et al. (2015). One of the major objectives is to invest in better infrastructure and livability according to van Oort et al. (2015) which is in line with the theory of Saks (2008) when it comes to fostering growth and attracting employment. An important issue observed by van Oort et al. (2015) is the saturation of jobs in pharmaceutical R&D in the region, showing opportunities for the MedTech sector (Manufacturing of medical equipment etc.). In London the effect caused by EMA was also felt in the MedTech sector, especially with new regulations MedTech is also involved with EMA in accepting their products.

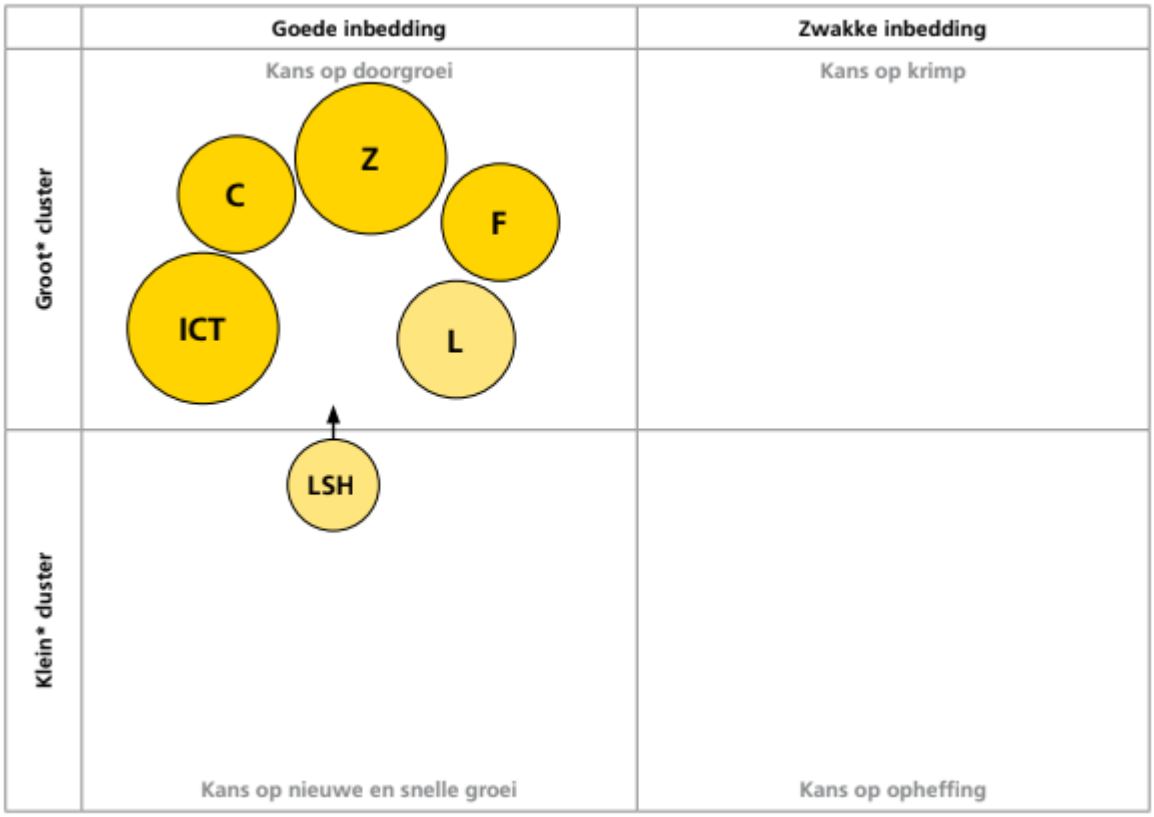
"The most important thing is that some firms have chosen to settle near EMA. Especially firms involved with regulatory work or MedTech. .... A pacemaker is also MedTech and also needs to be accepted by the EMA. Not just pharmaceuticals are involved with EMA, but also the MedTech sector." (Stefan Ellenbroek)

The same effect could happen in Amsterdam, especially with the potential for manufacturing perceived by van Oort et al. (2015) due to the oversaturation in R&D (2015). This also provides opportunities for Utrecht and Leiden as it is also very closely connected with the Zuid-As.

"With the travel times in London, Utrecht is also viable as it is less than 30 minutes travel by train. The same is applicable to Leiden." (Jan Zuidema)

"The initial effect will be in the first circle around Amsterdam, this also includes Leiden, Haarlem and Utrecht but I also think the close circle outside of this first circle. Especially when it comes to office space." (Sandra de Wild-Chardonnens)

Figure 10: Northern Randstad SWOT



Source: van Oort et al. (2015)

According to Maarten Stevelink the EMA is especially involved with BioPharma industries, consisting of SBI/SIC 21 and 72112. BioPharma focuses on R&D and manufacturing of pharmaceutical products. This sector is strongly embedded in England, in the so called Golden Triangle of Cambridge-Oxford-London:

"The UK Golden Triangle is gigantic, so many people work there..... About 114000 employees in BioPharma industries and 120000 in MedTech while there are 745000 employees in Pharmaceuticals in the whole European Union." (Maarten Stevelink)

While the Netherlands has about 58000 employees in BioPharma, the differences are huge in comparison to the UK (CBS Statline, 2017). There are doubts that BioPharma will leave the strong embeddedness of the UK Golden Triangle environment, according to Maarten Stevelink this heavily relies on the origin of the firm. Japanese firms for example showed more tendencies to leave the UK than American based firms. This is also

enforced by respondents mentioning the strong environment of the Golden Triangle but also the probability of Asian firms leaving or not expanding in the UK:

"The UK minister for Business, Energy and Industrial Strategy who was here last week does not think many firms will leave the strong embeddedness of the UK Golden Triangle, and I think I agree with him." (Harry Flore)

"Especially firms from Asia are comparing the business climate as well as the living conditions. But they are more likely to go to the Netherlands because the EMA is there. They can still go to the UK because it is an interesting and large market." (Harry Flore)

"Since EMA settled in London many Japanese firms settled there. They slowly followed each other towards EMA. They are now also the first who are banging on the door, as they've lost trust in the UK government and are already planning on leaving the UK due to this breach of trust." (Friso Hennings Backer)

The embeddedness in the UK Golden Triangle is hard to leave for firms already located. The background of the firms already argued as being important. The Life Science experts (and especially those involved with EMA) are more positive towards the effect of firms relocating while the perspective from people outside of the project seem more sceptical in this regard. That the EMA will have a positive effect is not argued, but the strength of the attraction effect on firms is more matter to debate. Harry Flore already declared in the quote above that he believes not many firms will leave the strong embeddedness of the Golden Triangle, Stefan Ellenbroek is also sceptical about the effect on the more related industries but thinks the effect can be felt in some regulatory departments of firms.

"I think if firms are to profit it will be LSH firms but outside of those firms I think the effect will not be that large. Some service providers perhaps but I will doubt that the EMA will have a significant effect." (Stefan Ellenbroek).

So why would EMA impact the decision of a firm to relocate? According to some respondents it is the stature of EMA but also the labour pool it will attract.

"Some firms are sensitive to settle near EMA ... Firms who think it is positive for their stature and appearance. For example, they can say: "Hey we're close to EMA, do business with us we'll settle the deal fast". Especially service industries are playing into this, opening firms in the vicinity to help pharmaceutical firms involved with EMA." (Friso Hennings Backer)

"EMA is an organisation with a high stature, attracting high-skilled labour and attracting attention to the Amsterdam Metropolitan Area." (Maarten Stevelink)

On the website of the NFIA a comment on the EMA impact has also been made by Frank Mattijssen, CFO of MSD (Pharmaceutical firm), declaring that the EMA also has a positive effect on the talent base in Life

Sciences in the Netherlands. Providing opportunities for all firms in the industry that are settled in the Netherlands.

"The relocation of the EMA to the Netherlands, I think brings a focus and many opportunities for the Netherlands, and also for us. When you look at the quality of the knowledge base here, with specialist key opinion leaders, the Netherlands is pretty high on the list in terms of people who are seen as worldwide experts, and that is also important for us. In my opinion, the EMA will have a positive impact on the talent base." (Frank Mattijssen)

Stefan Ellenbroek thinks that especially regulatory services of pharmaceutical firms are interested in setting up business near EMA as it allows quicker and more effective lobbying. This was also found by Grote (2008) and Faulconbridge (2004) in Frankfurt with the European Central Bank (ECB). Banking and financial firms tended to settle near the ECB for easier lobbying and quicker access to ECB officials and especially for services who are involved with the ECB. It also allowed firms to expand their network easier due to the close proximity to other firms and organizations (Grote, 2008; Faulconbridge, 2004).

"Especially regulatory and MedTech firms settled near the EMA in London. More effective lobbying and quicker access for firms with frequent EMA meetings are possible when settling near EMA." (Stefan Ellenbroek)

The EMA will most likely impact the choice of new firms wishing to enter the EU market. Settling near EMA is one of the earliest options as it is one of the first ideas that will pop up especially with Asian firms. This is in line with the reasoning of Grote (2008) and his study on the ECB impact on Frankfurt. This can be considered as a path-dependent process, as other Life Science firms or organizations make the region more attractive for firms in the same industry.

"Even if you're not planning to settle near the EMA, other firms might do so. And new firms especially Asian firms will then also think: "Let us settle there since there are more firms there and the EMA is there"." (Harry Flore)

EMA can also act as another factor for firms, even when not involved. According to Friso Hennings Backer the EMA attracts lots of high-skilled labour. But at EMA also work people, people with a certain skill set. These people are also interesting to private firms, this screams skill related as proposed by van Oort et al. (2015). The perceived labour mobility between EMA and private sector firms shows that high-skilled labour in Life Science is able to strengthen other industries in the region too, as their specific skills can also be used in other sectors.

"You see that a lot of EMA employees have worked in the industry, it's not a uniform group working at EMA but a broad group of employees. These are also interesting for BioTech or BioPharma firms when they start a location in Amsterdam to pool, a sort of self-reinforcing effect." (Friso Hennings Backer)

It is hard to determine how many of these firms are likely to relocate. Harry Flore thinks that American and English based firms are not willing to leave the strong embeddedness of the Golden Triangle, Asian firms are

more inclined to leave due to the breach of trust. What is sure however that the EMA will strengthen the environment of Amsterdam and the Netherlands, increasing the probability that firms will relocate or expand in this region.

"The EMA contributes to strengthening the ecosystem of Life Science in the Netherlands ..... Firms might think "The Netherlands is the next place to be for Life Science" and the Life Science sector grows over time contributing to the attractiveness of the Netherlands." (Maarten Stevelink)

The growth will not happen suddenly as respondents argue about the locational factors of the Netherlands that are currently lacking:

"A lack of high-end office space but more importantly for Life Science a lack of labspace." (Maarten Stevelink)

"Even EMA cannot fit all of their employees in Amsterdam and if more firms follow the pressure increases even more. Amsterdam themselves were the first to indicate that they would not be able to handle all the incoming firms. This needs to be addressed on a large scale to handle all the housing of new firms." (Jan Zuidema)

Not only in Amsterdam is this issue present, also in Leiden. This lack of labspace and office space and especially in quality is also a point that Harry Flore thinks needs to be addressed. The Dutch infrastructure overall should get an overhaul and upgrade to be able to keep up with growth.

"All the BioPartner (labs) buildings are full, we're currently planning to build a fifth building with 5000 square metres of labspace because the demand for that much labspace is already present. But also office space, there are no offices on this BioPark. I'm currently looking for office space myself but the ones in the vicinity lack quality." (Harry Flore)

The lack of labspace may also be a direct result of the oversaturation of R&D in Life Science jobs (BioPharma) as observed by van Oort et al. (2015). The market in the Amsterdam Metropolitan Area is already oversaturated, especially in the higher profile industries like Business Services and IT. Following the identified clusters and their links in the SWOT and the report of van Oort et al. (2015): if Life Science is to develop, it is also likely that the large cluster of IT (ICT) and Business Services (Z) will co-develop with Life Science. This happens because they are skill related, strongly concentrated in the Northern Randstad area and show potential for crossovers with Life Science (van Oort et al., 2015). According to earlier studies by Neffke et al. (2010) and Janssen (2015), both studies show that the strong concentration of business services provides opportunities to create crossovers within the sector of business services but also between industries that are not directly linked usually. Within the Business Services and IT sectors there are also new opportunities according to van Oort et al. (2015) and Neffke et al. (2010). New techniques and specializations within these sectors are on the rise and are involved with crossover industries to be successful. Some of these crossover industries include crossovers between IT and business services, but also between business services and IT with Life Science or creative industries. The business services and IT sectors therefore will likely profit from Life Science development as it offers new potential for crossovers and leave the state of saturation of their respective market. Life Science and Business Services show a strong potential to create unique crossovers and

cause new growth to get out of the saturation situation. However, to achieve this it is important that the Amsterdam Metropolitan Area and other areas in the Netherlands that want to grow invest in infrastructure, livability and provide enough real estate space (both residential real estate and office space/lab space) to keep up with the growth potential which is also argued by van Oort et al. (2015).

"The important thing is that the Netherlands is attractive for pharmaceuticals. And it needs work and especially regarding infrastructure. We need more international schools, better road infrastructure but also more residential options for employees." (Harry Flore)

"Certainly some things should change, and speed is very important. Amsterdam still has some spaces, but it can quickly get loaded. This can be an issue and should quickly be addressed to host all activities that want to come here." (Sandra de Wild-Chardonnens)

However, if Pharmaceuticals are oversaturated it means that diversification or crossovers are valuable to change the phase of the cluster, which is in this case in the sustainment phase like Menzel & Fornahl (2009) describe in their article. This means that there is small potential for R&D Life Science currently in Amsterdam, but it has strong skill relatedness to service industries and IT. Figure 10 shows the strong concentration of Business Services (Z) and IT (ICT) in the Northern Randstad, thus a lot of opportunities for firms to create crossovers. Especially business services related to Life Science are thought to profit.

"Initially it is just a relocation so a lot of business services will flock to Amsterdam. They will settle on the Zuid-As which is already known for its strong concentration in business services and financial investors and legal parties, many who invest in Pharma." (Friso Hennings Backer)

"I think very specific service providers for Life Science will profit. But also other business services like legal parties, recruiters, consultants and IT services will profit. These parties will definitely flourish in and around Amsterdam." (Sandra de Wild-Chardonnens)

Many of these business services are willing to invest, increasing the probability for crossovers between these industries. But there is also space in Amsterdam when it comes to MedTech according to several respondents and also according to the potential perceived by van Oort et al. (2015). MedTech also sticks strongly to the pharmaceutical industry.

"We see a lot happening in media, tech and advertisement. Also due to Brexit, not only EMA since EMA is just a part of the larger Brexit." (Friso Hennings Backer)

"What is visible in the UK is that MedTech sticks really close to BioPharma .. on the long term I can see them coming over because LSH is growing in the Netherlands." (Maarten Stevelink)

The potential for the business services industry is mentioned by several respondents, especially in business services for pharmaceuticals like quality control. This is however highly dependent on the activity of Life Science firms in their value chain. Quality control and services are more likely provided in R&D related

activities. It is unsure which activities are going to relocate to Amsterdam, as mentioned earlier it is more likely that initially some registration and patent registration activities locate to the Netherlands. Harry Flore described several phases in how Life Science could develop over time, depicting which activities would come first and which activities follow later.

"The first wave will not be production or activities like those. The first wave will mainly consist of patent registration and buying some office space due to Brexit uncertainty. The second wave will consist of quality control and/or firms like Eurofins who conduct these services for other Life Science firms. The third wave would be more R&D facilities and the final fourth wave would ideally consist of production facilities. However, I do not see that happening in the near future as there is still work to be done to attract those activities. Especially fiscally, R&D is very attractive with the current fiscal rules in the Netherlands because you can deduct your taxes with your profits. It is not attractive for production, which Ireland and Belgium are facilitating really well. However, they lack the knowledge." (Harry Flore)

The lack of pharmaceutical production is something Harry Flore thinks is one of the deficits of the Dutch Life Science and Health sector. Friso Hennings Backer also enforces what Harry Flore says in the fact that many production facilities who used to be in the Netherlands left for cheaper production elsewhere. The immense knowledge available in the Netherlands is thus not able to be turned into products as production lacks.

"One of the shortcomings of the Netherlands and our biopark is the lack of production. We used to have production but those facilities were either closed or relocated to cheaper production countries. And that is pitiful for the Dutch Economy as it not only provide a lot of labour but as mentioned earlier, there is a lot of knowledge in pharmaceuticals here in the Netherlands which is unused." (Harry Flore)

"There are a lot of large pharmaceutical firms with many facilities in the Netherlands, they can profit from EMA. But many production facilities have left in the last several years." (Friso Hennings Backer)

An article by Biospace (June 27, 2018) however, found out that Gilead Sciences is opening a large manufacturing plant in the Netherlands to manufacture their medicine on European soil and sell it to European customers. This plant will create 300 jobs by 2020. According to this article also manufacturing will strengthen in the coming years. Especially in treatments that require personal therapies to be manufactured in close geographical proximity to the patients. This is also something that Harry Flore mentioned as the strong points of Leiden, specialized in regulatory medicine. Closer manufacturing is welcome, especially when treating patients in Leiden.

"When it comes to Life Science, I think Leiden and the LUMC (Leiden University Medical Centre), are at the forefront and spearhead of the Dutch regulatory medicine climate ... They need extra storage or closer manufacturing for easier access to patients for treatment." (Harry Flore)

Richard Post who is active in the field of IT services for Life Science and especially MedTech also sees a lot of growth happening and increasing demands for IT services.

"Medical field (MedTech) is growing fast and especially in startups. We cannot keep up with the demand ourselves ... A lot of investors are interested in this field though and there is potential for new firms in IT" (Richard Post)

Curious is the fact that Richard Post mentions a favourable investment climate while the report of Science and Business (2015) on Life Science declared that many investors held back from the Dutch LSH industry due to insufficient innovation capacity and government bureaucracy. This is either changed in the last years or entrepreneurs and firms don't perceive these effects happening. The NFIA even promotes the innovative character of the Netherlands on their website, and also respondents declare that there is strong knowledge on LSH in the Netherlands.

"Holland is home to more than 2,900 innovative life sciences and health companies ... #1 in MedTech applications worldwide ... frontrunner eHealth with the highest adoption rate of eHealth in hospitals and clinics ... 8,6% of the Dutch R&D budget, totaling €799 million in 2015." (NFIA Website)

"There is a lot of knowledge in the field of pharma and BioTech in the Netherlands ..." (Harry Flore)

There is potential for new IT services which according to Richard Post is not regionally dependent but a more national market as they can do a lot of work from distance. The potential for MedTech in the Northern Randstad and the strong embeddedness in IT services thus means that there is a lot of crossover potential between these two sectors in the Northern Randstad. MedTech is also seen as an important bridging industry according to van Oort et al. (2015). This is due to the fact that many required skills in MedTech are also required in many of their linked industries. This increases the chances of skill related industries to create cross-overs and diversify. The potential for MedTech growth is also strengthened by EMA since MedTech is also involved with them, allowing them to interact easily with EMA due to the geographical proximity as explained by Stefan Ellenbroek earlier.

The activity within the value chain of a firm however is very important when it comes to locational decisions. Where regulatory departments are more likely involved with the EMA and interested in services, it seems that R&D departments are more interested in labspace and service industries like quality control. Related industries of Life Science seem to profit more in the first several years according to Harry Flore, especially since the Dutch Life Science environment lacks production facilities in pharmaceuticals and is largely focused on R&D or medical manufacturing (MedTech).

"The first wave will mainly consist of personnel for registration and patents .... There are opportunities for new quality control firms or existing quality control firms like Eurofins, one of the largest service providers in the pharmaceutical industry." (Harry Flore)

Service industries seem to have potential according to Harry Flore due to the uncertainty with patents, as the UK will not be a part of the EU anymore it is likely that any UK based firm will have to apply for a new patent to enter the European Market, which provides opportunities for quality control in the European Union. The uncertainty of the kind of Brexit also causing issues on this front.

"Currently when you apply for a patent in the UK it also applies to the European Union, but this will change, will the new patent apply to Europe or do you need another patent when you want to sell in Uzbekistan? These are extra costs if you remain in the UK." (Harry Flore)

The issues surrounding patent application for the UK and the EU already caused one of the firms in the field to relocate many of their quality control operations from the UK to the Netherlands.

"MSD the only concrete one that is moving operations from the UK to NL. MSD thinks it will be hard to bring UK products on the European Market in the future, therefore they are already moving operations, about 40 people, to the Netherlands for registration and patent applications. I can see fast growth coming in these activities." (Harry Flore)

The Northern Randstad area has a strong concentration in R&D based Life Science and a strong concentration in service industries. This creates potential for new service based firms for quality control or expansion of quality control activities from larger pharmaceutical firms in the Northern Randstad area. The earlier mentioned lack of labspace however could be detrimental in this regard, further underlying the importance of investing in infrastructure to keep up with the demand (van Oort et al., 2015).

4.5.1 Other areas in the Netherlands

The oversaturation in certain aspects of Life Science in Amsterdam and lack of space also creates opportunities for regions outside of the Northern Randstad area. Regions where there is less saturation of BioPharma industries have higher chances. For example the other Life Science clusters in the Netherlands like Leiden, Utrecht, Eindhoven and Wageningen-Nijmegen.

"I don't think location matters that much. If your area has good accessibility you can easily do business throughout the Netherlands." (Richard Post)

"I wouldn't completely replace my firm just because there is a larger demand in Amsterdam especially since we can work from distance, also the pricing of settling in Amsterdam is something you should really think about if it is worth the investment. I also think that Amsterdam is not a region designed for every person, some will not like it there." (Richard Post)

"Eindhoven and Twente have more access to the rest of the Netherlands and Germany, which is the number one in MedTech. Also the service providers in logistics near those areas make it a strong location for MedTech." (Sandra de Wild-Chardonnens)

Eindhoven has a very strong concentration in High Tech systems and materials and also MedTech according to van Oort et al. (2015) (See appendix 8). Where many firms in the LSH sector show a large priority in settling near research institutes and universities, Eindhoven is doing well with regard to MedTech due to the technical university of Eindhoven but also due to Philips and ASML. The region is therefore interesting for MedTech and well embedded, coupled with the specialized service providers showing many of the classic (Marshallian)

agglomeration factors which also were mentioned by Greenstone et al. (2010) in their study about industrial megaplants. The specialized service providers in logistics also create opportunities for (Life Science) distribution centres. The specialized service providers for logistics in North-Brabant (Eindhoven) and access to foreign countries can also be found in the success story of Hollister on the NFIA website:

"*We quickly discovered that Brabant is a logistical dream. The location between the major ports of Rotterdam and Antwerp is ideal. We have two international airports within close proximity and we are relatively close to England, France and Germany, where are main clients are established."* (Hugh Berry, Europe logistics services manager, Hollister)

Leiden and Utrecht are strong clusters LSH wise (Science and Business, 2015; KPMG, 2016). In the study of van Oort et al. (2015) Utrecht is considered in the same region as Amsterdam, the Northern Randstad area. Leiden is located in the Southern Randstad area showing a strong concentration of industries in and around Rotterdam and the Westland. Most important in this case is the High Tech systems and Materials in Delft, providing opportunities for MedTech in proximity to Leiden (See Appendix 9) (van Oort et al., 2015). This is also confirmed by Stefan Ellenbroek:

"Leiden has chosen to focus on more pharma and not on MedTech, I think they will pick Delft in that case because they have activity in MedTech there ... But I think even the EMA effect will not be that significant." (Stefan Ellenbroek)

Harry Flore thinks the Leiden Bio Park lacks MedTech but that Leiden may profit from Delft.

"Leiden is more medicine and pharmaceuticals, MedTech and eHealth is more in Delft but we sure lack these activities. We are looking into the ability to profit from Delft. I think Eindhoven is more attractive than Amsterdam or Utrecht in MedTech sense, but for regulatory medicine Leiden is more attractive." (Harry Flore)

It is even said by respondents that the LSH in Amsterdam is not as large as in comparison to those regions. However, Leiden and Utrecht are in close proximity of Amsterdam and are thought to all profit evenly due to this proximity.

"I think that foreign firms know very well that the Netherlands is a small country, they will look for the best locations for clinical trials and research. In comparison to Utrecht, Leiden and even Eindhoven the Life Science and Health in Amsterdam is not even that large I think. I'm sure therefore all of these regions will profit and not just Amsterdam." (Maarten Stevelink)

"I think the effects are as broad as the randstad, distance from Utrecht and also Leiden is not that large especially considering travel times in London. All will profit as Amsterdam can not handle it all by themselves." (Jan Zuidema)

Curious is that Richard Post mentions that location is not too important, as accessibility and distance in the Netherlands is small but also communication technology makes it easy. This contradicts the thought of respondents who think the majority of the effect will land in Amsterdam and the location does matter.

