Developing digitalized academic-level lifelong learning in the Netherlands

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ABSTRACT
Lifelong learning and digitalization of education have become increasingly common in the Netherlands in recent years. This thesis analyses the economic feasibility of developing academic level digitalized lifelong learning as a university in the Netherlands. A seven-step scenario model is used as a tool to develop strategies for the year 2030. The actors, factors, trends and uncertainties of the Dutch lifelong learning landscape are analyzed in order to develop three scenarios for 2030. This thesis specifically analyses the economic feasibility for the University of Twente. The results of this thesis can however be applied to any academic university in the Netherlands.

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Keywords
Digital education, lifelong learning, e-learning, MOOC's, University of Twente, Higher education.

1. INTRODUCTION

Digitalization has occurred in many industries, and the digitalization of higher education has been the topic of discussion in recent years, though some have claimed that digitalization is more discussed rather than actually implemented (Bulfin, Pangrazio & Selwyn, 2014). In the last two decades, many universities have transitioned in some way from a completely traditional form of education to a more digital form of higher education, or to a mix between traditional education and digital education (Pérez-Sanagustin, Hilligir, Alario-Hoyos, Kloos & Rayyan, 2017, for example by using online learning environments such as Canvas or Blackboard. This partly digitalized education model allows more flexibility for the students and teachers. The digitalization of higher education could potentially create new business opportunities for universities. Some see new business opportunities for universities where the use of digital technologies enhances existing forms of education, or by developing education products for new student groups, such as international students and lifelong learning students.

There are currently few studies that systematically study the economic feasibility of digitalization for existing universities, however as digitalization has most often come with disruptive innovations, there is need to assess whether current universities can enter new markets through the use of digital innovations. In this thesis, the focus will be on one of these new opportunities, developing lifelong learning for a new group of students. More specifically, the economic feasibility of developing digital lifelong learning will be analyzed for a typical European research university in the Netherlands, the University of Twente. Such a university functions in a national resource and governance network which, according to theory, would have difficulty to innovate.

External pressures for higher education to move towards digital education, such as the recent pandemic, could potentially accelerate the digitalization rate of education. Next to that, an increase in demand for lifelong learning can be noticed, as will be discussed chapter four. Digitalization could potentially lead to cost savings and a greater reach. With more and more of the public universities providing some form of digital higher education, along with the emersion of MOOC's and e-learning platforms, the question arises if this digitalization could also be applied to the lifelong learning market and open up new doors. In this paper, the economic feasibility of developing digitalized lifelong learning will be analyzed for the University of Twente by using a seven step scenario planning model to develop scenarios and strategies for 2030.

The next section reviews the existing literature on lifelong learning and digitalized education. The exact method of this model will be explained in the methodology section in chapter three. Subsequently the empirical results will be presented stepwise, resulting in three scenarios. The discussion section following the results will discuss opportunities and obstacles that come with these scenarios and how the university could respond to these. The conclusion answers the main question of the paper and includes a reflection of the methodology.

2. LITERATURE REVIEW

2.1 Digitalization of higher education

This section will look at the different types of higher education that are being used at this moment. There are different degrees of digitalization in these types of education, however, all of the different types of education nowadays involve some element of digitalization. Reasons for digitalization might be lower costs and being able to reach a larger market via the internet.

Digitalization in public education has been a point on the agenda for many years and more and more public higher organizations have become increasingly digitalized in recent years. 'many universities have started to explore and experiment with hybrid initiatives in which locally produced and third-party MOOCs are reused and integrated into traditional courses' (Pérez-Sanagustin, Hilligir, Alario-Hoyos, Kloos & Rayyan, 2017). This is called a hybrid initiative in higher education where there is integration of digital elements in order to supplement the traditional face-to-face classes.

Another example of digitalization in higher education are Massive Open Online Courses (MOOC's) which are offered by many universities around the world. These online education platforms have gained a lot of interest and discussion from the public in recent years (Bulfin, Pangrazio & Selwyn, 2014). These MOOC's allow people to follow programs from all around the world and work on their skills or pursue a degree in the same way that private digital education does, but usually for a lower price. The benefit of these MOOC's is that these online courses are made by universities and the information must meet a certain threshold of quality, which is not necessarily the case for other online courses.