"Amsterdam will profit more but that is not something new in international acquisition. More than 50% of the international projects are in Amsterdam or the Randstad. This is where the majority will settle." (Friso Hennings Backer)

"The project needs to be addressed on a large scale, not just Amsterdam. Otherwise we cannot host all of the activity willing to come here." (Jan Zuidema)

"If it is a really hard Brexit we will have to focus on more than just Amsterdam to fit the demand because I'm sure in that case Amsterdam will not be able to host all of it." (Sandra de Wild-Chardonnens)

One of the important things in these effects is space and connectivity also mentioned by Richard Post. As the Golden Triangle area in the UK is a very large area and even the city of London itself, it is important in what regard firms view the Netherlands. Friso Hennings Backer explains that it is sometimes hard to explain the structure of the Netherlands to foreign firms, because of how small it is.

"When you say Utrecht firms think "that is another city". What they do not realize is that Utrecht Central station to Schiphol is almost the same travel time as Amsterdam central station to Schiphol … if you copy paste the greater London area on the Netherlands it is almost the same size. So Zwolle, Arnhem Eindhoven are also in the greater london area in this sense. That is also how we try to sell our case to foreign firms." (Friso Hennings Backer)

Harry Flore also elaborates on this point saying that the Netherlands can be considered as one cluster due to the proximity of all (cluster)areas. Especially for firms from larger countries with lower population density.

"For an American Firm the Netherlands is like one Silicon Valley so to say because all areas are in close proximity." (Harry Flore)

Whether the effect will be the largest in Amsterdam, its direct surroundings or the whole Netherlands, some mixed opinions can be found. However, what is clear is that Amsterdam is usually the initial focus of foreign firms. Firms with already existing activities may approach it differently.

"I think the greater Amsterdam region will profit the most, this includes Utrecht and Leiden. Only the city of Amsterdam will not be able to handle it. However, the further you go from Amsterdam, the weaker the effect will be." (Stefan Ellenbroek)

"Firms already having operations in a certain area are more inclined to expand there. If a firm is already having operations in Nijmegen for example and there is space and labour pool available they will expand there." (Friso Hennings Backer)

It is important to elaborate on the last quote, as space and a labour pool are of immense importance when it comes to the locational decision of firms. The greater London area houses a large number of professionals with large commuting times. Travel mobility and the labour pool in the Netherlands is thus important when it comes to the locational decision of Life Science firms. According to Harry Flore the Netherlands already lacks professionals in the pharmaceutical field. Friso Hennings Backer and Maarten Stevelink already argued that EMA will have a positive effect on attracting high-skilled labour from all over Europe, therefore it is important that all of this labour migration can be hosted in Amsterdam with providing enough residence, again underlining the importance of infrastructure (Saks, 2008).

"When EMA is settled it will attract specific high-skilled labour to Amsterdam, employees in BioTech and BioPharma from all over Europe will move to Amsterdam." (Friso Hennings Backer)

When it comes to the cross-over potential between business services and IT services with Life Sciences, it is important to mention that according to van Oort et al. (2015), this is usually only the case in large urban areas. While Leiden and Utrecht are respectively placed in either the Southern Randstad or Northern Randstad area, Eindhoven and Wageningen are in more rural areas. This shows that the potential for cross-overs between business services and IT services with Life Sciences, is weaker in the latter areas.

The majority of the respondents tend to agree with the larger effect being in Amsterdam and its surrounding areas including Leiden and Utrecht, all being in close proximity to the Zuid-As (~30 minutes of traveltime (see appendix 10)) and three of the major LSH clusters in the Netherlands with a strong focus on services which are deemed important in the early years of the Brexit process.

4.5.2 Timescale of events and Brexit

The timescale on which the waves of firm relocations could happen is very large according to respondents. It is hard to draw a comparison with London due to the Golden Triangle already having a strong embeddedness before the EMA arrived.

"We should revisit the effects in 3-5 years ... Don't forget that 5 years is even a short timescale too, it could also be 20 years. What we do see is that firms don't set up new activities in the UK due to the brexit uncertainty, even though the Golden Triangle is really strong and heavily subsidized. We can profit from that but also elsewhere in the EU these movements are visible like in Brussels or Germany." (Friso Hennings Backer)

"I don't expect many changes on a short timescale, even within 15-20 years I don't expect much changes. I think it is mainly registration or patent related departments that will come here, only little R&D and production." (Stefan Ellenbroek)

The activity within a firm's value chain becomes apparent again, showing that only departments involved with the EMA are inclined to move. However, due to the Brexit uncertainty firms are not willing to expand their activities in the UK for now. This creates opportunities for the European Union when these firms are looking to expand their activities for the European Market.

All of the mentioned effects are either involved with EMA or Brexit. But this distinction is what makes the possible developments so hard to ascribe to a certain process. As explained in Afonso et al. (2005) it is important to determine the inputs and outputs when it comes to public spending. This vague line between EMA and Brexit, EMA being an effect of the larger Brexit process, it is hard to determine which effects are really caused by Brexit, which by EMA or maybe even both.

"Eventually there will be effects and spinoffs, the question is whether this is due to EMA or due to Brexit. And it currently seems that Brexit has more influence." (Sandra de Wild-Chardonnens)

"Important to determine is, where ends Brexits and where starts EMA. The difference between effects caused by Brexit or EMA is crucial in determining the impact of EMA." (Jan Zuidema)

Some effects are more Brexit related, especially when it comes to firms that already have facilities or business activities in the Netherlands. As they are already here and want a location in the European Union it is logical to replace activities to the place you're already located according to Harry Flore and Friso Hennings Backer.

"MSD expects it will be hard to bring UK products on the EU market, therefore they move facilities to the Netherlands because they already have facilities here. But that is more Brexit than EMA related." (Harry Flore)

"We already have many international firms with a large amount of activities in the Netherlands. What we see is that when they have to make a strategic choice for their clinical trials or production activities with the chance of a hard Brexit they are refusing to expand operations in the UK and are exploring their options in the Netherlands because there is no risk involved with access to the European market." (Friso Hennings Backer)

Greenstone et al. (2010) found the same issue in their study about the industrial megaplants. Instead of EMA (public spending) versus Brexit effects the issues involved attracting megaplants (public spending) and agglomeration effects. In some situations it was unclear whether the effect was due to the public spending involved in the area or whether they were just agglomeration effects or other benefits like when the public spending involved the strengthening of the local infrastructure. This infrastructure is of course available to all existing firms too. The effects of Brexit in this example could have the same effects as the agglomeration effects, making the effect caused by the public spending less significant. The demarcation and allocation of the right inputs and outputs to public spending are important to measure the effect, especially in ex post studies as many ex ante predictions are prone to overestimation (Afonso et al., 2005; Porter & Fletcher, 2008).

The Brexit effects also cause other issues due to the uncertainty. As with many industries the type of Brexit could be detrimental in the choices for firms based in the UK or having certain activities of their value chain in the UK. Like the example of MSD or what Friso Hennings Backer remarked about firms already having activity here, the risks to invest in new activities in the Netherlands are lower than investing in the UK. This uncertainty is something that returns in many of the conversations with respondents fuelling the doubts on what the impact of EMA will be.

"We already lack professionals in pharmaceuticals, salaries are on the rise. Attracting high paid workers from the UK, especially London where salaries are way higher than in the Netherlands it will cause more pressure on salary levels." (Harry Flore)

4.5.3 Conclusion

To conclude this part of the results chapter the involved sub questions are revisited and discussed with the results presented earlier. This part provides a brief review on the results presented and how to view them.

The most important sub question involved with this part of the analysis is:

- What is the indirect employment effect of the EMA relocation in Life Science and skill related industries in the Amsterdam Metropolitan Area?

Involved with this sub question are the following expectations as defined in chapter 2.5: Conceptual Model and Expectations:

Expectation 1: The EMA relocation has a positive influence on the attraction of firms and jobs in Life Science and skill related industries in the Amsterdam Metropolitan area

Expectation 2: Life science clusters and other regions in the Netherlands profit more from the EMA relocation than the Amsterdam Metropolitan Area

There are however also some comments made about the effects of the broader impact of EMA on the intangible effects of Amsterdam and the Netherlands, therefore expectation 4 is also partially answered with this question in indirect effects of the broader EMA impact on industries.

The first effect and expectation are about the development of employment in Life Science and skill related industries. The effect of new firms and activities coming over from London is hard to determine due to Brexit uncertainty. The uncertainty surrounding Brexit is affecting any predictions and movements when it comes to the impact of EMA and/or Brexit itself. Firms are not acting due to this uncertainty yet and it is therefore hard to predict the movement of firms or activities from the UK to the Netherlands. This is reflected in the responses from many of the respondents. According to respondents involved with the EMA project and Life Science experts the impact of EMA will be positive, this is also confirmed by respondents from the private sector as well. Scepticism comes from the real activity from the UK that will relocate to the Netherlands, according to Harry Flore this effect will not be that large. Important to assume are the different stages of the value chains of firms however, as some respondents explain that not all kind of activities are best to conduct in the Netherlands. An example is production, where Ireland and Belgium seem to be favoured. Firms already having operations in the Netherlands are thought to expand their operations here, especially when it comes to Brexit uncertainty. This is reflected in the case of MSD for example, where they think it is hard to bring UK products onto the European market.

The EMA is largely affecting regulatory departments of LSH firms according to the respondents. Close proximity also allowing easier interaction and lobbying potential. The same effects were found in Frankfurt surrounding the ECB in the study of Grote (2008). Largely agreed by most respondents is the positive attention surrounding EMA, bringing more attention to the Netherlands. This attention is also thought to bring in more high-skilled labourers, as explained in the chapter before too. The increase of the labourpool is something all firms located in the Netherlands could profit from. Especially regarding the fact that many of these high-skilled labourers in the LSH industry show strong skill-relatedness with the skill related industries as described by van Oort et al. (2015). These employees therefore could be of interest for all skill-related industries active in Amsterdam, like IT services or business services. There are some challenges on the infrastructure side when it comes to Life Science but also for skill related industries interested in lab spaces and office space. This is argued by several respondents and also van Oort et al. (2015) and Saks (2008) state the importance of the infrastructure, housing and workspaces to attract new labourers and firms. In the Life Science and Health industry there is potential for MedTech in the Amsterdam Metropolitan Area. The high saturation in R&D based LSH combined with the lack of lab spaces show the little potential for LSH activities in that sense. MedTech according to van Oort et al. (2015) has the largest potential in the northern Randstad area.

The skill related industries in the Amsterdam Metropolitan Area that are largely present are active in IT services and Business Services. IT services show the largest potential for crossovers since demand for IT services from MedTech are increasing according to Richard Post, who is active in that field. There are also many investors who want to invest capital in this industry according to him, showing the potential for crossovers between the LSH (MedTech) and strongly embedded IT services industry in the Amsterdam Metropolitan Area. Business Services which are already very strong in Amsterdam are also thought to profit and able to diversify, especially specialized services for Life Science like quality control and patent registration services but also legal advice and even recruiters. When it comes to skill related industries it is important to notice that of all the skill related industries identified in the report of van Oort et al. (2015) only IT services and Business Services are mentioned by respondents as industries that may profit. Chemistry, Agrofood and Manufacturing are not mentioned but also not strongly embedded in the Amsterdam Metropolitan Area (or northern Randstad for that matter). The skill related industries of business services and IT services are likely to create crossovers with LSH and thus profit from Life Science development.

In this regard expectation 1 could be argued to be true. The crossover potential for the strongly embedded sectors of IT and business services with LSH are large and this will cause employment growth in those industries. Life Science firms are also likely to expand some of their services in registration or regulatory departments to the Netherlands, the MSD case being the most concrete one with 40 jobs being created in their registration department. The exact effects however will remain matter to debate, especially considering the uncertainty of Brexit. The uncertainty is for some firms already cause to not take any risks and expand in the Netherlands like MSD did, with a hard Brexit it is more likely that more firms will follow to keep being able to sell products on the European Market.
With regard to where the largest effect of the EMA could be felt it is very hard to predict anything since not much is going on as long as the type of Brexit is not confirmed. Amsterdam is thought to not have the largest LSH sector in the Netherlands, especially when compared to Utrecht and Leiden. But the close proximity of

those two is what makes the effect on LSH hard to pin down to a certain location. Even though EMA will settle in Amsterdam, firms are perfectly able to settle in Leiden or Utrecht and still be in close proximity of EMA and being able to reach their office within 30 minutes of travel time. For MedTech the stronger clusters can be found in Eindhoven and to a certain degree Delft and Eindhoven (van Oort et al., 2015). The potential of the Northern Randstad and Amsterdam Metropolitan Area being a part of that is strong especially due to the large concentration of business services and IT services while Eindhoven has stronger specialized logistic services. The most important thing to consider in this regard is what is considered too large of a distance to travel and do business for firms willing to relocate. As some respondents already argued, communication techniques and the small scale of the Netherlands with strong connectivity makes it perfectly able for a firm to settle anywhere in the Netherlands and do business with any firms located elsewhere in the Netherlands.

Due to this matter, it is hard to label expectation 2 as true or false. The effects of EMA are thought to have a broader impact than just the Amsterdam Metropolitan Area. The largest effect is expected to be in the Amsterdam Metropolitan Area and its surroundings, including Utrecht and Leiden in this case. So expectation 2 can be true, as Leiden and Utrecht are expected to profit a lot too with small travel times to Amsterdam and the EMA building. It can also be false, when firms really want to be close to EMA and thus choose Amsterdam. How the spatial distribution if this effect will turn out is thus very unclear. The clearest statement that can be derived from the opinions of the respondents is that the largest effect will not only include Amsterdam, also because they cannot handle it, but also due to the proximity of other large clusters like Leiden and Amsterdam. The strongest effect according to the results will most likely be in Amsterdam, Leiden and Utrecht.

Finally a remark on the intangible effects. The city image of Amsterdam and the Netherlands is also affected by the attraction of more firms, especially when it comes to high-skilled labour according to several respondents. As mentioned by respondents, the EMA is thought to attract more high-skilled labour, especially in the field of Life Science, to Amsterdam. More high-skilled labourers strengthens the city image and according to Maarten Stevelink. This shows that the broad impact of EMA, when firms are attracted and skill related industries develop, it also impacts the city image. Relating back to the conceptual model this thus also shows that the effect of intangible effects is not a one-way influence as assumed in the model, but a two-way effect where more firms and high-skilled labour affect the city image and other intangible effects. Therefore expectation 4 can be considered as true according to the opinions of the respondents. The EMA is most probable not going to relocate anytime soon, also enforcing the fact that the effects will be felt on the long term and EMA can be considered as a long-term addition to the Dutch LSH ecosystem.

4.6 Residential Real Estate market

The changes in employment also influences the residential real estate market since the labour market and residential real estate market are directly linked with each other (Saks, 2008). Every employee needs a place to live after all and therefore the housing supply is important to accommodate for the public investment in attracting the EMA and eventually creating more employment. This part of the chapter will explore the current situation of the Amsterdam residential real estate market and the state of the residential real estate market in the rest of the Amsterdam Metropolitan Area. After the situation is assessed the expected effects and location choice of employees will be studied.

To put the impact of the EMA in perspective it is first important to assess the current situation on the Amsterdam residential real estate market. According to the majority of the residential real estate firms the current situation on the Amsterdam real estate market is tense (JLL, 2018; Colliers, 2018; Dynamis, 2017). The average price per square metre in Amsterdam is more than twice the average of the Netherlands, €5350 per square metre in Amsterdam while the Dutch average is €2500 per square metre (Dynamis, 2017; Colliers, 2018). The pace of building new housing in Amsterdam is not keeping up with the demand, about 3500 new houses are built in 2017 while the demand increased with 6300 households according to Colliers (2017). Colliers (2018) and Dynamis (2017) also found an increase in demand and a decrease in supply. The numbers indicate a very oversaturated housing market. An even further increase due to the EMA could cause even more issues on this market, therefore it is important to determine if the EMA employees will look for residence in the Amsterdam Metropolitan Area or not.

The EMA bidbook elaborates on a relocation plan for the EMA. Aside from the actual premise the EMA will relocate to, there is also attention for the agency's employees. The EMA bidbook (AMA, 2017) states that a full team of experts from different ministries of the Netherlands have been assembled to cover all the aspects when it comes to relocating the employees. The EMA bidbook elaborates on the daily life and living conditions in Amsterdam but also goes into detail about living conditions in the Netherlands as a whole. When it comes to daily living there are respondents who think the Netherlands is already doing well in that regard.

"The Netherlands is well known as a country with good living conditions … The costs of living are also not that high in comparison to other countries." (Harry Flore)

Following the information from the bidbook it is largely focused on living in Amsterdam and its surroundings, making the reader believe that it is expected that most of the employees will seek residence in or around Amsterdam. An example is the focus on locations of international schools (see appendix 11) nearby the new EMA facility on the Amsterdam Zuid-As. The international part of the Dutch living environment is receiving huge attention in the EMA bidbook. Examples given are the freedom in the Netherlands, especially in openness and safety. But there is also a large elaboration on all the cultural events, sports facilities and healthcare in and around Amsterdam and the quality of English. Also used quality of life and costs of living indices are used to show how well the living conditions in the Netherlands are (See appendix 12). All of these factors scream intangible effects, being part of the broader city image term suggested in this study. According

to respondents it is thought that an even further increase of high-skilled labourers will also have positive effects on the city image but also some negative effects could occur.

"High-skilled labourers are usually more inclined to invest in more expensive goods. Also in goods like cultural events and such. If you can provide those, which the Netherlands does well, then I think it will give a positive impulse. Downside could be rising rents and prices." (Harry Flore)

"More people will visit Amsterdam due to EMA, increasing attention for Amsterdam and increasing its image." (Maarten Stevelink)

"A negative effect could arise when we are not able to settle all the people and firms due to a lack of space." (Sandra de Wild-Chardonnens)

The relocation team involved with the residence search of EMA employees declared that many of the employees are looking in a broad range of about 1 hour of travel time to the Zuid-As location.

"Employees are informed on the available residential real estate and international schools within a radius of 1 hour of traveltime from the new EMA premises on the Zuid-As." (EMA Relocation Team)

The spread over the regions from Amsterdam is also confirmed by several respondents as an option, especially due to the fact that travel times in London are usually between 1-1,5 hours.

"The first employees immediately bought houses in the vicinity of Amsterdam after the bid was won, they bought houses in Almere, Lelystad but also 't Gooi. The employees don't necessarily want the 'Amsterdam Experience'. Especially employees from London are looking for houses in the vicinity of Amsterdam since they are used to commuting for more than 1,5 hours back and forth." (Maarten Stevelink)

"Some people want to live more quietly, so effects on living are already larger than just Amsterdam. Especially with the difference in travel time with London there are more options available which will extend into all of the Randstad area." (Jan Zuidema)

The pressure however, on the real estate market will increase according to some respondents as the demand increases. Especially when it comes to the city of Amsterdam.

"Especially in Amsterdam are already concerns for new expats who settle there from all fields .. The pressure will surely increase I think." (Maarten Stevelink)

Not just the EMA relocation will increase the pressure as all other processes in Amsterdam will not stop. The EMA will also attract more high-skilled labourers according to Friso Hennings Backer, further increasing the amount of expats in Amsterdam and increasing pressure on the residential real estate market.

"When EMA is settled it will attract specific high-skilled labour to Amsterdam, employees in BioTech and BioPharma from all over Europe will move to Amsterdam. Also employees from EMA are interesting for firms, further increasing the needs of labour for firms as well as EMA." (Friso Hennings Backer)

The Relocation Team involved with the residence of EMA employees however thinks that the impact on the residential real estate market in Amsterdam will not be that huge. This is due to the expectation that a lot of employees will choose to live in neighbouring municipalities or cities like Haarlem, Utrecht, Leiden, Rotterdam and The Hague. But also when looking into the numbers provided by them, an expected 750 employees should be seen in perspective. There are 153482 internationals in Amsterdam and about 2,8 million people living in the Amsterdam Metropolitan Area, in that regard the amount of 750 is not that large. Relating back to the data from Colliers (2018) and Dynamis (2017), about 3500 houses are added to the stock while the demand is 6300. The difference between these numbers is increasing and the Amsterdam market is not able to keep up with the demand as found by them. In that regard 750 added demand to the 6300 is about a 12% increase which shows it is a rather large effect. The EMA bidbook however, elaborates on the young character of employees of EMA arguing that they may look for the "Urban Experience".

"The EMA staff is relatively young with approximately 46% of EMA's employees under the age of 40, and two-thirds under 45; its employees may be seeking an urban lifestyle, a residential suburb or a house on the waterfront. A variety of such options can be found in the nearby vicinity of the proposed office location, or within easy commuting distance." (AMA, 2017)

Declaring many of these options in the direct vicinity, it displays that the expected effect is assumed to be in the Amsterdam Metropolitan Area according to the EMA bidbook.

The most important thing in determining the location of the EMA employees is probably the access to international schools for kids. About 575 children are involved with the staff that is planning on moving to Amsterdam (Relocation Team, 2018). Appendix 9 shows the location of international schools and their travel time towards the new EMA office. Depicting a broad variety of choices for people with families. The locations however, are hard to determine according to the Relocation Team as this is highly dependent on the wishes and needs of every household.

"Where the EMA employees eventually will settle is highly dependent on personal situation and that of their household." (Relocation Team)

The EMA employees seem to be more inclined to spread over the Randstad region. The larger effect however seems to be caused by the need for more professionals, especially due to the lack of employees in pharmaceuticals. This can also be seen as a direct result of attracting new foreign investments to the Netherlands. Especially in a dense market like Amsterdam.

"We already lack professionals in pharmaceuticals, salaries are on the rise. Attracting high paid workers from the UK, especially London where salaries are way higher than in the Netherlands it will cause more pressure on

salarylevels. A downside to attracting these people is the probability of rising rents and housing prices." (Harry Flore)

So, if Life Science is to develop due to EMA and skill related industries like the business services co-develop, there is a chance that the demand of residential real estate is growing. Especially when high-skilled labour is attracted. But also the effect mentioned by Friso when it comes to EMA, which will attract high-skilled labour from all over Europe just due to their status. Referring back to the model of Wheaton & DiPasquale (1992) this means that the market needs time to adjust, or real estate firms need to predict the growth to start adjusting the stock before the demand is rising. This is also argued by van Oort et al. (2015), warning that investments in infrastructure and living is crucial in attracting and keeping high-skilled labour and especially from abroad.

Attracting high-skilled labour and having a large workforce in high-skilled labour has positive effects on the city image of Amsterdam or the business climate of the Netherlands. In case of the residential real estate however, it shows that it can also have negative effects. If the residential real estate is not able to adjust stock and provide enough residence, the image of livability and affordability will decrease and may cause firms to not invest. Saks (2008) mentioned the importance of having enough available affordable houses to enlarge and retain a labour pool in a region. Low housing supply decreases the probability of labour migration (Saks, 2008; Rupert & Wasmer, 2012; Walton et al., 2008).

Timewise it is hard to say when the new supply should fit the new demand, as the processes are not sure when to unfold. As mentioned earlier several respondents argue about the type of Brexit and several waves which can occur for firms to carry over. The expected change within the first 5 years are not expected to be that large, some respondents even think there is little change in 20 years. This allows the real estate market more time to adjust to the current situation before thinking about even more pressure in the near future. When it comes to policy, Glaeser et al. (2005) argued that government regulation is usually the real constraint when it comes to adding supply and rising rents. The municipality of Amsterdam is planning on building an additional 40000-70000 houses since the supply dropped with 85% since 2012 (Dynamis, 2017). When this is due is not clear and projections are even showing that the market will become tenser in the coming years with a demand that is more than double the supply (Dynamis, 2017). The amount of building permits in the Amsterdam Metropolitan Area even increased with 44% according to Colliers International (2018). The activity of the local governments shows that regulation in this case may not be the real cause of the supply limitation, it is the addition of the supply that lacks the pace to keep up with the demand (Dynamis, 2017; Colliers International, 2018; JLL, 2018). The respondents did not mention any issues regarding government regulation, while the lack of supply and the tense market was acknowledged any issues or constraints surrounding government regulation were not mentioned or confirmed.

In the living agenda 2025 for Amsterdam the issues surrounding too much government intervention like Glaeser et al. (2005) suggested are confirmed.

"Too much government intervention could disrupt or even shutdown the residential real estate market. But without guidance there is a change that the strongest will dominate … We want Amsterdam to be for everyone, so a right balance is necessary to prevent unwanted negative effects." (Living Agenda Amsterdam 2025, 2017)

The economic crisis has caused a disruption on the real estate market where building new supply was shutdown (Living Agenda 2025, 2017). Therefore the demand that kept growing surpassed the supply, as is seen in the decrease of 85% since 2012 (Dynamis, 2017). The living agenda largely supports the addition of new supply and is stimulating this, only retaining some regulation to keep the market in check as mentioned earlier so no negative effects will occur. Therefore it is perfectly plausible to assume that government regulation in the current situation of the Amsterdam real estate market is not the major constraint, but time is. This is also confirmed in the living agenda:

"Looking at the pressure on the current residential real estate market, it is inescapable that more people will look for residence outside of the city of Amsterdam. The surrounding municipalities offer different kinds of living environments and price categories that are suited addition for the Amsterdam residential real estate market … Due to the large demand there are local agreements that building new supply should be quickened. Until 2020 about 60000 new residences will be permitted to be built. This is necessary because Amsterdam without its surrounding municipalities would be unable to conform to all the demand." (Living Agenda 2025, 2017)

The building of new housing is thus quickened by local governments, showing that regulation is loose to quickly add to the supply so the demand is met. With the growing demand it is however crucial for the local governments to keep planning ahead since building takes time and a lack of housing is detrimental to retaining labour (Saks, 2008). With the investment in EMA and attracting foreign firms, it is therefore important to take into consideration that future demand will increase even more especially when EMA is successful in attracting follow up firms.

4.6.1 Conclusion

To conclude this part of the results chapter the involved sub questions are revisited and discussed with the results presented earlier. This part provides a brief review on the results presented and how to view them.

Involved with this chapter is the following sub question:

- What is the effect of the life science and skilled related industries employment change on the residential real estate market of Amsterdam?
- Does the city image of Amsterdam change due to the EMA relocation?

Involved with these questions are the following expectations:

Expectation 3: The EMA relocation creates more pressure on the tight residential real estate market in the Amsterdam Metropolitan Area due to EMA employees finding residence.

Expectation 4: The EMA has a positive effect on the city image and livability image of Amsterdam

The state of the residential real estate market in Amsterdam has been very tense for a while (Dynamis, 2017; JLL, 2018; Colliers International, 2018). The high demand for housing and the low supply being the cause of this tense situation. As a result the prices and rents have risen dramatically, more than twice the average Dutch price for a square metre has to be paid in Amsterdam (€5350 in Amsterdam versus the Dutch average of €2500). This is in line with the four-quadrant model as proposed by Wheaton & DiPasquale (1993) where a rising demand and a lack of supply increases the rents.

When it comes to the EMA employees residence in the Netherlands, their locational choices are still hard to predict. According to the relocation team they are hard to pin down to a certain location yet especially due to mixed needs of the employees. Maarten Stevelink declared that some bought houses in the vicinity after the bid was won. The relocation team elaborated on the fact that not all employees want to live in Amsterdam because they have different demands for their living location. Adding to this is the large commuting time that employees are used to in London, therefore a large area in the Netherlands is suitable within that same commuting time range. Several maps from the bidbook and the relocation team already portray these commuting times from different cities in the Randstad area. About 575 kids are also involved in the families that work at EMA, increasing the demand for international schools. While Harry Flore argued that there is need for more to suit all the supply of new expats in the future, it is also acknowledged by NFIA respondents in the interviews. The number of employees involved with EMA on the total scale of the Amsterdam Metropolitan Area is really small according to the relocation team, therefore they think that the pressure on the residential real estate market will not increase that much. The data provided by reports from real estate consultancies however show that on the supply/demand scale the difference is quite large, with 3500 housing in supply and 6300 households in demand. Adding the 900 there makes a difference. Then again, not all of them are likely to start living in Amsterdam and the effect according to respondents most likely will spread out over the Randstad area. The real issue could be in the attraction effect of the EMA and if Life Science and skill related industries will develop, the amount of (high-skilled) labourers will increase sharply. This is an effect already of concern in Amsterdam according to Maarten Stevelink and therefore likely to be strengthened. The timescale of when this is happening however is very hard to predict due to brexit uncertainty, allowing the market time to respond and adjust. Again, having enough housing is crucial in attracting labour according to Saks (2008), especially since pharmaceuticals lack these high skilled professionals it is crucial that there is enough opportunities for these people to find residence.

The government regulations in the Amsterdam Metropolitan Area show flexibility to adjust to the large demand, increasing the speed of building new housing for example. The importance of housing and infrastructure to attract these high-skilled labourers and not have a counter-productive investment with EMA is huge. Considering the expected effects on attracting high-skilled labour all of the government departments seem to be aware of what needs to be done. Taking off the pressure is one of the goals according to the living agenda 2025, but keeping the market in check so the larger stronger actors do not take advantage of the weaker actors in the market. Revisiting the first sub question belonging to this part of the results, it is hard to say whether the residential real estate market in the Amsterdam Metropolitan Area will be significantly affected. An easy answer could be, any person looking for residence by default increases the pressure as long as the supply stays the same. This question is therefore tricky to answer and could swing both ways depending on the actual effect of EMA and even Brexit. Expectation 3 can be answered with the predictions and opinions

that are available in this study, showing that the expected effect of people finding residence in the Amsterdam Metropolitan Area is not as large as assumed by this study beforehand. Especially households with kids, but also in various situations according to the relocation team are having different kinds of needs and demands and therefore the Amsterdam Metropolitan Area is not always suitable. Then again, a real answer on how much the pressure increases remains very unclear.

When it comes to intangible effects, the city image, it is clear that the tight market is not providing a nice image. But the Netherlands is doing very well in terms of living conditions and costs of living indices. According to respondents, the Netherlands is also doing well in providing cultural events for example. The impact of EMA on the living conditions could be negative in the sense of more pressure on the real estate market causing higher rents and housing prices. But a general thought amongst many of the respondents is that high-skilled labourers increase the attention for the Netherlands, which EMA also does. The living conditions, as long as you can provide housing, will increase due to the high-skilled labourers being more inclined to spend their money. This is even stronger for expats who can profit from the 30% tax ruling in the first years of settling in the Netherlands (Harry Flore; AMA, 2017). EMA seems to have a positive effect overall on the city image of Amsterdam, especially considering business climate and international recognizability. Living conditions could swing both ways, depending on where the employees will live and how the residential real estate market will develop. Expectation 4 therefore could be considered true according to the data collected in this study, showing support for a positive effect of EMA on most aspects of city image.

5. Conclusion and discussion

In this part of the study the gathered results of the previous chapter are discussed and the main research question will be answered. This part will also provide recommendations for future research on the subject of this study. The goal of this study was to explore the effects of the European Medicine Agency relocation on the Amsterdam Metropolitan Area. The explored effects included employment growth and the impact on the residential real estate market. By conducting qualitative analysis these possible effects have been explored. Two effects were central to this study as defined in the introduction:

- The employments effects of the EMA relocation on Life Science and skill related industries in the Amsterdam Metropolitan Area
- The effect of the employment changes on the residential real estate market of Amsterdam

The conceptual model and sub questions of this study were all used to guide the study and help to eventually answer the main research question. The sub questions and expectations will be discussed in this part, a brief summary of the results presented in chapter four. For more detailed conclusions on every sub question view the respective results chapter (Either 4.2.1, 4.5.3 or 4.6.1).

The first sub question involved the direct effect of the EMA on the Amsterdam Metropolitan Area. A straightforward conclusion can be drawn on the direct impact on the employment in the Amsterdam Metropolitan Area, the EMA provides 900 jobs. The majority of these jobs are filled by existing employees who carry over from London to Amsterdam. According to some respondents and studies, not all of the existing employees are willing to relocate to Amsterdam (Bloomberg, 23th of May 2018). The EMA has a shortlist to fill these vacancies, so the number of jobs available for labourers in Amsterdam remains unclear. The most important direct impact of the EMA can be found in the impact on the city image of Amsterdam and the business climate of the Netherlands. While this is also part of sub question four, it can also be considered as a direct effect of EMA. Finding of this study suggest that the EMA has a positive effect on the city image, the intangible effects, of Amsterdam. The Life Science and Health climate is thought to profit greatly from the attention and the settling of EMA. The presence of EMA is also thought to have effects on attracting more high-skilled labour to the Amsterdam Metropolitan Area, further increasing the attractiveness of the region.

The second sub question involved the influence of EMA on the development of Life Science and skill related industries. The findings of this study support changes in operations of Life Science firms with existing activities in the Netherlands. Respondents suggest that firms with existing operations in the Netherlands start expanding their businesses here and create more employment. Gilead for example is planning on a new production facility providing 300 jobs but also MSD is expanding operations. The locational choices of these expansions by firms are, according to respondents, influenced by the current location of the firm's operations. Firms are more likely to expand near their existing facilities, but still depending on value chain activity. Findings also suggest that based on the origins of the firms, the likeliness to leave the UK is determined. Asian firms are more likely to leave the UK, while American and British based firms are not willing to leave the strong embeddedness of the UK Golden Triangle. Most of these choices involve the Brexit uncertainty, as it

remains unknown which kind of Brexit, it also remains unknown what will happen in the future when products are produced in the UK. Some firms expect trouble to bring UK products on the EU market, like MSD, therefore expanding in the Netherlands. Greenstone et al. (2010) found in their study that some developments are hard to ascribe to public spending. The same could be said in this case, as it is hard to ascribe the effects to either the influence of EMA (public spending) or the Brexit. Respondents also acknowledge this and mention that EMA is a part of the larger Brexit, thus being of influence but probably not the main reason. In particular for the Amsterdam Metropolitan Area, findings suggest that there is large potential for MedTech. While this is less believed by respondents, the secondary data coupled with some developments mentioned by respondents show otherwise. The saturation in R&D based Life Science activity and the lack of lab spaces show little room for expansion in these R&D activities, a sustainment phase as described by Menzel & Fornahl (2009). Fostering the crossover potential between manufacturing and life sciences, together with the perceived potential by van Oort et al. (2015), increases the chances for the Life Science cluster in the Amsterdam Metropolitan Area to diversify its activities and delay any decline.

When it comes to skilled related industries there are some opportunities in Amsterdam as suggested by the findings of this study. Not all skill related industries show potential in the Amsterdam Metropolitan Area, as some are too small to be relevant. However, the findings of this study suggest that there is potential for business services and IT services. The mentioned uncertainty of Brexit and the possible issues surrounding the import of UK produced products into the EU provides opportunities for business services. Findings of this study suggest that quality control firms and patent registration services have opportunities to expand in the Netherlands and Amsterdam. The large cluster of business services in Amsterdam and the skill relatedness to Life Science provides the potential for crossovers between these two sectors. These crossovers could potentially diversify the activities of the saturated business services cluster in the Amsterdam Metropolitan Area. Increased Life Science activity will also demand more from legal services and consultancy services. Some firms are already setting up activities as mentioned by respondents, like some legal parties and quality control. Life Science developments therefore are likely to have a positive effect on the employment in business services. The findings of this study also suggest crossover potential for IT services in the Amsterdam Metropolitan Area. The medical sector is growing and there is a large demand for software development in this sector, something the IT services can provide. Crossovers between Life Sciences and IT services have potential to diversify current IT services activity to deliver the large demand for software. The IT services are also less dependent on their location when it comes to customers, being able to provide services all over the Netherlands from a location in Amsterdam for example. Developments in Life Sciences are likely to have a positive effect on the employment in IT services.

Findings of this study suggest that not only the Amsterdam Metropolitan Area will profit from the EMA relocation. Due to Brexit uncertainties and not many movements happening as of now it is still a wild guess. But many of the respondents argue that it is not only the Amsterdam Metropolitan Area that is likely to profit from EMA. Especially Utrecht and Leiden are mentioned as areas in close connection with the Amsterdam Metropolitan Area. The main effects are therefore expected to be in the Amsterdam Metropolitan Area and the direct circle of cities/municipalities around this area. This includes Leiden and Utrecht. Considering the fact that commuting times and the Greater London Area are higher and the large sprawl of the area, it is likely that close regions around the Amsterdam Metropolitan Area will profit. This is also due to the fact that

infrastructure is mentioned several times by respondents. A lack of office space, lab space and residential real estate limits the growth of the Amsterdam Metropolitan Area. The Amsterdam Metropolitan Area is likely to not able to handle all the employment and firm growth in their area. For all areas that want to profit from the EMA relocation it is important that they invest in the infrastructure. As Saks (2008) and van Oort et al. (2015) also argue in their articles, this is of vital importance to the success of fostering economic growth. Housing is needed to attract more labour and, spaces for firms are needed so they can set up their operations. It also means better road systems, especially highways, as traffic can be an issue and a limitation on commuting times. Rupert & Wasmer (2012) already declared the costs and time of commuting as important factors when it comes to the radius of labourers to work in. The digital infrastructure and small scale of the Netherlands does create opportunities for all regions in the Netherlands, as the majority of the Netherlands is within a 120 mile radius of Amsterdam.

The third sub questions looked into the possible effects on the residential real estate market. The current situation of the real estate market in Amsterdam is very tense. The different kind of needs of the EMA employees makes it hard to predict where they will find residence. Some mixed opinions could be found on this matter, findings suggest that not just Amsterdam is considered but many areas around the city too. It is most likely that the EMA employees spread out over the Randstad area, not focusing on Amsterdam alone. Infrastructure also returns in this case, more housing as the major infrastructural issue. However, there is also demand for more international schools. An important factor for expat families with kids in their locational choice for residence. The effect of growth in the Life Science and skill related industries on the residential real estate market is very hard to predict, as Brexit uncertainty and uncertainty about the movement of firms towards the Netherlands is very unclear. This does allow the tense residential real estate markets in Amsterdam to increase the supply of residential real estate in the coming years. There will probably not be pressure from Life Science and skill related industry development on the short term. Enough housing is especially important when considering attracting labour as mentioned several times before (Saks, 2008). Findings of this study suggest that there is a lack of professionals in the field of pharmaceuticals. To profit fully from EMA, it is important that this shortcoming of professionals can be resolved. Therefore housing cannot be an issue at the time firms think about relocating or expanding operations into the Netherlands. The current government regulations and visions for the future do acknowledge the lack of residential real estate. Government regulation is criticized by Glaeser et al. (2005) as a limiting factor, increasing rents in regions with high demand. The goals for the coming years made by the local governments are in the right way to resolve the housing issue, showing no constraints by government regulation as Glaeser et al. (2005) argue.

The final sub question has partially been answered already, as it involves the effects of EMA on the intangible effects of the Amsterdam Metropolitan Area. The used term of "City Image" consists of several intangible effects. One of the most important effects thought to profit is the business climate, especially regarding Life Science and Health firms. The increased attention for the region due to EMA increases the city image and business climate for LSH firms. A critical note should be made on the significance of this effect though. As some respondents doubt the significance of EMA on the city image of Amsterdam, it is hard to conclude a clear consensus on this matter. It is largely accepted by respondents that it will likely have a positive effect on the intangible effects, but the significance is debatable.

Finally, the main research question is ready to be answered. The main research questions used in this study was as follows:

"To what extent does the relocation of the European Medicine Agency influence the employment of Life Science and skill related industries and what are the further effects for the residential real estate market in the Amsterdam Metropolitan Area?"

The main findings of this study suggest that the European Medicine Agency relocation has a positive effect on the employment in Life Science and skill related industries. Life Science is thought to profit from the EMA, but more importantly findings suggest that Brexit is the main reason Life Sciences in the Netherlands and Amsterdam will profit. Existing firms are likely expanding operations here while the entry of new firms is not expected in the short run. Skill related industries like the strong IT services and Business services cluster are likely to profit from growth in Life Science, showing potential for crossovers to diversify their activities. The effect on the intangible effects are also thought to be a positive influence on the development of Amsterdam and Life Science. Increased attention and attracting of high-skilled labour are some of the important effects. The attractiveness for firms looking to enter the EU market is also of importance due to EMA, showing potential for new (Asian) firms. The influence on the residential real estate market is very unclear, especially as the residential choices of the EMA employees is still unclear and the developments in the private sector are hard to predict due to Brexit uncertainty. The local governments show adaptable strategies to the current tense situation, perceiving and acknowledging the need for more housing and trying to regulate the market in an honest manner without limiting the construction. However, as seen in the four-quadrant model, building new supply for the real estate market takes time (Geltner et al., 2014). Therefore the current issues will not be solved on the short term (Geltner et al., 2014). Infrastructure is something that returns at every possible effect and development. Whether it is housing, lab space, office space or roads, it is always mentioned by respondents and in literature as a crucial factor in succeeding to profit from the economic growth. Housing can be considered as the most crucial one, with the very tense market in and around the Amsterdam Metropolitan Area it is crucial that the situation improves in the future. Saks (2008), Rupert & Wasmer (2012) and van Oort et al. (2015) argue the importance of housing on attracting labour. Considering the findings that the EMA will have a positive influence on attracting more high-skilled labour, it is thus important that there is enough housing supply to retain all of the attracted labourers.

Expectation 1 and 4 of the study were more or less confirmed by the findings. Yes, the EMA relocation most likely will have a positive effect on the attraction of firms and jobs in Life Science and skill related industries. In line with the reasoning of Grote (2008) and Neffke, Henning & Boschma (2011) related industries will profit from growth in Life Sciences and the settling of EMA. Yes, the EMA relocation most likely has a positive impact on the intangible effects, the city image. The latter is debatable in significance, as some respondents argue that Amsterdam already has a very strong city image and EMA will not contribute too much. Expectation 2 and 3 turned out differently, starting with expectation 2. It is debatable if the Amsterdam Metropolitan Area profits the most. Not only the Amsterdam Metropolitan Area is expected to profit, Utrecht and Leiden and other nearby regions area also expected to profit from EMA. Expectation 3 is still unclear, but the findings currently suggest that it is not true. While the exact locations of EMA employees housing choices are unclear, it is expected that a lot of them will not look for residence in Amsterdam. For the

long term it is hard to predict, as any industry developments are far away and the market will look different in time.

It is hard to generalize any of the results to other regions, as the European Medicine Agency is a very unique institution. As there is no benchmark region and the qualitative nature of the study, it is hard to draw solid conclusions. Any absolute numbers on the effects of the EMA can not be given yet as it is a process that is currently active and not finished yet. Still, there could be future research on other regions when looking into the effects of the European Medicine Agency. Along the line of reasoning seen in the study of Greenstone et al. (2010), the same kind of study could be conducted for the EMA case. Future research should focus on finding the numbers when the EMA actually has relocated and is fully active. In the same manner of Greenstone et al. (2010) the Amsterdam Metropolitan Area should be benchmarked against Milan and maybe even Copenhagen and Vienna as those were the other most likely locations for EMA. Comparing the growth of Life Science and skill related industries in the Amsterdam Metropolitan Area's with the other "losing" candidates allows the researcher to find out if the Amsterdam Metropolitan Area has had a larger growth than the other cities, the same way Greenstone et al. (2010) compared the winning and losing sites in their study and tried to find correlations with the public spending involved. There are doubts whether some effects can be ascribed to EMA or Brexit according to several actors interviewed. These same kind of doubts could be find in the study of Greenstone et al. (2010) whether the public spending was directly the cause or the agglomeration advantages of the clusters. The same could be said about the EMA case, especially considering whether the effects are due to EMA or Brexit. It is therefore important for future studies to find for correlations between the EMA relocation and the growth of Life Science and its skill related Industries. At the end, all of the findings in this study can happen, but also none. Especially considering the Brexit uncertainty it is hard to predict what exactly will happen. Although the questions have been answered, they also remain unanswered in a way as Brexit has to unfold yet. The most important critical note is the fact that many of the effects could well be a result of just Brexit, not EMA. EMA is just a part of the larger Brexit, therefore it is hard to ascribe effects directly to EMA as it can also be Brexit without the influence of EMA.

There are also some parts of the study that could have been done better to find better fitting results. In hindsight, the term of skill-relatedness should have been better elaborated to respondents, as it was sometimes hard for respondents to comprehend the idea of skill-relatedness. While this isn't necessarily a bad thing, when there is an interest in the everyday thinking of the respondents, the study could have profited from the respondents better understanding the skill-relatedness concept when it comes to finding the right data this study is after. Adding to this is the aforementioned lack of respondents in the pharmaceutical industry, the study would have really profited from more interviews with these actors. Increasing the amount of respondents in this field would have increased the validity of the results of this group. Most optimal would be UK based pharmaceutical firms, as the Brexit uncertainty could potentially give interesting insights in the thought process of these firms whether to relocate operations to EU soil or not.

Finally, some policy recommendations when it comes to the EMA relocation can be given. Infrastructure improvement is the most important one, mentioned by several respondents as an issue. This includes housing, roads, office space, lab space and international schools. Especially housing is important to attract and retain labour, which is one of the effects that EMA will bring. As there is a lack of professionals in some fields of

Life Sciences and the sector is growing, this becomes even more important. Another policy recommendation is to not focus on saturated economic activities in a region. Focusing on crossover potential and diversifying the activities of saturated industries (like business services/IT services in Amsterdam) has a larger potential to cause economic growth to the region.

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Appendices

In this part all of the appendices mentioned in the study can be found. See the table of contents on what page to find a certain appendix.

Appendix 1: Semi Constructed Interview Lists

General questions

Who are you? (limit to function/occupation if the respondent wants to stay anonymous)
What is your occupation?
In what way are you involved with the Life Science sector in the Netherlands?

Questions for Maarten Stevelink (NFIA)

Question	**Involved with subquestion**
How many jobs are directly involved with the EMA? Are all of these high skilled labour? Will the EMA expand employment in the future?	What is the direct employment effect of the EMA relocation in the Amsterdam Metropolitan Area?
Do you think that the EMA will have a positive effect on Life Science development in Amsterdam? If so, how?	What is the indirect employment effect of the EMA relocation in Life Science and skill related industries in the Amsterdam Metropolitan Area?
Do you think that the EMA will have a positive effect on Life Science development in the Netherlands as a whole? If so, how?	What is the indirect employment effect of the EMA relocation in Life Science and skill related industries in the Amsterdam Metropolitan Area?
What industries do you think will also profit from Life Science development? Why (not)? (in this case, a list of "top-sectoren" as defined by the CBS will be given to the person) related industries: - ICT en softwareprogrammering - Zakelijke dienstverlening - Chemie - Maakindustrie - Electronica	What is the indirect employment effect of the EMA relocation in Life Science and skill related industries in the Amsterdam Metropolitan Area?

- Voeding	
Do you think that Amsterdam will profit the most from the EMA relocation or other regions/Life Science clusters in the Netherlands? And if so, how?	What is the indirect employment effect of the EMA relocation in Life Science and skill related industries in the Amsterdam Metropolitan Area?
Do you think Amsterdam can handle more growth especially of more workforce with the state of the residential real estate market?	What is the effect of the life science and skilled related industries employment change on the residential real estate market of Amsterdam?
Do you consider government regulation as a restriction on the Amsterdam residential real estate market? Why (not)?	What is the effect of the life science and skilled related industries employment change on the residential real estate market of Amsterdam?
Do you think the EMA will change the image of livability in Amsterdam? If so, in what way?	Does the city image of Amsterdam change due to the EMA relocation?
Do you think that the EMA will impact the city image of Amsterdam? If so, how?	Does the city image of Amsterdam change due to the EMA relocation?
Do you think the image of livability in Amsterdam contributes to attracting firms? And if so, how?	What is the indirect employment effect of the EMA relocation in Life Science and skill related industries in the Amsterdam Metropolitan Area?
Do you think the effects of the EMA relocation are only short term effects? Why (not)?	All subquestions

Questions for the EMA, Life Science sector experts and life science firms:

Question	**Involved with hypothesis**
Do you think that the EMA will have a positive effect on Life Science development in Amsterdam? If so, how?	What is the indirect employment effect of the EMA relocation in Life Science and skill related industries in the Amsterdam Metropolitan Area?
What industries do you think will also profit from Life Science development? Why (not)? (in this case, a list of "top-sectoren" as defined by the CBS will be given to the person)	What is the indirect employment effect of the EMA relocation in Life Science and skill related industries in the Amsterdam Metropolitan Area?
Do you think that the EMA will have a positive effect on Life Science development in the Netherlands as a whole? And if so, how?	What is the indirect employment effect of the EMA relocation in Life Science and skill related industries in the Amsterdam Metropolitan Area?

Hoe schat u de kansen van andere Life Science clusters in Nederland zoals Leiden, Wageningen en Eindhoven?	
Do you think that Amsterdam will profit the most from the EMA relocation or other regions/Life Science clusters in the Netherlands? Why (not)?	What is the indirect employment effect of the EMA relocation in Life Science and skill related industries in the Amsterdam Metropolitan Area?
Do you think Amsterdam can handle more growth especially of more workforce with the state of the residential real estate market? Why (not)?	What is the effect of the life science and skilled related industries employment change on the residential real estate market of Amsterdam?
What do you think are the 3 most important intangible effects of Amsterdam? Do you think the EMA will positively affect these intangible effects? What are the bottlenecks for these intangible effects?	Does the city image of Amsterdam change due to the EMA relocation?
Do you think the effects of the EMA relocation are only short term effects? Why (not)?	All subquestions

Questions for a real estate professional and NFIA housing employees:

Question	**Involved with hypothesis**
Do you think that the EMA will have a positive effect on Life Science development in Amsterdam? If so, how?	What is the indirect employment effect of the EMA relocation in Life Science and skill related industries in the Amsterdam Metropolitan Area?
What is your opinion of the state of the residential real estate market in Amsterdam?	What is the effect of the life science and skilled related industries employment change on the residential real estate market of Amsterdam?
Do you consider government regulation as a restriction on the Amsterdam residential real estate market? Why (not)?	What is the effect of the life science and skilled related industries employment change on the residential real estate market of Amsterdam?
Do you think Amsterdam can handle more growth especially of more workforce with the state of the residential real estate market? Why (not)?	What is the effect of the life science and skilled related industries employment change on the residential real estate market of Amsterdam?

How do you foresee the future of the Amsterdam residential real estate market?	What is the effect of the life science and skilled related industries employment change on the residential real estate market of Amsterdam?
Where do you think the majority of the EMA employees will take up residence? (Within the city of Amsterdam or not?)	What is the effect of the life science and skilled related industries employment change on the residential real estate market of Amsterdam?
Do you think that the EMA will impact the city image of Amsterdam? How?	Does the city image of Amsterdam change due to the EMA relocation?
Do you think the EMA will change the image of livability in Amsterdam? How?	What is the effect of the life science and skilled related industries employment change on the residential real estate market of Amsterdam?
Do you think the effects of the EMA relocation are only short term effects? Why (not)?	All subquestions

Appendix 2: COROP regions classification

Nr	COROP-Area	Municipalities
01	Oost-Groningen	Oldambt, Pekela, Stadskanaal, Veendam, Westerwolde
02	Delfzijl en omgeving	Appingedam, Delfzijl, Loppersum
03	Overig Groningen	Bedum, Ten Boer, Eemsmond, Groningen, Grootegast, Haren, Leek, De Marne, Marum, Midden-Groningen, Winsum, Zuidhorn
04	Noord-Friesland	Achtkarspelen, Ameland, Dantumadeel, Dongeradeel, Ferwerderadeel, Harlingen, Kollumerland en Nieuwkruisland, Leeuwarden, Schiermonnikoog, Terschelling, Tietjerksteradeel, Vlieland, Waadhoeke
05	Zuidwest-Friesland	De Friese Meren, Súdwest-Fryslân
06	Zuidoost-Friesland	Heerenveen, Ooststellingwerf, Opsterland, Smallingerland, Weststellingwerf
07	Noord-Drenthe	Aa en Hunze, Assen, Midden-Drenthe, Noordenveld, Tynaarlo
08	Zuidoost-Drenthe	Borger-Odoorn, Coevorden, Emmen
09	Zuidwest-Drenthe	Hoogeveen, Meppel, Westerveld, De Wolden
10	Noord-Overijssel	Dalfsen, Hardenberg, Kampen, Ommen, Staphorst, Steenwijkerland, Zwartewaterland, Zwolle

11	Zuidwest-Overijssel	Deventer, Olst-Wijhe, Raalte
12	Twente	Almelo, Borne, Dinkelland, Enschede, Haaksbergen, Hellendoorn, Hengelo, Hof van Twente, Losser, Oldenzaal, Rijssen-Holten, Tubbergen, Twenterand, Wierden
13	Veluwe	Apeldoorn, Barneveld, Ede, Elburg, Epe, Ermelo, Harderwijk, Hattem, Heerde, Nijkerk, Nunspeet, Oldebroek, Putten, Scherpenzeel, Voorst, Wageningen
14	Achterhoek	Aalten, Berkelland, Bronckhorst, Brummen, Doetinchem, Lochem, Montferland, Oost Gelre, Oude IJsselstreek, Winterswijk, Zutphen
15	Arnhem/Nijmegen	Arnhem, Berg en Dal, Beuningen, Doesburg, Druten, Duiven, Heumen, Lingewaard, Nijmegen, Overbetuwe, Renkum, Rheden, Rozendaal, Westervoort, Wijchen, Zevenaar
16	Zuidwest-Gelderland	Buren, Culemborg, Geldermalsen, Lingewaal, Maasdriel, Neder-Betuwe, Neerijnen, Tiel, West Maas en Waal, Zaltbommel
17	Utrecht	Amersfoort, Baarn, De Bilt, Bunnik, Bunschoten, Eemnes, Houten, IJsselstein, Leusden, Lopik, Montfoort, Nieuwegein, Oudewater, Renswoude, Rhenen, De Ronde Venen, Soest, Stichtse Vecht, Utrecht, Utrechtse Heuvelrug, Veenendaal, Vianen, Wijk bij Duurstede, Woerden, Woudenberg, Zeist
18	Kop van Noord-Holland	Den Helder, Drechterland, Enkhuizen, Hollands Kroon, Hoorn, Koggenland, Medemblik, Opmeer, Schagen, Stede Broec, Texel
19	Alkmaar en omgeving	Alkmaar, Bergen, Heerhugowaard, Heiloo, Langedijk
20	IJmond	Beverwijk, Castricum, Heemskerk, Uitgeest, Velsen
21	Agglomeratie Haarlem	Bloemendaal, Haarlem, Haarlemmerliede en Spaarnwoude, Heemstede, Zandvoort

22	Zaanstreek	Wormerland, Zaanstad
23	Groot-Amsterdam	Aalsmeer, Amstelveen, Amsterdam, Beemster, Diemen, Edam-Volendam, Haarlemmermeer, Landsmeer, Oostzaan, Ouder-Amstel, Purmerend, Uithoorn, Waterland
24	Het Gooi en Vechtstreek	Blaricum, Gooise Meren, Hilversum, Huizen, Laren, Weesp, Wijdemeren
25	Agglomeratie Leiden en Bollenstreek	Hillegom, Kaag en Braassem, Katwijk, Leiden, Leiderdorp, Lisse, Noordwijk, Noordwijkerhout, Oegstgeest, Teylingen, Voorschoten, Zoeterwoude
26	Agglomeratie 's-Gravenhage	's-Gravenhage, Leidschendam-Voorburg, Pijnacker-Nootdorp, Rijswijk, Wassenaar, Zoetermeer
27	Delft en Westland	Delft, Midden-Delfland, Westland
28	Oost-Zuid-Holland	Alphen aan den Rijn, Bodegraven-Reeuwijk, Gouda, Krimpenerwaard, Nieuwkoop, Waddinxveen
29	Groot-Rijnmond	Albrandswaard, Barendrecht, Binnenmaas, Brielle, Capelle aan den IJssel, Cromstrijen, Goeree-Overflakkee, Hellevoetsluis, Korendijk, Krimpen aan den IJssel, Lansingerland, Maassluis, Nissewaard, Oud-Beijerland, Ridderkerk, Rotterdam, Schiedam, Strijen, Vlaardingen, Westvoorne, Zuidplas
30	Zuidoost-Zuid-Holland	Alblasserdam, Dordrecht, Giessenlanden, Gorinchem, Hardinxveld-Giessendam, Hendrik-Ido-Ambacht, Leerdam, Molenwaard, Papendrecht, Sliedrecht, Zederik, Zwijndrecht

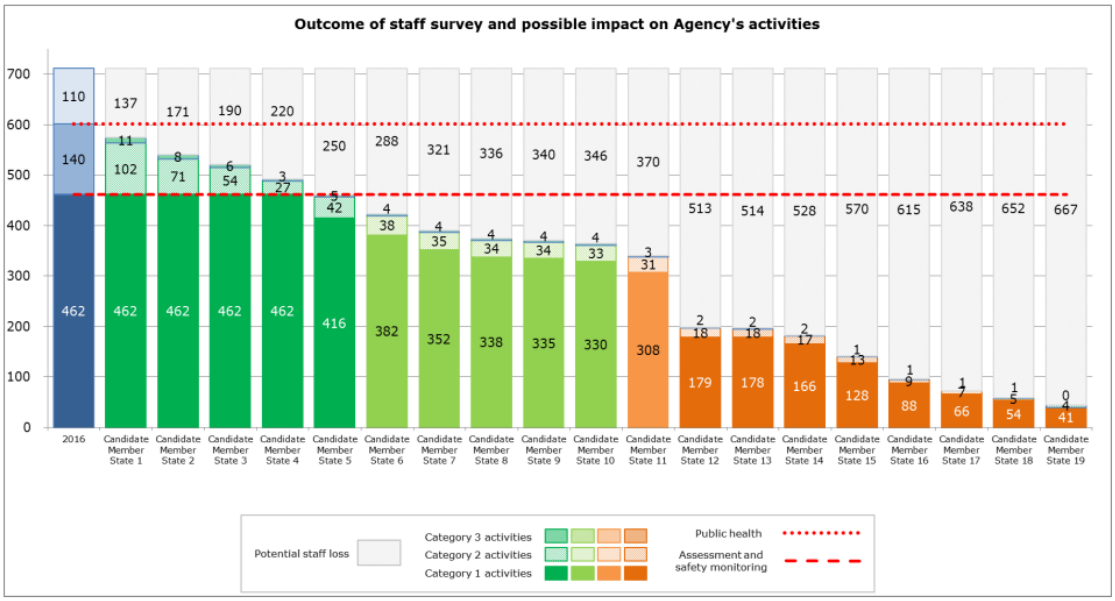
31	Zeeuws-Vlaanderen	Hulst, Sluis, Terneuzen
32	Overig Zeeland	Borsele, Goes, Kapelle, Middelburg, Noord-Beveland, Reimerswaal, Schouwen-Duiveland, Tholen, Veere, Vlissingen
33	West-Noord-Brabant	Bergen op Zoom, Breda, Drimmelen, Etten-Leur, Geertruidenberg, Halderberge, Moerdijk, Oosterhout, Roosendaal, Rucphen, Steenbergen, Woensdrecht, Zundert
34	Midden-Noord-Brabant	Aalburg, Alphen-Chaam, Baarle-Nassau, Dongen, Gilze en Rijen, Goirle, Hilvarenbeek, Loon op Zand, Oisterwijk, Tilburg, Waalwijk, Werkendam, Woudrichem
35	Noordoost-Noord-Brabant	Bernheze, Boekel, Boxmeer, Boxtel, Cuijk, Grave, Haaren, 's-Hertogenbosch, Heusden, Landerd, Meierijstad, Mill en Sint Hubert, Oss, Sint Anthonis, Sint-Michielsgestel, Uden, Vught
36	Zuidoost-Noord-Brabant	Asten, Bergeijk, Best, Bladel, Cranendonck, Deurne, Eersel, Eindhoven, Geldrop-Mierlo, Gemert-Bakel, Heeze-Leende, Helmond, Laarbeek, Nuenen, Gerwen en Nederwetten, Oirschot, Reusel-De Mierden, Someren, Son en Breugel, Valkenswaard, Veldhoven, Waalre
37	Noord-Limburg	Beesel, Bergen, Gennep, Horst aan de Maas, Mook en Middelaar, Peel en Maas, Venlo, Venray
38	Midden-Limburg	Echt-Susteren, Leudal, Maasgouw, Nederweert, Roerdalen, Roermond, Weert
39	Zuid-Limburg	Beek, Brunssum, Eijsden-Margraten, Gulpen-Wittem, Heerlen, Kerkrade, Landgraaf, Maastricht, Meerssen, Nuth, Onderbanken, Schinnen, Simpelveld, Sittard-Geleen, Stein, Vaals, Valkenburg aan de Geul, Voerendaal
40	Flevoland	Almere, Dronten, Lelystad, Noordoostpolder, Urk, Zeewolde

Source: CBS(2015)

Source: CBS (2015)

Appendix 3: Intern study EMA

Figure 1. Outcome of staff survey and possible impact on Agency's activities



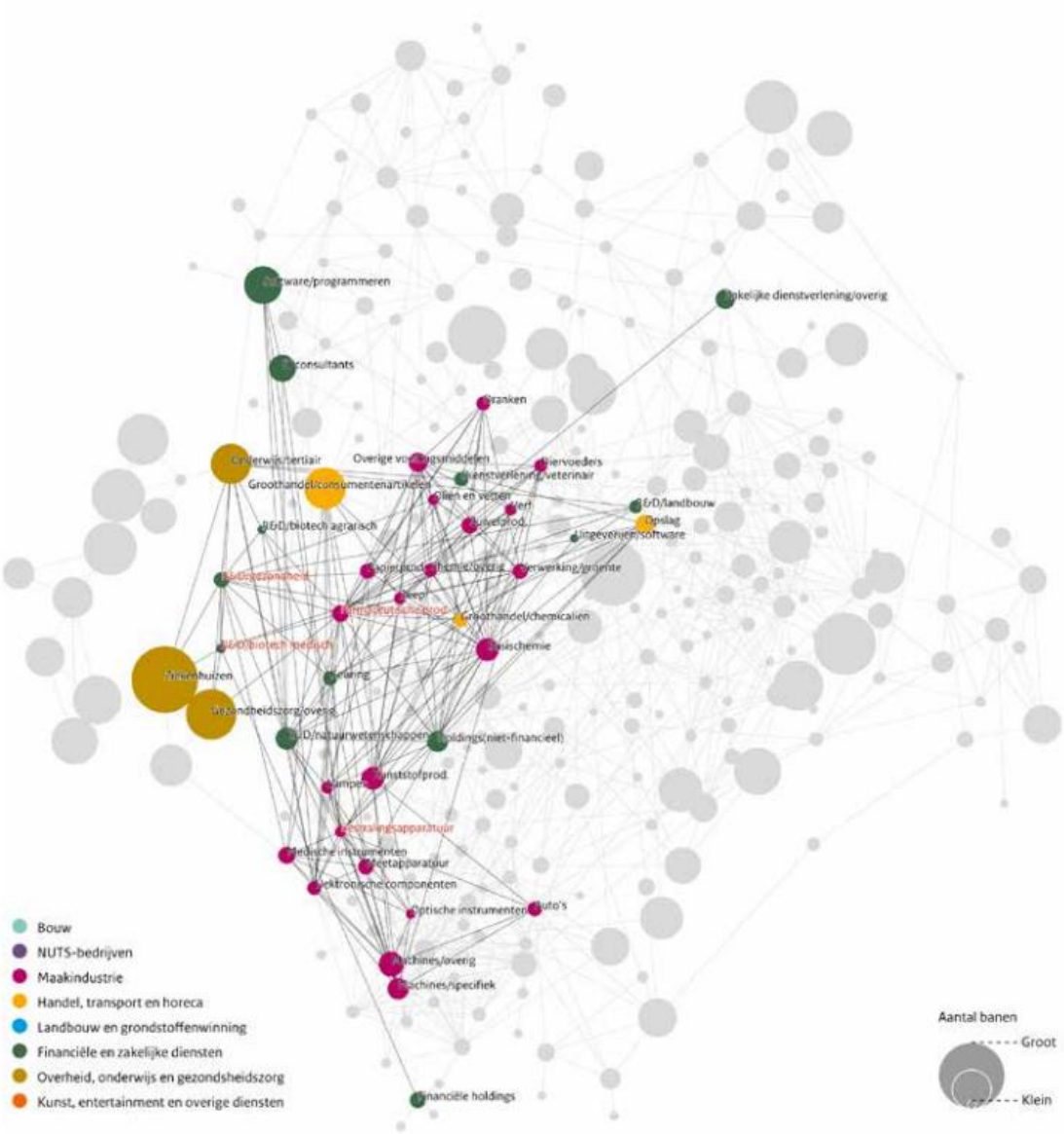
Source: EMA website (2017)

Appendix 4: Top-sectors

Topsector/Cluster
Agrofood (A(F))
Chemistry (C)
Creative industry and services (Cr)
Energy (E)
Financial services (FS)
High Tech Systems and Materials (HTSM)
IT
Life Science and Health (LSH)
Logistics (L)
Horticulture and Materials (T)
Water (W)
Business Services (B)

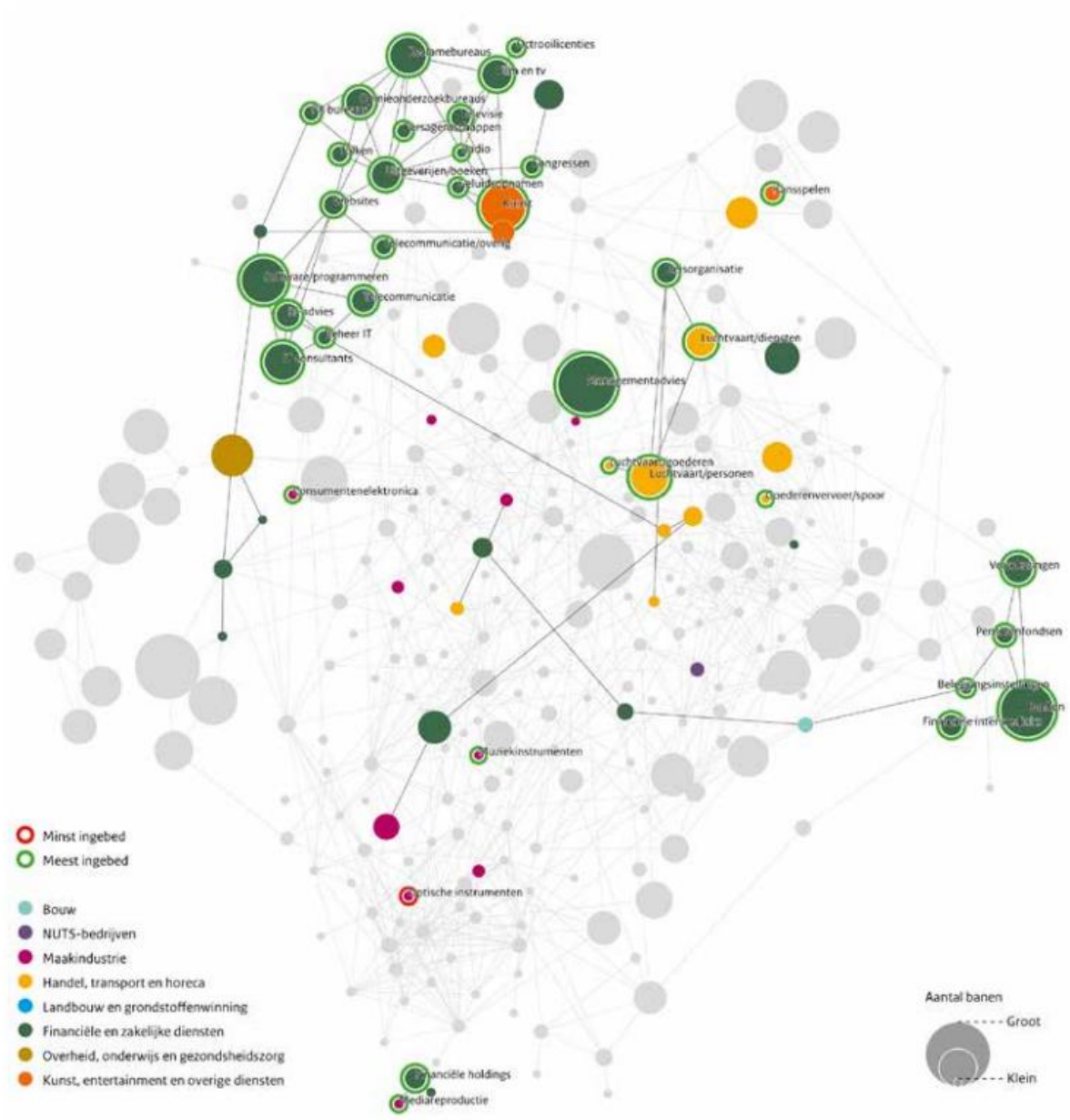
Source: van Oort et al. (2015)

Appendix 5: Industry Space Life Science



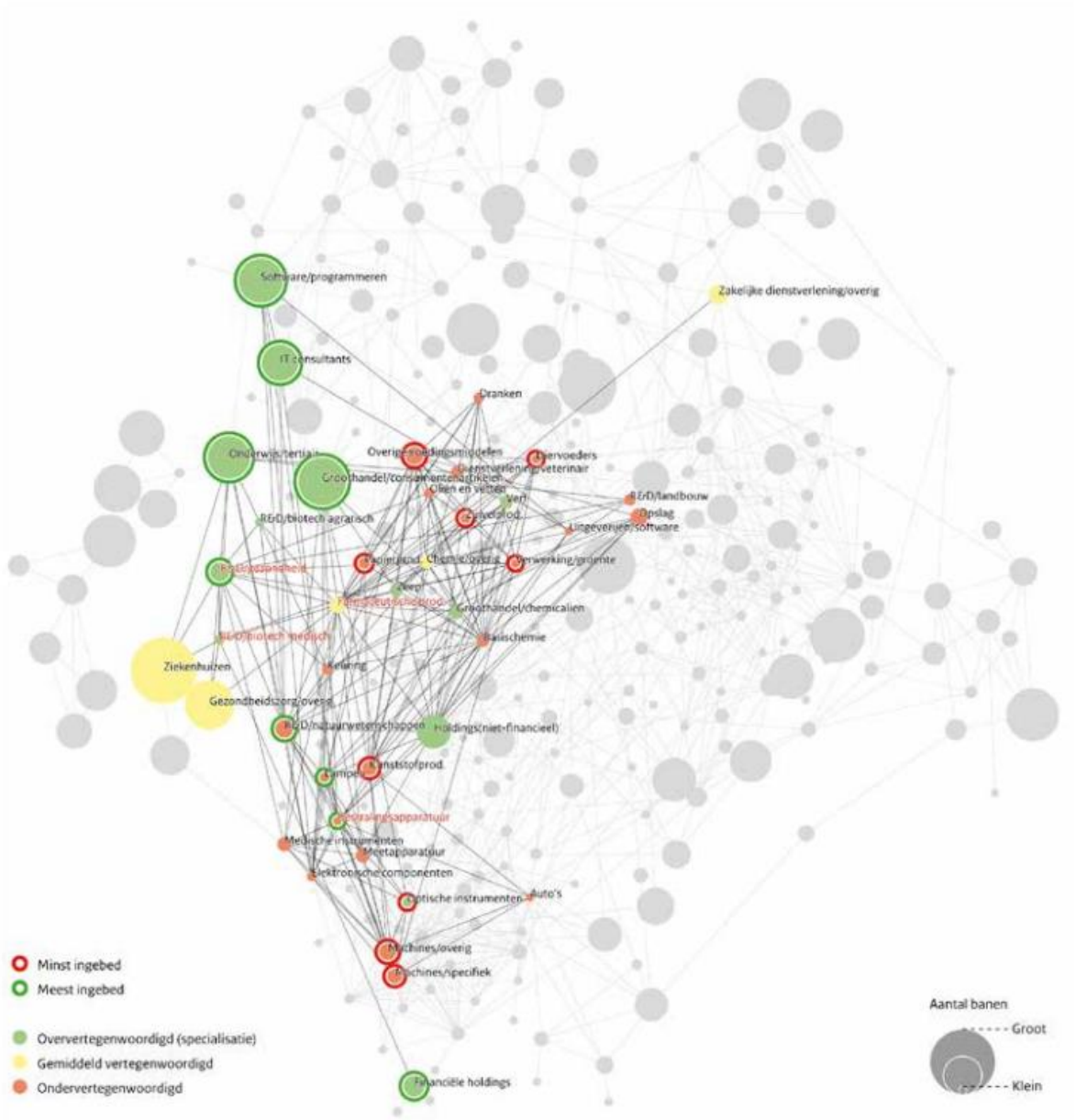
Source: van Oort et al. (2015)

Appendix 6: Industry space Northern Randstad



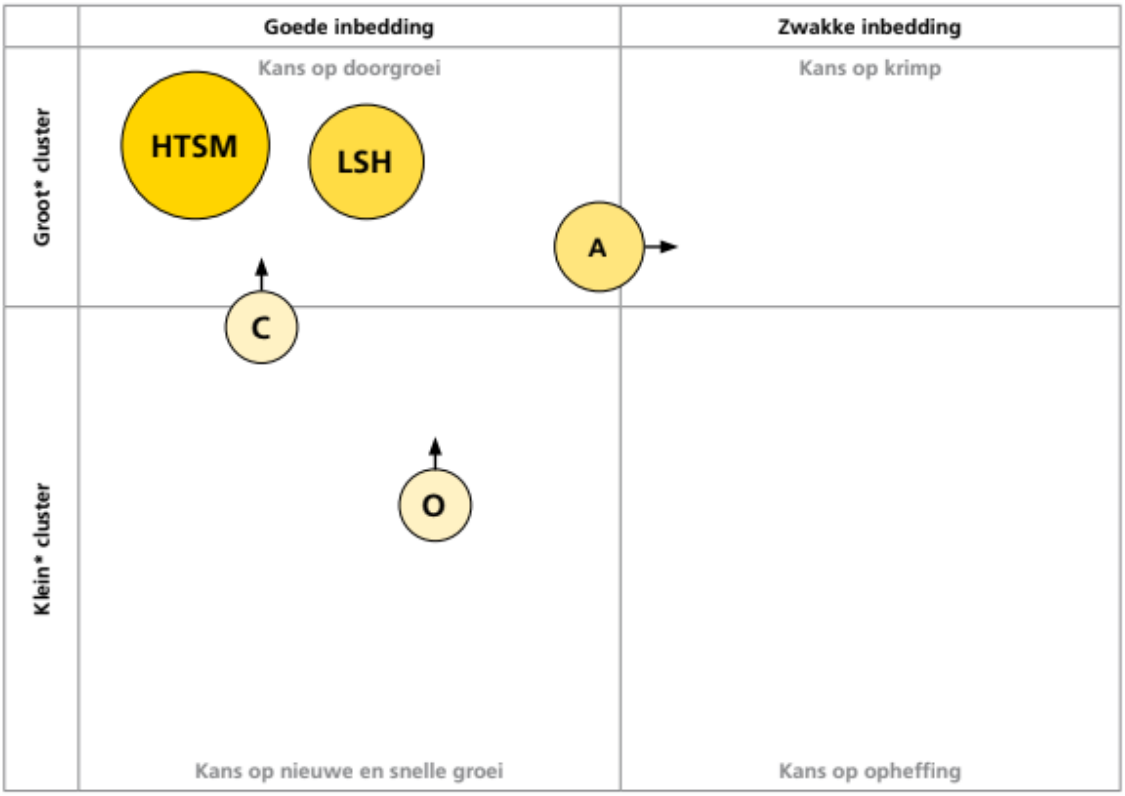
Source: van Oort et al. (2015)

Appendix 7: LSH industry space Northern Randstad



Source: van Oort et al. (2015)

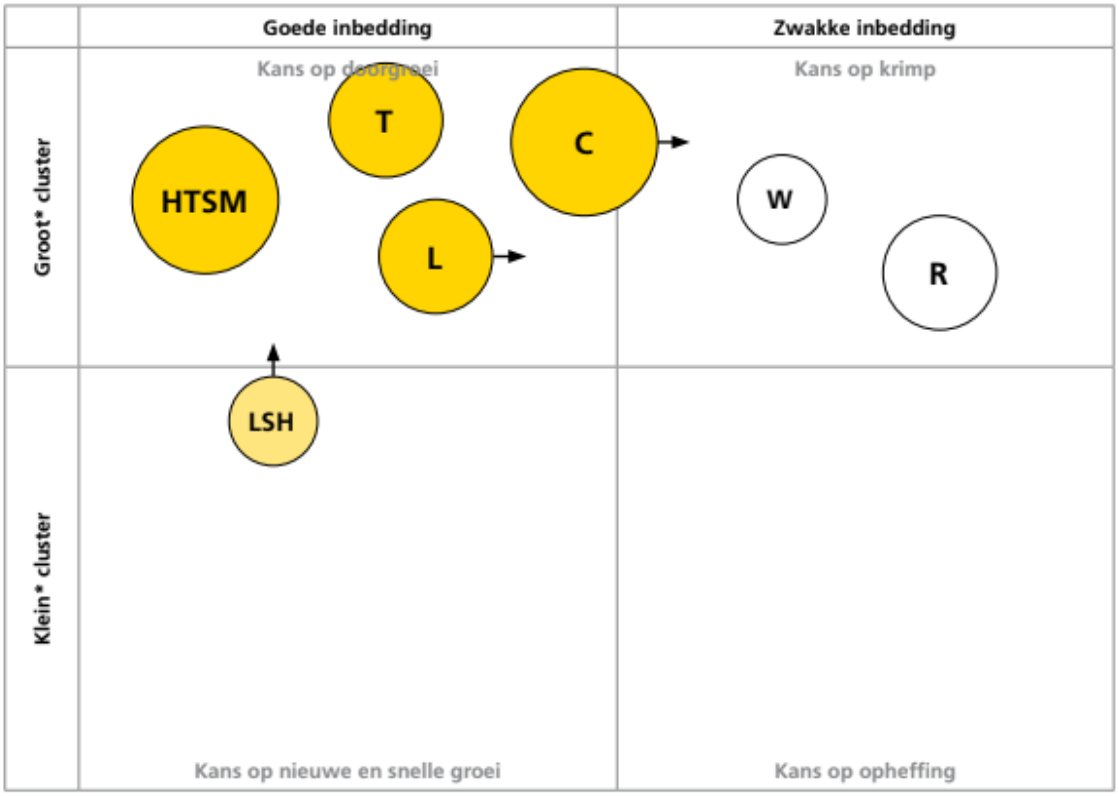
Appendix 8: SWOT Eindhoven



LSH = Life Science & Health, HTSM = Hightech Systemen en Materialen, A = Agro-food,
C = Creatieve industrie, O = Onderwijs

Source: van Oort et al. (2015)

Appendix 9: SWOT Southern Randstad



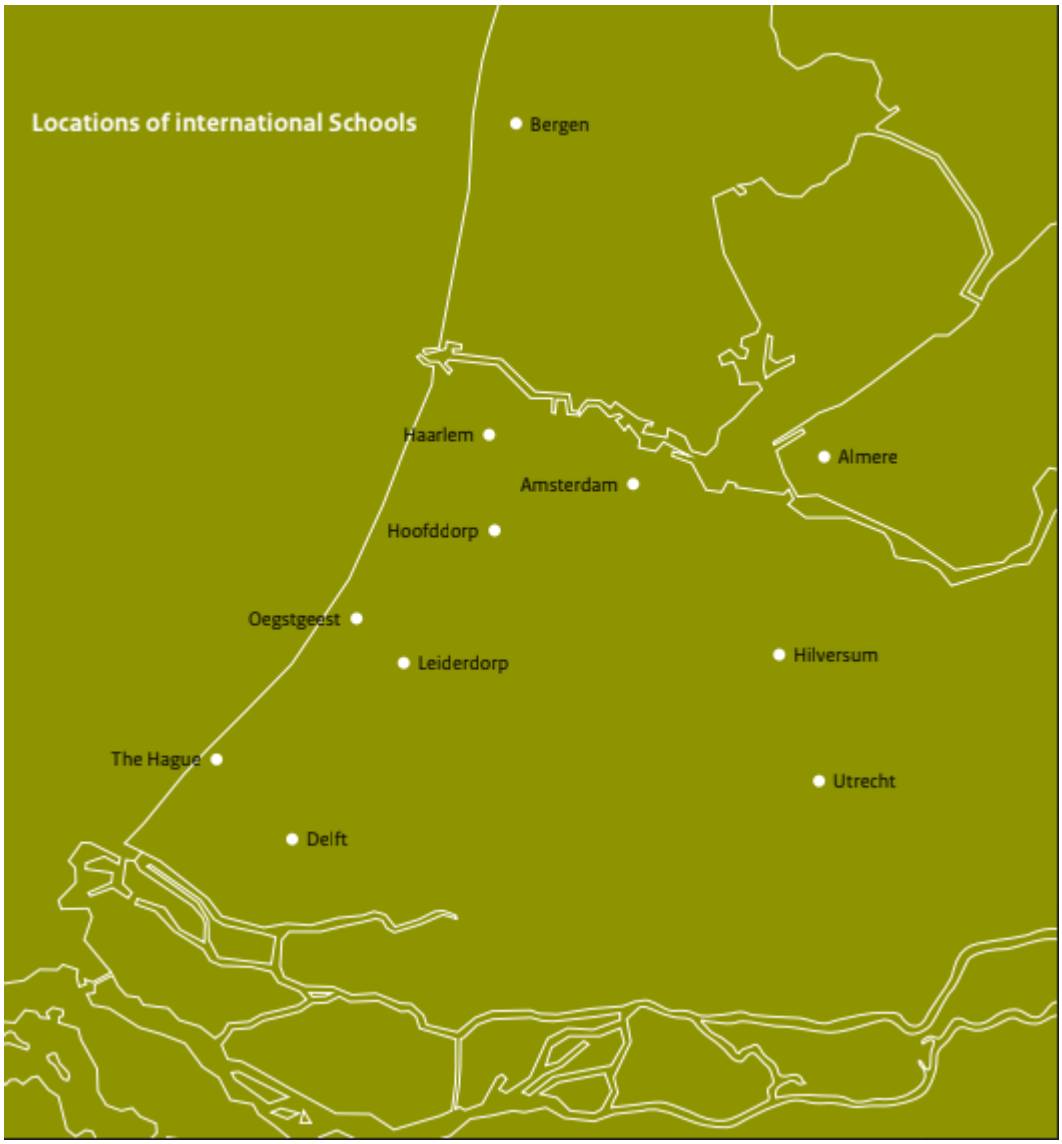
LSH = Life Science & health, L = Logistiek, W = Water, R = Rijksoverheid, C = Chemie, T = Tuinbouw, HTSM = Higtech Systemen en Materialen

Source: van Oort et al. (2015)

Appendix 10: Travel time map

Source: AmsterdamInBusiness relocation team (2018)

Appendix 11: International Schools Map



Source: AMA (2017)

Appendix 12: Quality of Life and Cost of Living index

Source: AMA (2017); OECD (2016)

Appendix 13: Interview Maarten Stevelink

Interviewer = I
Respondent = R

I: Heeft u er bezwaar tegen dat het interview opgenomen wordt?
R: Nee hoor, geen bezwaar.
I: Kunt u kort vertellen wie u bent en wat uw bezigheid is?
R: Mijn naam is Maarten Stevelink, ik werk voor de Netherlands Foreign Investment Agency. Ik heb meegeschreven aan het EMA bidbook van Nederland om de EMA naar Nederland te krijgen. Nu houdt ik mij bezig met bedrijven uit de Life Science en Health sector te assisteren met een team die mogelijk ook door de komst van EMA naar Nederland willen komen. Bedrijven die interesse hebben om een vestiging te openen of een bestaande vestiging uit te breiden.
I: U bent dus vooral betrokken bij de Life Science sector momenteel in het aantrekken of assisteren van bedrijven?
R: Op dit moment is dat inderdaad de voornaamste bezigheid van het team waarvoor ik werk.

Direct impact EMA:
I: De volgende vragen gaan voornamelijk over het eerste effect, de directe impact van de EMA. Hoeveel directe banen denkt u dat met de EMA meekomen?
R: Uh bij de EMA werken nu ongeveer 900 mensen. Uit een intern onderzoek vorig jaar is gebleken dat mocht EMA naar Nederland komen dat 81% van de mensen mee zal gaan. Lees ook wel eens in de krant dat het wat minder kan gaan worden, ik denk toch wel rond de 800 banen.
I: Zijn deze vooral hoogopgeleide functies of betreft het ook middel- of laagopgeleide banen?
R: Allemaal hoogopgeleide banen. 100% hoogopgeleid.
I: Denkt u dat de EMA nog gaat uitbreiden in banen in de nabije toekomst?
R: Ja, de heer Rasi heeft destijds ook gezegd we hebben nu ongeveer 900 werknemers maar we groeien nog steeds verder. Dus toen wij gesprekken hadden vroegen we ook van hoeveel vierkante meter aan kantoorpand hebben jullie nodig. Nou ze zeiden we hebben nu X aantal vierkante meter maar we groeien nog steeds, en die verwachting is ook dat ze blijven groeien.

Indirecte impact EMA (Related industries):
I: De volgende vragen gaan voornamelijk over het tweede effect, de impact op life science en related industries van Life Science. De eerste vraag, denkt u dat de EMA een positieve effect heeft op de Life Science ontwikkeling in Amsterdam?
R: Ja, de EMA is natuurlijk een EU agentschap en echt een pareltje voor het LSH ecosysteem in Amsterdam. Dus dat heeft zeker een hele positieve uitstraling zeker naar het buitenland toe. Naar buitenlandse bedrijven. Ik denk dat het een sterk effect heeft op het imago van de Amsterdamse metropoolregio.
I: U zei dat het een pareltje is, in welke zin bedoelt u dat?
R: Nou het is een EU agentschap met een hele goede statuur, een apart soort status. Waar veel hoogopgeleide mensen werken en ze zijn bezig met iets heel belangrijks natuurlijk. Het toelaten van medicijnen en de

veiligheid daarvan. Dus het is zeker een agentschap met statuur wat invloed heeft op het imago van Amsterdam.
I: Een aantal sectoren zijn related met life science waaronder: ..... Mijn vraag is; denkt u dat een van deze sectoren gaat meeprofiteren van een Life Science ontwikkeling?
R: Als je de Life Science uberhaupt afpelt heb je ook heel veel verschillende subsectoren binnen Life Science zelf. Grofgezien wat wij zien is dat de bio-pharma het meest kleeft aan EMA. En die heeft verschillende subsectoren, als je het bijvoorbeeld hebt over R&D gerelateerde activiteiten; clinical trials en small molecules. En daarnaast heb je nog een grote sector; de MedTech sector. De MedTech sector heeft an sich met een paar uitzonderingen daar gelaten niet eens zo heel veel te maken met de EMA. Maar wat je wel ziet en zeker in de UK dan zie je wel dat die MedTech sector heel erg aan de biopharma kleeft. Dan kun je een onderscheid maken tussen de Core bedrijven en de suppliers van die biopharma bedrijven, dus bedrijven die services leveren aan die biopharma bedrijven. En ja dat is denk ik ook omdat die biopharma in de UK, in de golden triangle, dat is zo gigantisch. Daar werken zo verschrikkelijk veel mensen. Cijfers: 63 miljard pond aan omzet, 114000 employees in biopharma en 120000 employees in MedTech (bronnen UK/EMA site). Hele EU, 745000 werknemers in pharma industrie. Voornamelijke deze die meegaan. Je vroeg net nog of het ook invloed heeft op voeding en maakindustrie, wat bedoel je met maakindustrie?
I: Vooral manufacturing, productiefaciliteiten.
R: Ja dat zou zeker kunnen, de MedTech sector. Vooral op de lange termijn omdat de EMA wel bijdraagt aan het versterken van het ecosysteem in Nederland waardoor nieuwe bedrijven zullen zeggen “he Nederland is toch wel de place to be” en de LSH sector wordt steeds groter. Dan denk ik wel dat er meer bedrijven zullen komen ook in maakindustrie maar ook R&D centres.
I: Met betrekking tot voeding bijvoorbeeld Wageningen is daar goed in, denkt u dat er daar nog winst behaald kan worden door ontwikkeling van LSH?
R: Een moeilijke vraag. Want EMA is voornamelijk medicijnen. Aan de andere kant in Wageningen worden ook gewoon laboranten en biologen opgeleid. Het heeft wel een band met de LSH uberhaupt, ik denk wel dat het een positief effect kan hebben op die regio maar op lange termijn.
I: De volgende vraag gaat over de impact op de rest van Nederland. Denkt u dat de grootste impact in Amsterdam is of op andere life science clusters in Nederland? Welke regio zal het meeste profiteren?
R: Ik denk dat als je het puur over biopharma hebt dan denk ik wel dat bedrijven gaan kijken van; hoe zit het met clinical trials en waar kan je die het beste uitvoeren? Ik denk dat veel bedrijven dondersgoed weten dat Nederland een klein land is en zeker niet alleen Amsterdam gaat profiteren maar ook andere regio’s. De LSH in Amsterdam is in vergelijking met Leiden, Utrecht en misschien wel Eindhoven toch niet zo groot. Ik denk zeker dat er verschillende regio’s prima zullen profiteren, niet alleen Amsterdam omdat Nederland zo klein is.

Woningmarkt vragen
I: Denkt u dat met de huidige staat van de Amsterdamse woningmarkt het mogelijk is van Amsterdam om een nieuwe arbeidsgroei aan te kunnen?
R: Heel heikel punt, vooral in Amsterdam veel zorgen over nieuwe expats die komen. Wat je nu al merkt; er zit een relocation team bij de NFIA. Die vooral bezig zijn met de EMA werknemers overplaatsen. Daar hebben de eerste employees direct na het winnen van het bid huizen gekocht in Almere, Lelystad maar ook ‘t Gooi. Het is niet het geval dat al die employees per se de Amsterdam experience willen hebben. Naar wat ik heb gehoord kijken ze niet alleen naar Amsterdam voor woningen. Helemaal de werknemers uit London, die zijn

gewend om 1,5 uur heen en terug te reizen naar werk. De druk op de woningmarkt zal door de komst van de EMA en andere bedrijven die zich in de nabije toekomst hier vestigen wel zeker toenemen ja.
I: Met betrekking tot overheidsregulatie, kan de woningmarkt moeilijk uitbreiden in Amsterdam. Denkt u dat dit uiteindelijk tot een bottleneck gaat vormen met betrekking tot het aantrekken van arbeidsplaatsen en bedrijven?
R: Het is inderdaad zo dat de capaciteit van de woningmarkt een vestigingsfactor is, een locatiefactor maar ook een issue. Zo zijn er wel meer issues in Amsterdam, een voorbeeld is het gebrek van hoogwaardige kantoorpanden maar ook een tekort aan labruimtes. Maar zeker de druk op de woningmarkt is een issue ook door regulering.

Vragen over tastbare effecten:
I: Denkt u dat EMA een verschil gaat maken op het beeld van leefbaarheid in Amsterdam?
R: Ja de EMA is echt een hoogwaardige organisatie met hoogopgeleide mensen. Die hoogopgeleide mensen die willen we als Nederland graag hebben. Zorgt voor een krachtig beeld van Nederland. De mensen die daar werken wil je graag hebben.
I: Denkt u dat EMA een invloed heeft op de city image van Amsterdam, bijvoorbeeld internationaal aanzien.
R: Absoluut. Ik denk dat zeker in bepaalde sectoren dat Amsterdam altijd aan de EMA gelinkt wordt. En de EMA zorgt voor bekendheid en een associatie met Amsterdam. Ook omdat er gepland wordt op 36000 bezoekers per jaar voor de EMA, deze mensen bezoeken Amsterdam en zullen dus meer van Amsterdam zien. Dus er zullen meer mensen Nederland bezoeken en dat zal het imago van Amsterdam wel laten stijgen.
I: Hebben deze ontastbare effecten ook nog invloed op het aantrekken van andere bedrijven?
R: Ja ik denk het wel, ik denk dat Nederland met de EMA aantrekkelijker is. Misschien is de EMA niet een directe reden maar het helpt wel. Het is misschien niet de enige en belangrijke reden, maar het helpt wel dat Nederland met een EMA een hoger aanzien zal hebben. Misschien uiteindelijk ook niet, bijvoorbeeld bedrijven met een subsidiary in brussel. Dat is kort reizen en misschien zetten ze dan daar wel extra mensen neer die op en neer reizen voor zaken met EMA.
I: Zal de EMA een short term of long term effect hebben?
R: Short term is natuurlijk een directe impact van 800-900 mensen die bij EMA werken. En de EMA groeit natuurlijk dus op lange termijn zorgt dat voor extra effecten. Ik heb daar wat getalletjes over in een paar rapporten. We verwachten wel dat er per jaar 135 miljoen GDP voor de Nederlandse economie gegenereerd wordt en uiteindelijk in totaal iets meer dan 2500 banen met zich mee brengt. Deels door de EMA, maar ook de suppliers van de EMA waaronder ook IT. Maar ook induced impact, mensen die geld uitgeven aan de Nederlandse economie bijvoorbeeld eten theater of schoonmaak. En natuurlijk 36000 bezoekers voor EMA. Die zorgen ook nog voor ongeveer 12 miljoen euro jaarlijks voor de Nederlandse economie. Op lange termijn een grotere pool van regulatory talent en hoogwaardige arbeiders. Ik denk ook dat er een betere band zal ontstaan tussen EMA en de nederlandse geneesmiddelen evaluation board. Die werken nauw samen met EMA, dat was in de UK namelijk ook het geval. Daarnaast zullen er op lange termijn ook wel wat bedrijven uit de private sector en service sector naar Nederland komen. Een ander effect voor Nederlandse bedrijven en regulators is dat er minder reiskosten zullen zijn en betere informele contacten met de EMA. En natuurlijk de reputatie die Nederland zal krijgen door het hosten van de EMA.
I: In welke zin goedkopere travel costs?

R: Als de EMA hier zit hoeven de Nederlandse bedrijven niet naar Londen af te reizen en is een simpele kostenbesparing. Op lange termijn is het goed omdat het imago van Nederland versterkt zal worden en dat er meer bedrijven naar Nederland zullen kijken en als serieuze kandidaat zien.
I: Dit was het einde van het interview, ik wil u bedanken voor uw medewerking.

Appendix 14: Interview Harry Flore

I = Interviewer
R = Respondent

R: Minister van Industry van de UK was hier afgelopen week, over wat betekent de EMA voor jullie en wat betekent de het weggaan van de EMA voor de UK. Hij dacht, en dat moet hij natuurlijk zeggen als minister, dat het wel mee zal vallen met bedrijven die van de UK naar hier komen en ik denk dat hij daar wel gelijk in heeft.
I: Ja ik hoor dat ik redelijk veel over de Golden Triangle, dat is zo sterk.
R: Ja Cambridge Oxford London dat is erg sterk
I: Moeilijk om tegenop te boksen, ligt aan de intentie van het bedrijf. Wellicht als ze op de EU markt willen komen. Brexit onduidelijk is moeilijk.
R: Ja dat is het, de onduidelijkheid.
I: Mijn eerste vraag; voornamelijk voor introductie; wie bent u en wat is uw functie.
R: Ik ben Harry Flore, ik ben gepromoveerd viroloog, biotechnoloog. Ben CEO van twee bedrijven op het Science park, ik ben ook voorzitter van de ondernemersvereniging. Daarmee heb ik verantwoordelijkheid voor alle bedrijven op dit park. Het is ongeveer 6000 mensen hier, 6000 aan de universiteit en 6000 op het LUMC. Ongeveer 18000-19000 mensen. Wij proberen samen met stakeholders, ook de gemeentes, waaronder Oegstgeest. Want het biopark is het grootste van Nederland en komt ook tot in die gemeente. We proberen de samenhang en het aanzien te verbeteren, en alles wat erbij gedacht moet worden om dit park vooruit te brengen,
I: Mijn eerste vraag gaat over de impact op Amsterdam, later voor de effecten op Leiden en de rest van Nederland en uiteindelijk ontastbare effecten. Mijn eerste vraag is; denkt u dat de EMA een positief effect zal hebben op de Life Science in Amsterdam?
R: Zeker een positief effect, zeker ook op Life Science. Als het ook hier een effect zal hebben, wat wij hopen, zal het zeker daar een effect hebben, Er zit natuurlijk veel medisch gerelateerde bedrijven en ook de VU en het AMC op de zuidas.
I: Waarom denkt u dat de EMA een belangrijke factor is voor deze bedrijven? Waarom willen bedrijven er dichtbij zitten.
R: Dat is een goede vraag die wij ons zelf ook hebben gevraagd. Voornamelijk in het tijdperk van goedkope vluchten en makkelijke communicatie. Wij vliegen ook wel eens naar Londen als wij iets met EMA te doen hebben. Maar het heeft natuurlijk meer effecten er gaan allerlei bedrijven toch omheen zetten. Ook al ben je niet van plan om er te gaan zitten. Als andere bedrijven dat wel doen, en voornamelijk bedrijven uit Azië die naar Europa zullen gaan zullen nu denken laten we dan maar naar Amsterdam gaan of Leiden, want daar zit EMA in plaats van we gaan per se naar Londen voor de golden triangle. Kunnen ze alsnog doen omdat de UK markt ook een interessante markt is voor pharma en biotech bedrijven. Ik zelf ben niet zo overtuigd of een bedrijf uit bijvoorbeeld Amerika wat nu in Londen zit zonder meer naar de EMA Amsterdam gaat. Tenzij ze het kosten overweging doen omdat Londen te duur is of als ze het toch al van plan waren. Wat ook kan is als ze hier tax incentives krijgen die dan toch een zusterbedrijf of dochterbedrijf hier vestigen. Er moeten dan wel aan bepaalde voorwaarden voldaan worden waarin tax incentives belangrijk is, daarom geen veel Amerikaanse bedrijven naar Ierland om te produceren. Dat is een van de makken van Nederland en op

het biopark dat we te weinig pharma productie hebben. Vroeger was dat wel zo maar al die bedrijven zijn opgekocht of gesloten. En dat is heel jammer voor de Nederlandse werkgelegenheid zoals je zelf al zei; er is natuurlijk enorm veel kennis op het gebied van Pharma en biotech hier in Nederland. En dat is zonde dat je het niet om kan zetten in producten. Dat is ook een van de redenen dat die minister van de UK hier kwam om aan te geven dat er nog kansen liggen voor EU bedrijven en instellingen om samen te werken. Veel instellingen zijn ook op basis van subsidies uit Brussel in elkaar gedraaid, er moet altijd iemand uit het bedrijfsleven bij zitten. Als dat niet meer kan, afhankelijk van welke brexit, dan wordt dat wellicht minder aantrekkelijk en dan heeft Engeland wel degelijk een probleem. Terugkomend op je vraag, ik denk niet, en zeker niet in de eerste golf zullen er zeker geen bedrijven komen om hier te gaan produceren, en zeker niet om te ontwikkelen. Wat in de eerste golf wel zal gebeuren is het zoeken van kantoorpanden en registratie en patent mensen hier te vestigen. Dichtbij Den Haag omdat daar nu ook een EU patent office zit. Want dat gaat ook veranderen, vroeger of nu heb je een Europees patent maar dat gaat veranderen want geldt dat later nog in Engeland of moet je daar een nieuw patent aanvragen? Of moet je in Oezbekistan een apart patent aanvragen, dat zijn kostenposten en daar kan ik mij wel iets bij voorstellen. Dat zal de eerste golf zijn. Ik weet bijvoorbeeld MSD die verwacht dat ze niet zo makkelijk producten uit Engeland hier binnen kunnen voeren. Dus ze gaan hier extra voorraad opbouwen en extra registratie personeel inzetten om te zorgen dat allerlei variaties makkelijker doorkomen. Ongeveer 40 mensen, dat is best veel. Daar zie ik wel een vrij snelle aanwas aankomen van dat soort mensen en bedrijven. En de EMA zelf natuurlijk die mee moeten willen. Zelf nog geen idee hoe die verhouding ligt.
I: Uit interne EMA onderzoeken weet ik dat een groot deel wel overkomt, rond de 81% gaf aan over te willen. Volgens de projectmanager van de NFIA valt dit iets tegen en zal het wat minder zijn. De directeur van EMA had al aangegeven dat ze een shortlist hebben om zo snel mogelijk alles operationeel te krijgen. Probleem is met de kantoorruimtes. Met betrekking tot dit science park, u ziet ook dat het niet alleen pharma is, denkt u dat andere bedrijven uit gerelateerde industrieën hier zullen profiteren van de EMA?
R: Nouja ik kan me heel goed voorstellen, zoals Eurofins hier op het terrein. Dat is een van 's werelds grootste serviceproviders op quality control gebied, dat als de brexit er is, dan moet een UK bedrijf hier op de Europese markt opnieuw laten keuren. Nu kan het zonder want goedkeuring in de UK is goedkeuring voor heel EU. Wij doen dat in Duitsland en kunnen dan in heel de EU verkopen. Dat kan dan niet meer, dus weer een keuring hier. Dus er zullen of nieuwe kwaliteitskeuring bedrijf hier komen of bedrijven zullen hun eigen afdeling op gaan zetten. Of ze gaan het uitbesteden aan bijvoorbeeld EUrofins, dat is denk ik de tweede golf. De derde golf hopen we vooral op nieuwe R&D bedrijven en de vierde golf, en dat zou het mooiste zijn, productie. Maar dat zie ik nog niet zo snel gebeuren als de nederlandse overheid niet daar iets aan doet. Het belastingstelsel is wel aantrekkelijk voor R&D. Want je kan veel winst aftrekken van je belasting, dat kan een kleine startup niet, wij schreven veel af op winst. Daarom denk ik dat eerst R&D bedrijven komen. Pas veel later productie. Ierland is daar heel goed in om dat fiscaal te ondersteunen maar zijn niet zo goed in onderzoek en kennis.
I: Met betrekking tot wat u eerder zei, vooral quality control, dus labruimtes. Nu heb ik gehoord dat er veel tekort is aan labruimtes. Hoe zit dat hier in Leiden>
R: Ja dat is hier ook. Die biopartner gebouwen hier zitten helemaal vol. We zijn van plan om al een 5e te gaan bouwen. En daar hebben we al 5000 m2 om te verhuren op het biopark. Daar is nu al vraag voor minstens 5000 m2 labruimte. En ook kantoorruimte, hier op het park zijn geen kantoorruimte. Ik zoek zelf

ook nog kantoorruimte, maar hier in de buurt is het kwalitatief erg slecht. Dat zullen Amerikaanse en Japanse bedrijven nooit accepteren. Aan de kwaliteit moet nog veel gebeuren. Er is wel leegstand.
I: Ten opzichte van Amsterdam, denkt u dat Leiden meer zal profiteren dan Amsterdam
R: Dat hopen we wel tenminste. We hebben destijds ook een eigen bidbook gemaakt, een heel goed bidbook vind ik zelf, maar toen heeft de overheid zelf gezegd; als het komt dan naar Amsterdam. Een goed besluit denk ik omdat Amsterdam meer uitstraalt maar ik denk dat Utrecht en Leiden even hard gaan profiteren als Amsterdam als er al profijt is. Dat heeft ook te maken met de ligging van schiphol.
I: Ja ik moet zeggen dat de connectie van Leiden naar Schiphol ook erg goed is.
R: Het is perfect, ik moet morgenochtend vliegen. Binnen 20 minuten zit ik op schiphol dat is echt perfect. Echt heel goed.
I: Met betrekking tot MedTech bedrijven, hoe ziet u daar kansen voor voor Leiden?
R: Ja medtech, medtech zit in Nederland natuurlijk voornamelijk in Eindhoven. Dat zit niet hier op het park. Al zijn we wel aan het kijken of we kunnen profiteren van de as Delft-Noordwijk, waar de ESA zit, want het is wel een gemis op het park. Hier is het vooral Life Sciences, maar ik denk zeker dat we eHealth en MedTech bedrijven missen op dit park. Daarom denk ik dat buitenlandse bedrijven hier geen nucleus hebben om hier te gaan zitten of potentiële afnemers heeft of samenwerkpartners. Die zullen hier niks vinden. Ik weet niet of Utrecht of Amsterdam aantrekkelijker is, eerder Eindhoven. Qua Life Sciences denk ik dat Leiden en het LUMC, die het speerpunt zijn van Nederland qua regulatieve medicijnen op het voorfront staan. Er zijn heel veel bedrijven in Engeland die daar in werken en zijn zwaar gesubsidieerd in Engeland, als die zouden overkomen dan hebben ze wel echt een plus als ze hier komen boven Amsterdam.
I: Voor het uiteindelijke totale effect, stel we kijken over 10 jaar terug hierop, welke regio denkt u dat dan het meest geprofiteerd heeft van de EMA?
R: Ja ik denk alle vier. Voor een Amerikaans bedrijf bijvoorbeeld is dit een soort silicon valley omdat het dicht bij elkaar ligt. Het gaat erom dat Nederland aantrekkelijk is als land voor Pharma, en daar moet nog wel het een en ander gebeuren en vooral infrastructuur. Ook dit park moet groeien van de eerder genoemde 19000 naar 25000 in de komende 5 jaar. Maar dan zal je ook de wegen moeten verbeteren en huisvesting moeten gaan regelen, want er is al veel problemen met files. Je zal meer internationale scholen moeten hebben voor werknemers en hun kinderen. En we hebben al te weinig mensen in deze vakrichting, de salarissen stijgen alleen maar. En dat zie je ook als mensen uit Londen komen. Die verdienen veel meer dan hier en dat zorgt voor druk op de lonen samen met het tekort. Hoogopgeleide mensen en als die hier komen willen ze wel hetzelfde verdienen ook al is het leven hier goedkoper dan in Londen. Wereld van verschil. We zien die salarissen echt omhoog gaan, ook voor de Uni, dan wordt het lastig om mensen te krijgen. Dus daar zal ook in geïnvesteerd moeten worden. De buitenlandse werknemers kunnen we een goed salaris aanbieden vanwege de 30% regeling. Alleen is die ingekort van 12 jaar naar 8 jaar en nu zelfs op 5 jaar.
I: Met betrekking tot bedrijven uit de UK, u gaf al aan dat u niet denkt dat veel bedrijven de Golden Triangle verlaten. Heeft u uit ervaring of uit samenwerking wel iets gehoord over het initiatief dat ze over willen?
R: Er zijn wel een aantal bedrijven waarvan we gehoord hebben dat ze misschien over willen, die ook op zoek zijn naar kantoorpanden nu. Dat zijn er toch maar heel weinig. Het enig concrete is dat van MSD, waarin ze denken dat UK producten lastig wordt op de Europese markt te brengen. Omdat ze tochal hier zaten halen ze meer hierheen. Dat is meer een brexit gevolg dan een EMA gevolg. Heb weinig gehoord dat bedrijven hier komen, maar het is ook nog redelijk vroeg. Het kan ook afhangen van je lease op je

kantoorruimte, als je 5 jaar vast zit sta je niet direct te springen om hier een nieuw pand te huren en het oude contract op te zeggen.
I: De volgende vragen zullen vooral over de ontastbare effecten gaan. Hierin gaat het vooral om City Image. Dit is onder andere international recognizability maar ook de living conditions en het Nederlandse vestigingsklimaat. Denkt u dat de EMA een impact zal hebben op het Nederlandse vestigingsklimaat?
R: Ja het zal zeker positief uitwerken, het is zeker goed voor het image van Nederland als pharmaceutisch land maar ook als land waar je goed kan wonen. Daarom zijn we zelf ook bezig met Leiden Marketing om het leven hier te promoten. Dicht bij de zee een mooie stad en dat geldt dus voor Amsterdam ook. Het is ook relatief goedkoop ten opzichte van andere landen. Dat heeft natuurlijk effect als mensen moeten kiezen. Japanse of Aziatische bedrijven die wegen natuurlijk mee over wat is het vestigingsklimaat en wat is het leefklimaat in Nederland ten opzichte van Engeland. Goed opgeleide mensen, waarvan er genoeg moeten zijn zal zijn weerspiegeling moeten hebben in de opleidingscapaciteit van Nederland.
I: Denkt u dat de komst van een grote groep hoogopgeleide mensen een positief effect zal hebben op het leefklimaat van Nederland en de visie van het leefklimaat voor het buitenland.
R: Ja dat denk ik wel, want die zijn meestal toch ook meer bereid om te investeren in duurdere goederen. Ook culturele events etcetera. Dus als je daarvoor zorgt, wat Nederland goed doet, denk ik dat het wel een positieve impuls zou geven. Een negatief gevolg zou zijn dat de huurprijzen en de huizenprijzen nog verder gaan stijgen.
I: Mijn laatste vraag is over de langdurigheid van de investering. Vanuit de theorie heb ik de EMA als publieke investering beargumenteerd. Wat daarbij vaak gebeurt is dat de impact maar van korte duur is, of bijvoorbeeld subsidies die maar tijdelijk zijn en bedrijven bij moment van het intrekken hiervan weer vertrekken. Denkt u dat de EMA een korte impuls voor de economie is of dat de effecten op lange termijn merkbaar zijn?
R: Een goede vraag. Dat eerste onderschrijf ik volledig, als subsidies wegvallen zijn bedrijven snel vertrokken. Daarom blijf ik ook ver weg van subsidies, nooit heel erg op subsidie gericht. Goed om een klein bedrijf over de drempel te werken maar moeten snel weg van subsidie. Eigenlijk zou je terug moeten kijken naar de effecten van de EMA op londen destijds. De twee topuniversiteiten speelden daar natuurlijk een rol, een iets andere omgeving dan hier maar ook niet enorm anders. De randstad is voor een Amerikaan een gebied waar enorm veel kennis bij elkaar zit. Dan mag je jezelf wel vergelijken met Londen en de golden triangle. Ik denk dat het moeilijk in te schatten is zonder te weten welke brexit er komt.
I: ik wil u bedanken voor het interview.
R: Graag gedaan en succes

Appendix 15: Interview Jan Zuidema

I = Interviewer
R = Respondent

I: Mijn scriptie gaat dus over de EMA herlocatie naar Amsterdam. Waar ik geïnteresseerd in ben is het effect op de werkgelegenheid. Dus dat kan heel breed zijn, niet alleen Life Science. Denkt u dat de EMA een positief effect op de Life Science in Amsterdam?
R: Je zult ongetwijfeld gehoord hebben dat de EMA een deel mensen meeneemt. Er blijven ook wat mensen achter in Londen. Wat nieuwe mensen zullen natuurlijk gehuurd moeten worden. Maar er zijn ook indirecte effecten met het aantrekken van een hoogopgeleide workforce. Afname van restaurants bijvoorbeeld. het VWS heeft daar onderzoek naar gedaan met die effecten. Kort ja. Ik denk niet alleen voor Amsterdam maar voor heel Nederland.
I: Ja op welke manier is EMA belangrijk voor bedrijven?
R: We zien nu al wat met bedrijven. Belangrijke is wel waar eindigt brexit en waar begint EMA. Het verschil tussen EMA en brexit is belangrijk om te weten wat het echte effect is van EMA. meer buitenlandse bedrijven dan voorheen; kan aan de ene kant door een bedrijf die in de eu markt wilt komen; eu adres nodig. ema vereiste, voor de hand liggend dat eerste entry en kleine bedrijven de eu binnenkomen; nu effect wat in Nederland zal gebeuren. Dus bedrijven die nu voor het eerst de Europese markt binnenkomen zullen dan via Nederland binnenkomen. Veel bedrijven die origineel engels waren, die gaan de europese markt bedienen; lastiger om vanuit de UK zaken te doen met EU. Dat is meer een brexit effect dan een EMA effect. Wordt ingewikkelder om zaken te doen vanuit de UK op de EU. We zien dat een aantal bedrijven geen risico nemen en al een planning hebben voor een uitbreiding in de EU. Eerste bedrijven die gaan verhuizen deze kant op. Los van bedrijven; zal de EMA een groot beroep doen op de kennisinfrastructuur van Nederland; en op de bedrijven. Ze doen veel aanvullend onderzoek; nieuwe experimentele geneesmiddelen; hoe gaan we zorgen dat die geneesmiddelen verantwoord op de markt komen. Voor EMA ook kwestie van nieuwe evaluaties en technieken; groot beroep op de kennis die om hen heen zit. Deel nog wel van de engelse kennis gebruik maken; maar moet verplaatsen naar de EU.
I: Met betrekking tot gerelateerde industrieën, zo zijn er veel in zakelijke dienstverlening, ICT, chemie en dergelijke. Denkt u dat deze gaan profiteren van de EMA komst?
R: Nou Ja, allemaal wel denk ik. Alle echte specialisten op het gebied van dossiervorming en medicijn goedkeuring en lobbying zaten rond de EMA in london. En aantal zullen verplaatsen, een aantal zullen ook een aantal nieuwe expertises gevraagd worden in Nederland. ; Gaat Nederland ook profiteren. Precies weet ik het niet. Kan me goed voorstellen dat een aantal gespecialiseerde IT kantoren mensen zullen aannemen in Amsterdam en omgeving om de expertise aan de EMA te kunnen leveren. Dat zal betekenen dat zij zich in Amsterdam en omgeving gaan vestigen. Zij zullen hun bedrijf dan daar laten groeien en niet meer in Londen.
I: Denkt u dat dat Life Science in heel Nederland profiteert van EMA?
R: Er zijn een heel aantal fysieke beperkingen voor Amsterdam. EMA is dusdanig groot als organisatie, alleen al alle medewerkers van de EMA kunnen niet allemaal in Amsterdam zitten. Beperkte plekken internationale scholen. Grootstedelijke omgeving willen ze graag zitten; beetje meer in de luwte zitten met hun gezin. Dus de effecten op alleen al het wonen zijn randstad breed. Alleen al het wonen zijn al minimaal randstad breed; maar waarschijnlijk nog wel breder. Gemiddelde reistijd in Londen vs Nederland is groot. Kunnen mensen

zelfs nog in Zwolle gaan wonen. Dus effecten daarop. maar ook effecten op kantooromgeving; we zien allemaal wel dat er redelijk veel druk staat op de kantoren in Amsterdam. Ook de labruimtes; dus moet je op een grote schaal oppakken anders kan het niet eens gehuisvest worden. Vanuit ons geredeneerd vanuit Utrecht naar Amsterdam Zuid; is erg kort ook maar een halfuurtje. Geldt voor Leiden ook. De mogelijkheden voor EMA en volg bedrijven om zich te gaan vestigen zijn natuurlijk veel breder dan Amsterdam. De druk op Amsterdam zal groot zijn maar niet iedereen zou er willen zitten of de prijs betalen; het effect is veel groter; en wat aan volg bedrijven gehaald wordt groter; Amsterdam als eerste gezegd; he kunnen we niet aan. Heel nederland gaat profiteren.

I: Met de potentie van Amsterdam, u zegt al dat er veel drukte is in Amsterdam. Weinig labruimtes zegt u bijvoorbeeld. Wat zijn de kansen voor Utrecht?

R: Wij maken deel uit van het EMA followup project. Daar doen Amsterdam, InnovationQuarter, Utrecht en de nationale overheid aan mee. Dat zouden we niet doen als we geen kansen zouden zien om bedrijven naar Utrecht te halen. Dat is onze insteek; we doen dit omdat we zien dat er voor Nederland een belang ligt, maar als partij moeten we investeren in mensen die hierin actief zijn. Onderzoek en activiteiten gezamenlijk ondernemen; doe je niet als je geen kans ziet om bedrijven te scoren. We hebben voor bedrijven die dicht bij de EMA willen zitten prachtige oplossingen rond Utrecht Centraal; maar ook mogelijkheden op het science park; gaan nog aantal mogelijkheden creëren om op deze kansen in te spelen.

I: OVer ontastbare effecten, denkt u dat EMA zal bijdragen aan een ander beeld op het vestigingsklimaat van Amsterdam of Nederland?

R: Niet alleen op Amsterdam betrekken; hele mooie parel in de kroon maar het is voor Nederland een groot positief effect gaat hebben op het vestigingsklimaat omdat hiermee de bevestiging van EMA in Nederland een enorme push wordt gegeven aan het hele ecosysteem van Life Science en health. Bedrijf overtuigen en goh er zit een ander soortgelijk bedrijven; is niet het het beste verhaal. Als er een enorm cluster al zit; met daarbij EMA en toonaangevende universiteiten en grote bedrijven dan heeft dat een magneetwerking op andere bedrijven. Als iedereen er zit zal het wel goed zijn, 100 bedrijven kunnen het niet allemaal fout hebben zal de gedachte zijn.

I: Wat als Utrecht ook in een verzadigingsfase terecht komt, zal Utrecht dan maatregelen nemen of het ook weer dieper Nederland induwen?

R: Ik denk dat sowieso dat de centra waar dingen gebeuren zullen maatregelen gaan nemen om alles te huisvesten; hoogwaardige werkgelegenheid. ENorme spin off naar laagwaardige banen; veel overheden vinden dat interessant. Nog wel het mogelijke aan mogelijkheden om bedrijven op te vangen. Geen enorme horde die binnen komt vallen; zo zal het ook niet zijn. Maar wel een hogere druk voor Life Science georiënteerde bedrijventerreinen. Gaat een hogere druk op komen; voor kantoor zal dat net zo zijn. Grote bulk zal ongetwijfeld kantoorachtige functies hebben. Druk daar neemt toe. Bedrijven bestaande samenwerkingen; met Radboud en zeggen dan ja dan ga ik vanuit daar in een uur naar Amsterdam dat heb ik er wel voor over. Ga ik dicht bij mijn samenwerkingspartner zitten.; Regio's buiten de randstad ook meeprofiteren. De een meer om de hoek om elke dag te lunchen of in het regulatory network; andere meer van doe mij maar verder af en lagere kosten.

I: Denkt u dat de EMA een langdurig effect zal hebben of alleen maar een korte impuls?

R: Ik denk EMA verhaal een langdurig effect gaat hebben en dan vooral in de ontwikkeling van het ecosysteem; omdat EMA gaat settelen in Nederland; meer contacten gaat zoeken met universitaire centra voor tech ontwikkeling wordt het ecosysteem alleen maar sterker. Op langere termijn alleen maar grotere effecten.

Heel belangrijk dat de overheid er op inspeelt; de verhuizing van de EMA zal naar mijn inziens ook niet een hele kort project is. Brexit gerelateerd effect; veel onduidelijk over dus ik denk dat een aantal bedrijven nu al aan het oriënteren zijn; voornamelijk Japanse bedrijven. Er gaan er meer komen, wanneer de EMA echt operationeel is. Dan komen meer bedrijven. En of er een deel van de productie naar de EU komt of niet, zal op langere termijn wel komen. Mijn inschatting is dat het wel over een periode van een jaar of 4 best druk gaat worden met bedrijven die gaan verhuizen. EN na die tijd zal het ecosysteem effect het gaan overnemen, maar de aantrekkelijkheid van Nederland heeft echt een enorme boost gekregen.

Appendix 16: Interview Sandra de Wild-Chardonnens

I = Interviewer
R = Respondent

I: Uitleg scriptie; EMA effect op Life Science en related industries.
R: Ja dat is prima. Getallen hebben wij niet voorhanden, het is heel lastig aan te geven wat precies gaat gebeuren. We kunnen wel indicaties geven en gedachtes, maar het heeft heel veel te maken met toekomstige scenario's.
I: Iets waar ik rekening mee heb gehouden, daarom heb ik meerdere experts en actoren geïnterviewd om hierin een hoeveelheid meningen te verzamelen en een discussie te starten. Kunt u kort vertellen wie u bent en wat uw functie is?
R: Ik ben werkzaam bij de NFIA. Hierbij ben ik bezig om buitenlandse bedrijven naar Nederland te halen die daadwerkelijk willen investeren en op lange termijn willen vestigen. Dus ook echt mensen en middelen in willen zetten hier. Dus geen popup bedrijven of partijen die niet echt een lokale voetprint neerzetten. Dan ben ik specifiek aangetrokken voor de LSH sector. Dat is mijn specifieke focus.
I: Mijn eerste vragen zullen gericht zijn op Amsterdam, later breder voor Nederland. Denkt u dat EMA een positief effect zal hebben op Life Science in Amsterdam?
R: Ja ik denk een positief effect omdat alleen EMA al veel mensen heeft met veel kennis en ervaring op het regulatieve vlak. Dus sowieso dat stuk gaat Amsterdam enorm versterken. Uiteindelijk zal er zeker wat spin offs zijn, de vraag is of ze verplaatsen door EMA of door Brexit, en Brexit lijkt meer invloed te hebben omdat veel zaken ook virtueel afgehandeld kunnen worden. Vroeger was dat wellicht niet zo maar tegenwoordig kunnen ook een hele hoop zaken virtueel of met het invliegen van 1x per week geschieden.
I: Naast Life Science zijn er wat gerelateerde industrieën, weet u zelf uit ervaring dat bepaalde industrieën mee ontwikkelingen met Life Science?
R: Alle service providers die in de Life Science hun services aanbieden, dat zijn natuurlijk hele specifieke service providers. Maar ook recruiters, ICT bedrijven en alles wat ondersteunend is zal profiteren. Consultants en Legal Advice kunnen ook gaan profiteren, dat zijn partijen die je wat meer zal terugvinden in Amsterdam en omgeving. Ook partijen als klinisch onderzoek zullen absoluut meer werkgelegenheid gaan creëren.
I: En voor heel Nederland zelf? Denkt u dat andere clusters in Nederland ook gaan profiteren? Ook in andere clusters?
R: Ik denk dat het een breder effect gaat hebben, de eerste cirkel rond Amsterdam, dus ook Utrecht, Leiden en Haarlem zullen als eerste gaan profiteren. Maar ook de cirkel daarbuiten, met name te maken met de beschikbaarheid van Office Space en personeel. Ik denk dat ook de betaalbaarheid van locaties een issue kan zijn.
I: Met betrekking tot MedTech, denkt u dat MedTech ook gaat volgen doordat EMA een positief effect zal hebben op Life Science?
R: Als dat gebeurt zal het voornamelijk Brexit zijn. Wij kunnen EMA gebruiken om het Ecosysteem te versterken in Nederland, om een nog sterkere hub te worden in Europa. Maar qua MedTech zal Duitsland leidend blijven, die zijn echt de nummer 1 in Europa. Wij gaan absoluut ons best doen om rond EMA meer

te profileren om meer partijen aan te trekken. Maar het zal niet de voornaamste reden zijn, ik denk echt dat Brexit daar de grootste reden zal zijn.
I: Oke en qua MedTech is Eindhoven heel sterk natuurlijk, denkt u dat die daarin nog een rol gaan spelen?
R: Ik denk niet alleen Eindhoven, maar rondom alle TU's. Wat minder rond Wageningen want dat is meer voedings gericht maar ook Enschede en Delft zouden ervan gaan profiteren.
I: Denkt u dat de ligging van Eindhoven en Twente hen nog laten profiteren van de nabijheid van Duitsland die volgens u de nummer 1 is op MedTech?
R: Die hebben natuurlijk wel op het moment dat je zaken wilt koppelen en meer toegang tot de rest van Europa wilt dan is het Oosten en het Zuiden van het land wat realistischer. Ook omdat op die locaties specifieke MedTech logistieke partijen in dat deel van het land aanwezig zijn.
I: Met betrekking tot het grootste effect van EMA, denkt u dat Amsterdam meer zal profiteren dan andere regio's in Nederland?
R: Ik denk dat veel bedrijven in eerste instantie naar Amsterdam zullen kijken. Het is wel belangrijk om te gaan groeien, ik denk dat dat de groeimogelijkheden in en rondom Amsterdam erg klein zijn. Het is al krap en het kan snel vol raken, dus daar moeten we goed naar kijken want dat kan wel een issue zijn. Ik zeg niet dat het al vol is maar het kan wel snel vol raken. Dus het is op dit moment ook heel goed kijken, is er genoeg personeel, genoeg office space, zijn er voldoende woningen maar ook voldoende internationale scholen. Als je dat af kan strepen dan is het een enorme pre, anders gaan ze breder kijken.
I: Denkt u dat Amsterdam meer groei aan kan momenteel of is de markt nu al zo krap dat er weinig ruimte is?
R: Er zullen echt wel dingen moeten veranderen, snelheid is daarbij wel geboden. ER zijn plekken beschikbaar maar als het een hele harde brexit wordt dan moeten we echt breder dan Amsterdam kijken want dan weet ik wel zo goed als zeker dat Amsterdam dat niet volledig kan gaan hosten.
I: Goed over de ontastbare effecten, City Image van Amsterdam. Daarbij pak ik ook living conditions en international recognizability mee maar ook het vestigingsklimaat. Denkt u dat EMA daar een positieve invloed op zal gaan hebben? Een positieve invloed op de city image
R: Ik denk dat Amsterdam qua stad al een heel goed city image heeft en weet niet in hoeverre dit nog echt iets gaat toevoegen of vergroten. Voor het ecosysteem van Nederland en Life Science denk ik dat het wel een hele grote invloed heeft. Gebruik we nu in onze positionering al heel sterk, veel kennis op het regulatieve gebied. Wij profileren ons nu wel met EMA en een sterk ecosysteem van Nederland voor Life Science bedrijven.
I: Denkt u dat van deze ontastbare effecten ook negatieve kanten zijn die bedrijven tegenhouden?
R: Op het moment dat wij niet voldoende ruimtes of personeel beschikbaar hebben, als dat in de toekomst toch beperkt is kan dat tegen ons gaan werken. Maar voorlopig denk ik wel dat we aan de vraag kunnen voldoen.
I: Denkt u dat de EMA een korte impact heeft of een langdurige impact?
R: Überhaupt het feit dat het een publieke uitgave is, tuurlijk er wordt geïnvesteerd maar ze moeten wel marktconform betalen hier in Nederland. Als ik kijk naar effecten op de lange termijn , sowieso zullen de komende jaren rond EMA veel werkgroepen in en uitvliegen, qua vliegbewegingen en hotelovernachtingen verwacht ik niet dat het een kort termijn effect is maar een flow is die op de lange termijn ook zal blijven bestaan. Dat effect blijft een continu effect tenzij EMA weer weg zal gaan.
I: Weet u uit ervaring bedrijven veel contact hebben met EMA?

R: Ja in principe hebben bedrijven die aanvragen hebben lopen bij de EMA, hebben zij continue contact. Pharma Vigilance over bijwerkingen bijvoorbeeld ook. Dan moeten bedrijven constant informatie blijven leveren over het medicijn en wordt er gemonitord. Er is een behoorlijke interactie maar het is nog maar de vraag of dit een reden is voor bedrijven om te verplaatsen of om toch gewoon wekelijks in te vliegen. Maar die interactie is enorm.
I: Met betrekking tot keuring van geneesmiddelen, eigen bedrijven hebben een eigen quality control centre. Als zij zelf een quality control uitgevoerd hebben moeten zij dan ook bij EMA nog een nieuwe keuring uitvoeren?
R: Heel vaak worden die quality controls overzien door nationale geneesmiddel keuringsdiensten. Veel medicijnen komen in bepaalde landen en die worden door vertegenwoordigers van nationale diensten en EMA erbij betrokken. Het is wel zo als zij meer productie dan R&D hebben zullen zij echt specifieke orders gaan krijgen. Maar quality control zullen ze wel eerst een algemene inspectie krijgen maar later door landelijke organisaties. Maar dat is dan namens de hele EU.
I: Ik ben klaar met mijn vragen, bedankt voor het meewerken aan dit interview.
R: Graag gedaan, u weet me te vinden met andere vragen.

Appendix 17: Interview Friso Hennings Backer

I = Interviewer
R = Respondent

I: Ik doe dus onderzoek naar EMA die naar Amsterdam komt. Ik ben dus geïnteresseerd in effecten op de werkgelegenheid en dan voornamelijk in brede zin. Dit is dus niet alleen LSH maar ook gerelateerde activiteiten. Kunt u kort vertellen wie u bent en wat uw bezigheden zijn?
R: Mijn functie is dubbel, ik ben Senior Project Manager voor de NFIA en daarin verbonden met het EMA team. Daarnaast ben ik Senior Project Manager maar dan bij ontwikkelingsmaatschappij OostNL. Daarbij ben ik met name verantwoordelijk voor Life Science en health. Internationale projecten, acquisitie maar ook projecten waar we Nederlandse bedrijven meenemen naar het buitenland.
I: Denkt u dat de EMA een positief effect zal hebben op Life Science in Amsterdam.
R: Ja denk ik zeker, dat zien we nu al. Amsterdam is ondanks dat ze een Science campus hebben niet de bekendste LSH regio van Nederland of op de wereld. De twee UMC's beginnen meer samen te werken waarin ze groter worden. Maar feitelijk, het aanzien van Amsterdam ten opzichte van Nederland is het LSH niet heel bijzonder of veel sterker dan de rest van Nederland. De keuze van EMA voor Amsterdam is meer vanuit het feit dat het de enige echte "wereldstad" is in Nederland. Dus bedrijven en werknemers verwachten een bepaalde omgeving voor wonen werken leven, en dan past Amsterdam daar het beste bij. Dus in die zin gaat het een enorm effect hebben want als het er eenmaal staat zullen ze veel gespecialiseerde arbeid aantrekken. Niet iedereen vanuit Londen zal meegaan, dus ook hier nieuwe mensen nodig. Dus het effect is dat er zometeen ook een heleboel hoogopgeleide mensen in Pharma en Biotech uit verschillende landen in Europa naar Amsterdam verhuizen. Alleen daarom al clusterversterking rondom die grote instantie van EMA die al hoogopgeleide mensen aantrekt. Wellicht een direct effect of toch al meer indirect doordat ze niet bij EMA komen te werken. Directe effect is dat er wel een stuk of 600, tot 800, maar ik verwacht 600 gezinnen die deze kant op verhuizen en hier wonen werken met een grote achtergrond in deze sector. Je ziet vaak dat veel mensen in de industrie gewerkt hebben, het is geen eenvormige worst bij de EMA maar een hele brede werknemersgroep. En dat zijn ook weer mensen die heel interessant zijn voor BioTech en Pharma bedrijven als die eenmaal een locatie in Amsterdam hebben waarin ze kunnen poolen. Een soort zelfversterkend effect. Je krijgt steeds meer aandacht voor Nederland en Amsterdam om in de buurt van EMA te gaan zitten. Sommige bedrijven zijn daar heel gevoelig voor en andere weer wat minder. Je ziet wel dat bedrijven die al activiteiten hebben in Nederland, de grotere MNC's, die zijn allemaal aan het voorbereiden sommige functies naar Nederland of Amsterdam te brengen. Veel zoeken wel in de richting Amsterdam, maar wij willen ze niet pertinent naar Amsterdam geleiden maar het zit vaak in de mindset dat ze alleen Amsterdam kennen of Nederland niet zo goed. Het is niet per se nodig om daar te zitten om zaken te doen met EMA want veel zaken lopen digitaal. Je levert je content aan en een keer in de zoveel tijd heb je een call op afstand met wat experts en dan ga je weer een ronde verder tot een registratie of afwijzing. Dus ernaast zitten niet nodig.
I: U zei dat sommige bedrijven wel gevoelig zijn om bij EMA te zitten, welke bedrijven bedoelt u dan?
R: Bedrijven die denken dat het een belangrijk effect heeft op hun uitstraling. Bijvoorbeeld; wij zitten dan om de hoek bij EMA dus wij regelen dat wel even snel. Maar ook serviceproviders kunnen daar gevoelig voor zijn. Bedrijven die bezig zijn met clinical trials of bedrijven die begeleiden in het vastleggen van octrooien of market access. Meer de dienstverlenende partijen rond de bio/pharma sector. Die kunnen zich profileren als ze rond

EMA zitten. Ik ken nu ook partijen zoals bijvoorbeeld grote Legal partij, Burt and Burt, die hadden een groot kantoor in Den Haag waar ze sterk zijn in patentrecht. En die hebben nu heel bewust gekozen voor een kantoor op de Zuid-As. Met een aantal mensen waarin ze bestaande klanten helpen maar ook nieuwe klanten te binden vanuit de EMA data list. Die benaderen ze en zeggen dan; we zitten nu in Amsterdam. Je ziet dat bedrijven daar op inspelen.
I: Dus in dit geval zijn dienstverlenende bedrijven, als gerelateerde industrie. U denkt dat vooral zakelijke dienstverlening gaat profiteren van de EMA komst?
R: Ja kijk in het begin is het alleen een verplaatsing. Dus er zal ook nieuwe zakelijke dienstverlening naar Amsterdam komen. De bestaande of die gaan profiteren is de vraag, waarschijnlijk wel. Ze gaan op de Zuid-As zitten waar veel zakelijke dienstverlening zit. Veel financiële en legal partijen, ook investors voor pharma industrie. Dat zal een effect hebben maar precies kunnen we niet aangeven. Maar dat het effect gaat hebben zeker, en daarnaast een kort aantal punten. 40000 bezoeken elk jaar aan experts, 900 mensen die bij EMA werken, 600 gaan mee. Al die experts hebben slaapplekken nodig, eten, doen vaak ook andere zaken als ze al in Amsterdam zijn. Amsterdam is een ideale hub qua vliegen natuurlijk. Er komt een heel nieuw gebouw, wat voor werkgelegenheid zorgt. Een aantal hotels gebouwd worden. Maar ook nieuwe international schools zullen gebouwd moeten worden. Minimaal 2 nodig. We zien veel gebeuren in Media, advertisement maar ook in de Tech industrie. Veel is brexit gerelateerd, Brexit is breder dan alleen EMA natuurlijk dat is maar een klein deel ervan. Dat heeft allemaal zijn effecten. Amsterdam moet enorm bijschakelen.
I: Met betrekking tot de rest van Nederland, denkt u dat de rest profiteert bijvoorbeeld oost nederland/
R: Ja, we zijn momenteel ook aan het bedenken hoe we de rest van Nederland erbij betrekken. Alles valt en staat op het uitwerken van een goede nationale waardepropositie gekoppeld aan de EMA. Dat speelt nu. Als je groot Londen op Nederland copy pasted heb je heel NL afgedekt. Voor veel van die partijen is Arnhem of Zwolle of Eindhoven nog gewoon Groot-Amsterdam, als je het ruimtelijk bekijkt. Dat is ook hoe wij dit hele verhaal proberen te profileren. Niet dat bedrijven per se met hoge kosten in Amsterdam moeten zitten als ze hun R&D verplaatsen. Hoogopgeleide mensen moeten er natuurlijk ook zijn, wat is de beste locatie in Nederland. Die kunnen ook in Nijmegen zitten bijvoorbeeld, of Groningen. Het exacte effect weten we niet, maar we zien wel bedrijven, gekoppeld aan dat er al veel bedrijven zitten in NL. Dat is wel gekrompen, veel productie is verdwenen in de laatste jaren. Maar op de plekken waar nog activiteiten zijn, we hebben 11-12 vestigingen van abbott bijvoorbeeld, AstraZeneca hebben we. Novartis in Arnhem waar veel clinical trials georganiseerd worden. MSD in oss. Zo heb je al veel pharma bedrijven in Nederland. je ziet dat veel van deze bedrijven al activiteiten in Nederland hebben en faciliteiten, zodra die strategische keuzes moeten maken over clinical trials of productielijnen. Dan zie je ze nu, met de kans op een harde brexit, bepaalde activiteiten niet meer in de UK opzetten maar in Nederland organiseren. Dan hebben ze geen risico. Maar hetzelfde gebeurd om ons heen, ook in Brussel en Duitsland. Daar verhuizen hele afdelingen. Die golden triangle in Engeland is enorm groot, een van de belangrijkste regio's op Life Science in de wereld. Niet alleen door EMA maar door oudsher, door hele oude instituten. Dus daar gaan verplaatsingen plaatsvinden, en dat zien we die bedrijven ook letterlijk doen. Specifiek kan ik niet op ingaan, maar gesprekken met grote partijen merk je gewoon dat er veel verschuivingen plaats vinden. We kunnen daar niet iets over zeggen qua aantallen, maar dat het gebeurd zien we wel. Eigenlijk zou je over 3 of 5 jaar nog eens moeten peilen.
I: Mee eens, dat is ook een groot punt waar ik op uitkom. Losing sites, kijken of bepaalde regio's met een bepaalde plant harder gegroeid zijn of niet. Dit zou ook voor EMA kunnen en Life Science na brexit. Benchmarken met de tegenstanders als Milaan, Kopenhagen en Wenen.

R: En vergis je niet, 5 jaar is nog steeds kort. Het kan ook 20 jaar zijn he. Sinds de EMA in Londen is gaan zitten zijn er heel veel grote Japanse pharmaceuten naar Londen gegaan. Die zagen het als belangrijk en die dachten als we dan toch die kant op komen, dan maar daarbij EMA in de buurt opzetten. Zaken doen in de UK was ook prettig en het was ook in de EU, er zat een Japanse club daar waar ze lid konden worden. Daar zijn 9/10 grootste Japanse bio bedrijven gevestigd. En die zijn elkaar langzaam gevolgd over een proces van lange jaren. Je ziet nu ook juist die Japanse bedrijven die weer zo iets hebben van: "Ja zeg hé Engeland, dit kan zo niet". Die staan als eerste weer aan de poort laat maar zeggen om te vertrekken. En zo wordt er dus ook naar gekeken. Dat is natuurlijk een breuk in vertrouwen en dat is het laatste wat je wilt oplopen in dit soort zaken. Dat heeft gewoon enorme effecten, maar waar het terecht komt is afhankelijk van veel factoren. We kunnen niet zeggen het komt per se in Nederland. Met name te maken met bestaande posities die dit soort partijen hebben.

I: Met betrekking tot het meeste profijt, denkt u dat Amsterdam meer zal profiteren van EMA of andere Life Science regio's in Nederland?

R: Ja sowieso, maar dat is niet anders dan hoe de meeste internationale acquisitie verloopt. We moeten ons in veel regio's niet te veel illusies maken. Meer dan 50% van de projecten loopt in Amsterdam of de Randstad. Dat is al jaren zo, en dat is gewoon een internationale trekker. Het is een heel groot deel wat in Amsterdam komt. Amsterdam heeft zich nu ook als Metropoolregio geprofileerd en georganiseerd. Maar dat is wel waar heel veel terecht komt. Dus het is in die zin niet anders dan normaal. Als een groot bedrijf met een productievestiging in Nijmegen zit bijvoorbeeld, als ze dan een bepaald medicijn hier willen produceren omdat ze dan zekerheid hebben dan zullen ze natuurlijk daar terecht komen en het effect hebben op Nijmegen. Wat je in Amsterdam zelf ziet, zit geen pharma productie. We zien partijen die Europese hoofdkantoren op willen zetten, die zullen eerder Amsterdam kiezen omdat ze dicht bij Schiphol zitten. Dat hou je niet tegen. En voor buitenlandse partijen is de structuur van Nederland niet heel duidelijk. Die snappen niet dat Amsterdam Centraal naar Schiphol bijna even lang is als Utrecht centraal naar Schiphol. Die denken: Utrecht is een andere stad, dus verder weg. Terwijl je een fantastische verbinding hebt.

I: Met betrekking tot city image van Amsterdam en het nederlandse vestigingsklimaat denkt u dat EMA daar een positief effect op heeft?

R: Ja ik denk dat dat het belangrijkste is. Met directe acquisitie, kan je laten zien dat EMA komt en daardoor verleggen sommige partijen hun pijlen. EMA wordt een nieuw onderdeel van ons ecosysteem, en als we met onze vlammende presentaties op een conference staan hebben we onze waardepropositie mee. Daar staat nu Amsterdam Home of EMA in. Alleen dat verhaal presenteren is al enorm. Ze verhuizen niet vaak, dus gaan echt niet over 10 jaar weer weg. Dat versterkt je ecosysteem. Mensen willen in de buurt werken, je krijgt echt een versterkt effect omdat je een grote speler in je ecosysteem hebt. Tegelijkertijd verwacht ik ook dat EMA effect gaat hebben op andere organisaties, EMA zal mensen aantrekken van andere organisaties. Bijvoorbeeld de nationale geneesmiddelen keuring van Nederland maar ook brancheverenigingen. Die zullen bij EMA werken, dus meer druk op die sector qua werkgelegenheid.

I: En de langdurigheid van de effecten, denkt u dat EMA een kort termijn effect heeft of dat het ook een langdurige impact heeft? Ook op de lange termijn invloed?

R: Ja het is net hoe je de effecten omschrijft,

I: kan van alles, economisch effect tot de ontastbare effecten.

R: De mensen die bij EMA gaan werken hebben natuurlijk een continue economisch effect op Nederland, huizen kopen, hun geld hier uitgeven etcetera. De expatregeling natuurlijk, meer geld besparen wat ze weer

kunnen uitgeven. Die hebben al een enorm effect, minimaal 600 mensen die met hun familie zeg gemiddeld 60000 per jaar uitgeven. Dan heb je al een hele mooie berekening van een effect zeg maar. Daarnaast heeft het op de lange termijn voor de LSH effect, en wat advies sectoren. OOk catering en hotels natuurlijk, die zijn verzekerd van een lange termijn flow van mensen en activiteit rondom EMA. De LSH sector zelf is heel onduidelijk wat het precieze effect zal zijn. Wat in Londen is gebeurd is heel mooi, de vraag is of het in Nederland op dezelfde schaal voor zou komen en gebeuren. Dat is niet te voorzien. Wat dan heel belangrijk is dat we het ecosysteem, Nederland als geheel, veel beter aan profileren en wat minder aandacht op de regionale verschillen. Dat gebeurd in het buitenland vaak, dat is onoverzichtelijk voor grote bedrijven. Meestal door zoveel verschillen te benoemen maak je je propositie niet veel sterker. Er moeten dus keuzes gemaakt worden wie waar heel sterk in is. EMA dus ook echt als trekker, dan kan je daarmee profileren.
I: Dat waren al mijn vragen, bedankt voor het interview. Heeft u interesse in een eindvisie?
R: Ja uiteraard. Super bedankt, fijn weekend.

Appendix 18: Interview Richard Post

I = Interviewer
R = Respondent

I = Ik schrijf mijn scriptie over EMA en ik ben geïnteresseerd in de werkgelegenheidseffecten die het gaat veroorzaken in brede zin, niet alleen in Life Science maar ook gerelateerde industrieën. Hierbij ben ik benieuwd wat uw kijk is op deze ontwikkeling en of er voor uw sector kansen liggen. Kunt u wat vertellen over wie u bent en wat uw functie is?
R = Ik ben een van de 3 oprichters van Zentis Medical. Eigenlijk zijn we met 3 eigenaren maar hebben we allemaal combinatie rollen. Van sales tot techniek. We zijn een klein bedrijf met in totaal 5 mensen en af en toe wat mensen die we inhuren. We zijn actief in Medische software en technieken. Ik heb zelf een achtergrond in technische informatiekunde. Wij leveren een kwaliteitsproduct op software gebied voor het medische veld.
I = Hoe is uw sector in Nederland?
R = Ik zie ons werk niet echt als regionaal. Vooral een landelijke sector. We hebben klanten door het hele land om het gebied van techniek in de medische wereld. Waarbij we bijvoorbeeld klanten hebben in Arnhem, ook Utrecht, Eindhoven en Enschede als de tech hubs maar ook in Zevenaar. Locatie in Nederland in mijn ogen niet heel belangrijk, goede bereikbaarheid is vooral belangrijk en betaalbaarheid.
I = Kan uw bedrijf profiteren zodra Life Science in Nederland gaat groeien?
R = Ja en nee, wij zitten nu in een fase waarin we aan het uitbreiden zijn en nieuwe klanten aannemen. Medische sector erg aan het groeien, veel nieuwe startups. Kunnen zelf de vraag niet bijbenen, hun uitdaging is zelf groeien. Veel investeerders vinden de markt wel interessant dus kapitaal is er wel te vinden.
I = Kansen voor nieuwe bedrijven?
R = Ja en nee. Nieuwe bedrijven in zijn ICT service sector hebben wel kansen omdat de vraag groeit, alleen uit eigen ervaring is in die sector ervaring heel belangrijk en zal de beginfase een grote uitdaging zijn om te overleven voor nieuwe bedrijven. Veel ervaring is nodig om te weten hoe de medische sector in elkaar zit. Het is belangrijk dat je aan kan geven dat je erg ervaren bent in die sector dus dat zal je ook moeten opbouwen. Zeker als nieuw bedrijf. Voor een nieuw bedrijf is in de sector geraken het zwaarst, voor ons het groeien.
I = Heeft u ook te maken met pharmaceutische bedrijven in uw bezigheden?
R= Nou wij zitten voornamelijk in medisch, pharmaceutisch komen we niet heel erg veel tegen.
I = Bij BioPharma kleeft er vaak MedTech aan. Profiteert MedTech van Pharma groei?
R = Ik denk wel dat medtech groeit van pharma, maar in mijn eigen ervaring hebben we nog geen doorgang gezien. Ik heb ook gesprekken gehad in die richting en ik weet dat er ook vragen zijn. Nog geen concreetheid. Waar ze gaan zitten weet ik dan niet. Denk dat locatie niet veel uitmaakt; ik denk eindhoven de grootste wel. Uit eigen ervaring nog geen doorgang omdat onder andere pharma voornamelijk diagnostische apparaten willen, en daar was nog dermate veel onderzoek naar nodig dat je als service provider nog geen dienst kan leveren. Denk wel dat het kan en het uiteindelijk meer die kant op gaat, maar meer speculatie.
I = Stel dat Pharma voornamelijk in Amsterdam groeit en MedTech volgt, denkt u dat ze dan eerder naar Amsterdam gaan of dat ze naar de Tech Hubs gaan zoals Eindhoven, Enschede en Delft.

R = Lastig. Ik denk dat dat de locatie letterlijk niet uitmaakt in Nederland. Eindhoven is in mijn ogen de grootste, Philips is voornamelijk de trekker daar. Grote bedrijven zie ik niet snel verplaatsen. Ik denk wel samenwerkingen en dat grote bedrijven andere vestigingen openen in de buurt, maar niet compleet verplaatsen. Wat je misschien wel gaat zien, dat andere regio's zoals wij in Arnhem wel samenwerken met bedrijven in Amsterdam. Voor grotere bedrijven zullen ze waarschijnlijk wel een afdeling in Amsterdam mocht daar dermate grote vraag zijn.
I = U zegt dat locatie niet veel uitmaakt, denkt u dat daarom de EMA op heel nederland effect heeft en niet per se op Amsterdam.
R = Ja kijk om een voorbeeld te noemen. Wij hebben ook klanten in Amsterdam en Utrecht, en wij kunnen gewoon van locatie werken maar ook op bezoek gaan dat is geen probleem. Maar tegelijkertijd hebben we ook klanten in Zeeland en dan werken we gewoon vanaf locatie. We zijn ook bezig met een klant in Amsterdam waar wij cursussen geven bijvoorbeeld, maar we hebben ook klanten in Ierland. In Nederland werk je relatief snel en makkelijk op afstand. Dat is ook wel het voordeel van R&D en ontwikkeling. Productie zal waarschijnlijk anders zijn.
I = En met betrekking tot capaciteiten van regio's, Amsterdam veel druk en prijzig. Vanuit uw perspectief, denkt u dat daarom Arnhem misschien wel heel erg kan profiteren?
R = Ja ik denk dat andere regio's die goed bereikbaar zijn heel veel kunnen profiteren. Of dat Arnhem is dat weet ik niet. Maar Nijmegen bijvoorbeeld kan ook heel goed profiteren en zo zullen er meer regio's zijn. Ik kan me voorstellen, als ik naar mijn bedrijf kijk, zou ik niet mijn hele bedrijf verplaatsen naar Amsterdam omdat daar meer klanten zullen zitten. En er zijn ook genoeg mensen die Amsterdam niet waarderen ook met betrekking tot prijs.
I = En met betrekking tot het vestigingsklimaat van Nederland voor buitenlandse bedrijven, denkt u dat EMA een positieve invloed heeft daarop?
R = Vind ik moeilijk. Wat ik je wel kan vertellen is, ik zie dat er best wel buitenlandse startups naar Nederland komen vanwege een gunstig investeringsklimaat. Mijn vraag is dan; beïnvloedt de EMA het investeringsklimaat? Want als die nog gunstiger wordt zal het positief zijn.
I = En waarom is het investeringsklimaat zo gunstig?
R = Goede vraag, is wel onderzoek naar gedaan maar ik weet zelf de exacte redenen niet. Maar er zitten in Nederland wel grote investeerders die graag investeren, en ook vanuit de Europese Unie zijn nog subsidies. Ook klanten van ons hebben wel investeringen gekregen in Nederland door investeerders met als voorwaarde dat ze in Nederland zouden vestigingen.
I = Bedankt voor de medewerking aan het interview.
R = Graag gedaan en succes.

Appendix 19: Interview relocation team & letters

Beste Tom,
Bedankt voor jouw verzoek voor een interview met Colleen Geske. Het is op dit moment nog niet mogelijk om te zeggen waar de EMA-medewerkers precies zullen gaan wonen in Nederland, omdat we nog middenin het relocatieproces zitten. Daarom denken wij dat een interview hierover niet de inzichten zal bieden die je beschrijft in jouw mail aan Colleen.
Wat we wel kunnen zeggen, is dat we denken dat het mee zal vallen met een eventuele toename van druk op de woningmarkt. De verwachting is namelijk dat sommige medewerkers in Amsterdam zullen komen wonen, maar veel medewerkers ook zullen kiezen voor omliggende gemeenten zoals Amstelveen, Almere en Haarlem, en andere steden zoals Utrecht, Rotterdam, Leiden en Den Haag. Daarnaast is het goed om de aantallen medewerkers die meeverhuizen naar Nederland (huidige verwachting ca. 750) in perspectief te zien: als we dat afzetten tegen de 153.482 'internationals' in Noord-Holland en de 2,8 miljoen inwoners in de metropoolregio Amsterdam, is de omvang van de groep EMA-medewerkers relatief gezien niet zo groot. Wel is het belang van EMA voor Amsterdam groot, en speelt de gemeente Amsterdam daarom een belangrijke rol bij het begeleiden van de relocatie van de medewerkers. Op het EMA-kantoor in Londen is hiervoor een speciale helpdesk ingericht van waaruit de medewerkers informatie en persoonlijke begeleiding krijgen. De informatievoorziening reikt verder dan Amsterdam; medewerkers worden geïnformeerd over het aanbod van huizen en scholen in een straal van ongeveer 1 uur reistijd vanaf het nieuwe EMA-kantoor op de Zuidas. Waar zij zich uiteindelijk zullen vestigen, is in sterke mate afhankelijk van hun persoonlijke situatie en gezinssamenstelling.
Hierbij wat meer achtergrondinformatie:
Q&A over de helpdesk op de website over de relocatie: https://www.relocatema.nl/vragen-en-antwoorden/qa%E2%80%99s-helpdesk-voor-ema-medewerkers
Brieven aan de Amsterdamse gemeenteraad over de voortgang van het project (zie bijlagen)
Kaart van de regio met reistijden vanaf EMA-kantoor op de Zuidas (zie bijlage)
Mocht je nog aanvullende vragen hebben, dan horen we dat graag. Zou je ook kunnen laten weten of en hoe deze informatie verwerkt wordt in je scriptie?
Met vriendelijke groet,

Gemeente Amsterdam

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Gemeenteraad Amsterdam
Amstel 1
1011 PN Amsterdam

Datum	21 november 2017
Ons kenmerk	
Uw kenmerk	
Behandeld door	H. van der Meer, hilde.van.der.meer@amsterdam.nl
Kopie aan	n.v.t.
Bijlage	Geen
Onderwerp	Relocatie European Medicines Agency naar Nederland

Geachte leden van de gemeenteraad,

Na een lang en intensief proces, waarbij Nederland een zeer sterk bid had ingediend, heeft de Europese Raad besloten om het European Medicines Agency (EMA) te hervestigen in Amsterdam. Het college is erg vereerd met de keuze voor Nederland en de vestiging in de Metropoolregio Amsterdam. De regio biedt EMA een uniek totaalpakket met een goede bereikbaarheid en digitale infrastructuur, veel hoogopgeleid talent en een goed zakelijk en medisch-wetenschappelijk klimaat. Amsterdam zal samen met het Rijk zorgen voor een geruisloze overgang, zodat het belangrijke werk geen moment stil ligt: de beoordeling van medicijnen voor vijfhonderd miljoen Europeanen. Door samen te werken met omliggende gemeenten en steden als Leiden en Den Haag zien we de verhuizing van de EMA naar Amsterdam met vertrouwen tegemoet.

Middels deze brief wil ik u informeren over de stappen die de gemeente Amsterdam reeds in gang heeft gezet om te herlocatie van de EMA en haar medewerkers soepel te laten verlopen.

Voorbereiding komst EMA
De gemeente Amsterdam richt per direct een projectteam op om de komst van EMA voor te bereiden en vragen van medewerkers te beantwoorden. Dit projectteam is onderdeel van een landelijk team onder leiding van het ministerie van Volksgezondheid, Wetenschap en Sport (VWS). Verschillende projectleiders gaan aan de slag met onder andere de relocatie en alle praktische zaken die daarbij komen kijken. Daarnaast komt er een European Transition Team, dat de medewerkers gaat voorbereiden op hun komst naar Nederland en helpt bij onder meer het vinden van huisvesting en van (internationale) scholen in de MRA en regio Leiden/ Den Haag.

Het kantoor van de EMA komt op de Zuidas, in het hart van het zakelijk district van Amsterdam en op korte afstand van twee academische ziekenhuizen. Het nieuw te bouwen kantoor is volledig toespitst op de specifieke wensen van EMA. Het gebouw gaat ruimte bieden aan de medewerkers, maar er zijn ook eisen in verband met de vele medische experts, wetenschappers en andere bezoekers die EMA jaarlijks ontvangt. Vanuit Zuidas is reeds gestart met voorbereidende werkzaamheden voor het bouwen op het aangeboden Vivaldi-plot. Met name voorbereidingen als vergunningsaanvragen en voor-aanbestedingen zijn in gang gezet. Het gebouw zal in twee fasen opgeleverd worden. We werken er naar toe het conferentiegedeelte (fase 1) april 2018 gereed te hebben. De tweede fase is het kantoorgedeelte en is naar verwachting januari 2019 gereed.

Stappen op korte termijn
Vrijdag 24 november vertrekt er Nederlandse afvaardiging naar Londen om de EMA te verwelkomen; aanwezig hierbij zijn de heer W. Bos ambassadeur voor het Nederlandse bid , de directeur-generaal van het ministerie van VWS de heer B. van den Dungen en ik zelf.
Op maandag 27 november is er een bijeenkomst in London georganiseerd om de EMA-medewerkers te informeren over de vervolgstappen en informeren over Nederland als vestigingsland. Een deel van het team van Amsterdam zal hierbij aanwezig zijn.

Voor nu ga ik ervanuit dat ik u voldoende heb geïnformeerd.

Met vriendelijke groet,

Kock

U. Kock
Wethouder Financiën en Economie

Recitificatie dagmail 22 november 2017:
In de via de dagmail verzonden brief inzake 'Relocatie van de European Medicines Agency naar Nederland' zijn per abuis verkeerde data opgenomen over de oplevering van het nieuw te bouwen kantoor op de Zuidas. De juiste tekst moet zijn: Het gebouw zal in twee fasen opgeleverd worden. We werken er naar toe het conferentie gedeelte (fase 1) april 2019 gereed te hebben. De tweede fase, het kantoor gedeelte is naar verwachting eind 2019 gereed.

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Gemeenteraad van Amsterdam

Amstel 1
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Datum	10 januari 2018
Ons kenmerk	
Uw kenmerk	
Behandeld door	Marijke Rombouts, Bestuur en Organisatie, m.rombouts@amsterdam.nl
Kopie aan	Raadscommissies Werk en Economie en Jeugd en Cultuur
Bijlage	n.v.t.
Onderwerp	Voortgang relocatie Europees Geneesmiddelenagentschap naar Nederland

Zeer geachte leden van de gemeenteraad,

Op 21 november 2017 bent u door middel van een brief van wethouder Kock geïnformeerd over de komst van het Europees Geneesmiddelenagentschap (EMA) naar Nederland. Uitgangspunt is dat de belangrijke werkzaamheden van EMA zo goed als mogelijk gecontinueerd kunnen worden. Met deze brief wil het college u informeren over de voortgang van de activiteiten die Amsterdam verzorgt en die gericht zijn op het ondersteunen van de relocatie van de EMA-medewerkers en hun huishoudens. De inzet is om zowel bij de relocatie van de EMA-medewerkers als bij het versterken van de economische structuur de Metropoolregio Amsterdam en de regio's Leiden/Den Haag/ Utrecht/ Alkmaar intensief te betrekken.

Medewerkers EMA
Het Europees geneesmiddelenagentschap is een EU-agentschap dat is gericht op het beoordelen van medicijnen voor mens en dier, die gebruikt worden binnen de Europese Unie (EU). EMA bepaalt welke medicijnen toegang krijgen tot de Europese markt van 500 miljoen mensen en van dieren en bewaakt voortdurend de werkzaamheid en veiligheid van deze medicijnen. Het agentschap is sinds 1995 actief vanuit Londen.

De circa 900 medewerkers van EMA vallen onder de regels voor personeel van de EU. Het personeelsbestand is relatief jong; 75% van de medewerkers is onder de 44 jaar. Er werken ongeveer 650 vrouwen. Ook hebben veel medewerkers een gezin, in totaal gaat het om ongeveer 575 schoolgaande kinderen (vanaf 4 jaar). Het precieze totaal aantal kinderen dat mee komt, is nog niet bekend. Volgens een intern onderzoek heeft 81% van de medewerkers aangegeven na de verhuizing naar Amsterdam bij EMA te willen blijven werken.

Regionale woningmarkt
Het college verwacht dat de medewerkers en hun gezinnen in de hele regio (de MRA en regio Leiden/Den Haag/ Utrecht/ Alkmaar) zullen willen vestigen; binnen een straal van ongeveer 1 uur reistijd vanaf de Zuidas. De in dit gebied aanwezige faciliteiten maken dat ook mogelijk. Amsterdam onderhoudt contacten met diverse gemeenten in de regio over (nieuwbouw) woningaanbod en maakt een inventarisatie van het beschikbare aanbod vanuit gemeenten, ontwikkelaars en overige aanbieders. Deze informatie is nu vaak alleen nog in het Nederlands beschikbaar en de bedoeling is om deze ook in het Engels te vertalen. Het toegankelijk maken van de regionale woningmarkt voor de EMA-medewerkers en het actief informeren over mogelijkheden in de regio is dan ook één van de speerpunten

Onderwijs; Europese, internationale of lokale (meertalige) school
Voor medewerkers met schoolgaande kinderen start het relocatieproces veelal bij de schoolkeuze. Vergeleken met Londen kent de Metropoolregio Amsterdam, aangevuld met de gemeenten rondom Den Haag/Leiden, Bergen/Alkmaar en Utrecht, een divers aanbod. De medewerkers worden dan ook breed geïnformeerd over de mogelijkheden. Hiervoor zijn met HR medewerkers van EMA al scholen in Haarlem, Den Haag, Almere, Bergen en Amsterdam bezocht. De Europese scholen in Bergen en Den Haag hebben de taak om onderwijs aan te bieden aan kinderen van medewerkers van Europese organisaties. Deze scholen hebben aangegeven desgewenst de benodigde capaciteit te kunnen aanbieden. Naast algemene informatie krijgen de medewerkers ook individuele begeleiding bij het vinden van en inschrijven bij een passende Europese, internationale of lokale (meertalige) school. Dit geldt ook voor het vinden van en inschrijven bij (voorschoolse of naschoolse) kinderopvang.

Economische en wetenschappelijke impuls voor Nederland
Rondom EMA bestaat een systeem van bedrijven verbonden aan de gezondheidszorg. Samen met de Netherlands Foreign Investment Agency (NFIA), Utrecht Invest en Innovation Quarter (IQ) heeft Amsterdam het initiatief genomen om een project te starten om de acquisitie van de bedrijven, die in navolging van EMA willen gaan verplaatsen, landelijk op te pakken. De verwachting is dat bedrijven die veel met de EMA te maken hebben, ook zullen meeverhuizen met de EMA of een kantoor zullen openen in Nederland.

Net als bij de medewerkers van de EMA zullen ook deze bedrijven zich over een groter gebied dan Amsterdam en de MRA gaan vestigen. Bedrijven zullen de juiste plek zoeken op basis van de randvoorwaarden die zij stellen. Dat kan bijvoorbeeld in Leiden zijn als het gaat om de nabijheid van bio-science bedrijven en wetenschappelijke instituten, om Haarlem als het gaat om lab-ruimte, de Zuidas als het gaat om zakelijke dienstverlening of op het Science Park als het gaat om data technologie. De opdracht in het project zal zijn: de bedrijven zo goed mogelijk helpen om in Nederland de juiste plek te vinden voor hun bedrijfsactiviteiten. Het is belangrijk om dit gezamenlijk te doen zodat we als Nederland één gezicht laten zien en de bedrijven optimaal kunnen helpen.

Begeleiding relocatie
Het bid van Nederland in de competitie om het huisvesten van EMA heeft zich sterk gefocust op het bieden van continuïteit voor de werkzaamheden van EMA. Een belangrijk element hierbij is dat zoveel mogelijk medewerkers besluiten om mee naar Nederland te verhuizen. Amsterdam heeft in overleg met het Rijk de inspanningsverplichting opgenomen om de relocatie voor EMA-medewerkers zo soepel mogelijk te laten verlopen; dit biedt de gelegenheid om hen te informeren over de brede mogelijkheden die de regio biedt.
In het bidbook staat het als volgt: *"an all-encompassing and personalised expatriation programme. Providing support with finding housing, selecting and registering with international schools, choosing health insurance, supporting employment opportunities for partners and assisting with any other administrative procedures associated with relocating to another country".*

De één-op-één begeleiding bij het vinden van passende huisvesting, scholen, oriëntatie op de arbeidsmarkt voor partners, een online Nederlands taalprogramma, informatie over de Nederlandse gezondheidszorg en allerlei overige praktische zaken, wordt in opdracht van Amsterdam verzorgd door een gespecialiseerd verhuisbureau (relocation agency). Hiervoor is een openbare aanbesteding gestart (Europees gepubliceerd). Amsterdam ontvangt hiervoor een bijdrage van het ministerie van Volksgezondheid, Welzijn en Sport (VWS) van maximaal €2.500.000,-. Naar verwachting start medio februari 2018 de persoonlijke begeleiding van EMA medewerkers en hun huishoudens.
De meeste huishoudens worden rondom Kerst 2018 en in de zomer van 2019 verwacht.

(Tijdelijke) Kantoorlocatie
Uiterlijk op 30 maart 2019 moet het EMA-kantoor in Amsterdam zijn gevestigd. Het Rijksvastgoedbedrijf is verantwoordelijk voor de huisvesting van EMA. De bouw van het nieuwe kantoor van EMA op de Zuidas start in juli 2018. In maart zal bekend worden welke partij het kantoor zal gaan bouwen en wordt begonnen met het bouwrijp maken van de locatie. Het eerste deel van het gebouw moet voorjaar 2019 worden opgeleverd, het tweede deel wordt eind 2019 opgeleverd. Er zal ook een tijdelijke kantoorruimte in Amsterdam komen waar het agentschap gehuisvest is tot het nieuwe kantoor in gebruik wordt genomen.

Projectorganisatie en financiële aspecten
Het ministerie van VWS is namens de Nederlandse overheid het coördinerend ministerie voor de gehele transitie van EMA vanuit Londen naar ons land. Hieronder vallen activiteiten om het nieuwe kantoor op de Zuidas te realiseren, het faciliteren van het tijdelijke kantoor, financiële en juridische aspecten en de relocatie van de medewerkers en hun huishoudens. Het Rijk, EMA en Amsterdam hebben hiervoor een gezamenlijke Task Force opgericht.

Het Amsterdamse projectteam is de spil voor de coördinatie en het delen van informatie voor de relocatie van de medewerkers zowel richting EMA als de scholen en de regiogemeenten. Zo is er op 4 december 2017 een NL-desk ingericht in het EMA-kantoor in Londen waar medewerkers terecht kunnen met hun vragen en van waaruit presentaties over wonen en leven in Nederland worden gegeven. Het projectteam is opdrachtgever voor de relocation agency en zorgt ervoor dat deze zo goed mogelijk geïnformeerd van start kan gaan. Amsterdam levert een bijdrage in de

vorm van tijdelijke inzet van personeel voor het project. Aanvullend zijn de benodigde inhuurkosten voor het projectteam voor de periode 2017-2020 begroot op €850.000,-; waarvan € 250.000,- is gereserveerd voor onvoorziene kosten. Deze kosten worden gedekt uit de Middelen Economische Structuurversterking (deel incidentele investeringen). Dekking uit het incidentele deel is passend omdat de relocatie van het EMA de diversiteit aan gevestigde sectoren versterkt en biedt daarmee een duidelijk economisch effect voor de Metropoolregio Amsterdam en met name voor de life science sector in Nederland. Naast het agentschap zelf verhuist naar verwachting ook de bijbehorende bedrijfsinfrastructuur naar de Metropoolregio Amsterdam

Expertsessie
De leden van de raadscommissie Werk en Economie hebben positief gereageerd op het aanbod van de wethouder Economische Zaken voor het organiseren van een expertsessie in het voorjaar van 2018. Zij ontvangen daarvoor een uitnodiging via de dagmail. Ook de leden van de raadscommissie Ruimtelijke Ordening worden hiervoor uitgenodigd.

Wij hopen u hiermee voldoende te hebben geïnformeerd.

Met de meeste hoogachting,

Het college van burgemeester en wethouders van Amsterdam,

J.J. van Aartsen
waarnemend burgemeester

A.H.P. van Gils
gemeentesecretaris

Appendix 20: Interview Stefan Ellenbroek

I = Interviewer
R = Respondent

I = Ik doe dus onderzoek naar EMA die naar Amsterdam komt. Ik ben dus geïnteresseerd in effecten op de werkgelegenheid en dan voornamelijk in brede zin. Dit is dus niet alleen LSH maar ook gerelateerde activiteiten. Kunt u kort vertellen wie u bent en wat uw bezigheden zijn?
R = Ik ben Stefan Ellenbroek, ik ben business developer LSH voor innovationquarter op Leiden Bio park. Ik ben breder dan alleen het Leidse cluster, maar 90% van mijn tijd is gefocussed op Leiden versterken. Business development op clusterniveau is voornamelijk zorgen voor nieuwe samenwerkingen op verschillende niveaus. Nieuwe producten door samenwerkingen met bedrijven. Dat doe ik op veel verschillende manieren. Er zijn bijvoorbeeld startups met nieuwe ideëen en investeerders en die dan bij elkaar brengen zodat nieuwe producten of activiteiten ontstaan.
I = Denkt u dat EMA een positief effect zal hebben op de Life Science in Amsterdam?
R = Vast en zeker
I = En hoe?
R= de belangrijkste manier is dat een aantal bedrijven zich al direct bij EMA in londen gevestigd hebben. Voornamelijk regulator afdelingen van bedrijven en MedTech bedrijven. Effectiever lobbyen is mogelijk door dichtbij EMA te zitten en hoge frequentie van bezoeken maakt het natuurlijk makkelijker.
I = Vanwaar zit MedTech bij EMA in de buurt?
R = Nou met de nieuwe regelgeving heeft ook MedTech te maken met de EMA. De nieuwe regelgeving die rond 2020 ingaat. Dingen als een Pacemaker zijn MedTech en moeten dus ook door EMA gekeurd worden. Het is niet zo dat alleen geneesmiddelen en pharmaceutische bedrijven te maken hebben met de EMA, ook de MedTech moet gewoon bij EMA producten laten keuren en hebben dus veel te maken met EMA.
I = Denkt u dat Leiden kans heeft op MedTech?
R = Nou Leiden heeft bewust ervoor gekozen om niet voor MedTech te gaan maar voornamelijk in te zetten op andere vlakken in LSH voornamelijk met pharmaceutische industrie en klinische bezigheden met patiënten. Ik werk voor de hele provincie Zuid-Holland en ik denk dat voor MedTech bijvoorbeeld meer bedrijven in Delft zullen gaan zitten dan. Leiden heeft bewust ervoor gekozen niet in MedTech te specialiseren.
I = En heeft Delft dan last van de concurrentie van de grotere hub in Eindhoven?
R = Nou dat ligt eraan, welke specifieke bezigheid. MedTech is natuurlijk ook heel breed en specialisatie daarin is afhankelijk waar ze willen zitten. Echt specifiek welke industrie of specialisatie is belangrijk. Zo is Delft beter op bepaalde MedTech vlakken dan Eindhoven. Eindhoven wel een van de grootste wereldleiders op dit gebied. Ik denk wel dat Eindhoven sterker is, maar Delft is op sommige vlakken sterker en kunnen daarop bedrijven aantrekken.
I = U ziet vast wel op het Biopark in Leiden dat er andere activiteiten zijn dan LSH denkt u dat die mee profiteren van groei?
R = Ik denk dat vooral bedrijven uit de LSH sector zullen profiteren en daarbuiten zal het effect wel erg meevallen denk ik. Wat serviceproviders natuurlijk wel maar ik denk dat EMA vooral voor LSH belangrijk zal zijn en zelfs dan vraag ik me af of het uiteindelijk een significant effect zal veroorzaken.

I = En met betrekking tot Nederland, denkt u dat EMA invloed heeft op LSH in heel nederland?
R = Ik denk dat de grote regio Amsterdam, waar ook Leiden en Utrecht in zitten met zijn allen gaan profiteren. Alles heeft zijn sterktepunten. Alleen Amsterdam de stad zelf kan het niet aan denk ik, de grootstedelijke regio wel. Hoe verder je van Amsterdam af komt te zitten hoe kleiner het effect zal zijn. Ik denk ook dat het uitmaakt waar je zit in Nederland, omdat ook in London alle bedrijven of op een Science park zitten die bij de specialisatie aansluiten of op Canary Wharf dichtbij EMA. Amsterdam heeft natuurlijk geen life science park, bedrijven zullen sowieso qua activiteit in de nabije regio gaan kijken. Voor bedrijven is Amsterdam en alle gemeenten eromheen hetzelfde, voor mij eigenlijk ook. Dat betekent dat ook hier bedrijven kunnen gaan zitten. Leiden ligt natuurlijk ook erg dichtbij Amsterdam en net als Utrecht zal het net zoveel gaan profiteren. Echt specifiek welke industrie of specialisatie is belangrijk.
I: Denkt u dat Nederland profiteert van klein zijn en dat bedrijven overal kunnen gaan zitten?
R: Ik denk dat het wel uitmaakt. Hoe verder van Amsterdam hoe minder goed het is. Bedrijven zouden anders net zo goed in Londen kunnen blijven omdat de reistijd dan niet veel langer is bijvoorbeeld.
I: En met betrekking tot ruimtes, in Amsterdam natuurlijk veel druk. Kan Amsterdam het aan?
R: Nou ik denk Amsterdam zelf niet, maar zoals ik al zei de grootstedelijke regio is waar bedrijven naar zullen gaan kijken en dan gaan bedrijven dus ook kijken naar andere gemeenten in de buurt of Leiden of Utrecht. De vraag is ook, is het nodig? Ik verwacht op korte termijn weinig verandering, zelfs in 15-20 jaar nog niet al teveel. Ook qua labs die over zullen komen verwacht ik in de nabije toekomst nog weinig veranderingen. Dus ik denk niet dat het heel relevant is omdat het nog ver in de toekomst ligt. Ik denk dat het vooral regulatory mensen zijn in het begin en weinig R&D of productieactiviteiten.
I: Hoe zit het in Leiden? is daar ook tekort aan labruimtes of kantoorpanden?
R: Leiden tekort aan labruimtes, ligt er ook aan of je grote labruimtes of kleine labruimtes af wilt nemen. Het is nu namelijk makkelijker om grote ruimtes te regelen dan iedereen voor een bepaald aantal ruimte in een klein gebouw te krijgen. Het is erg afhankelijk van hoeveel je zoekt en wat je zoekt. Groot is makkelijker dan klein, maar met betrekking tot kantoorpanden is er geen tekort.
I: Met betrekking tot ontastbare effecten, ik heb een soort term gemaakt rond city image. Hieronder valt internationale bekendheid, living conditions maar ook vestigingsklimaat. Denkt u dat EMA dit verbetert voor Amsterdam of Nederland?
R: Ja, maar of het significant is weet ik niet. Nederland staat al goed bekend als LSH land. Voor de sector wel, voor alle sectoren samen vraag ik mij af of het wel echt extra impact gaat hebben. Ik denk niet dat je over een tijdje kan zeggen dat er bijvoorbeeld 10% extra bedrijven zijn door EMA. Voor LSH is het misschien wel belangrijk, een goede factor zeker. Maar op het gebied voor alle sectoren denk ik van niet en dat het wel mee zal vallen.