Another development in recent years are the digital online learning platforms that have emerged in recent years. Examples of this are platforms such as Skillshare, Coursera, Udemy and even more established platforms such as Youtube. However this type of learning is not regarded as higher education. The challenge of these platforms is that anyone can upload videos or create a course for the public to see and there is not much regulation and the accuracy of the information is not guaranteed (Burke & Snyder, 2008)

2.2 Benefits of digitalized education compared to traditional education?

2.2.1 For higher education organizations

By producing MOOC's, or any other form of a digital learning product, universities can save costs, especially if a university has multiple locations, and teaching can become less complex. Next to that, by digitalizing education, a university can get access to new revenue, since the people that can attend the university is not anymore limited to their region. Digital higher education is location independent. Another reason why a digital learning might be interesting, is because it provides flexibility for students, since the courses can be followed online and students are therefore not restricted by their personal situation. This could also be positive for lifelong learning since it could lower the barrier for companies to invest in lifelong learning for their employees.

Additionally, the development of digitalized education allows universities to run a more decentralized operation since universities are not bound to one location via the internet.

2.2.2 For students

Lifelong learning has become increasingly popular among highly educated people and companies also need their employees to brush up on their skills in order to stay competitive in fast changing industries. A benefit of digital lifelong learning would be flexibility for the students, especially in demanding jobs, since they are not required to go to a campus at a specific time and can study the material and

develop their skills in their own time. This makes it easier for people to study next to their job.

2.2.3 For companies

The need for employees that are continuing to improve their skills and renew their knowledge has increased in recent years. The digitalization of lifelong learning could potentially decrease the cost of educating employees if the cost savings achieved by universities through digitalization are also continued to companies. The need for lifelong learning has increased in many industries due to the rapid changes in today's world. (Gaymer, 2006)

2.3 What is lifelong learning?

Lifelong learning is the process of continuous acquisition of skills and knowledge throughout an individual's life (Edwards, 2002; Green, *et al.,* 1999; Longworth, 2006). The reasons for this continued learning can be related to the profession that the individual is practicing, since companies increasingly rely on technology which requires employees to keep their skills up in order to remain competitive, technological changes, increased access to information and industry shifts (Gaymer, 2006) but it may also involve a more personal reason such as the ambition of the individual.
Lifelong learning at an academic level is not really offered by universities in the Netherlands. In recent years, the demand for lifelong learning in higher education has increased and this could be an opportunity for universities to create more revenue.

2.4 Types of Lifelong Learning

Lifelong learning can be categorized into three categories. These categories are formal LLL, non-formal LLL, and informal LLL. (Tissot, 2004)
Formal LLL is education that takes place in an organized and structured way. Examples of this are in-company trainings provided by companies, and more formal continued education. Participating in this type of training may often lead to a diploma or a certificate.
Non-formal LLL entails education as a result planned activities. This type of LLL is not explicitly created as a means of education, however it does play a role in an important aspect of learning such as communication skills.
Informal LLL can be seen as the learning which is achieved by doing daily activities related to family, occupation and hobbies/leisure. This type of learning is learning that is gained from experiences and is sometimes accidental.

3. RESEARCH DESIGN

3.1 Research Question

The question this paper will answer is whether it would be interesting for public universities to tailor to the lifelong learning market by digitalization of these programs and why (not) and when would it be interesting.

In this research, scenarios are developed and the sub questions are useful for filling in parts of the scenario model which is used.

Sub Questions

1. Who are the main actors in the educational landscape regarding lifelong learning? (public, private, government students)
2. What are the upcoming trends and expectations for LLL and digital education?
3. What are the LLL plans of public higher education?
4. What is the involvement of the Dutch government in digitalization and lifelong learning?
5. What are the scenario's for the future of higher education?

3.2 Methodology

The research question is going to be answered by making a scenario methodology in seven steps, described by 'Nekkers'. (van der Duin, 2016) This seven step model can be seen in figure 1 below.

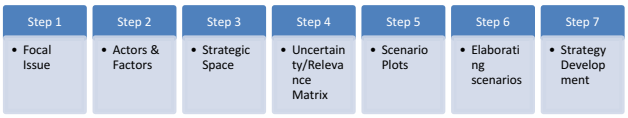

Figure 1: seven-step model

In Step one, 'Focal Issue', a description of the case will be given to determine the focus of the scenarios and strategy. In step two, 'Actors & Factors', a stakeholder analysis is conducted, along with other important influencing factors that have to be taken into account when developing a strategy. Information was gathered by investigating the websites of Dutch universities, and government letters. In step three, 'Strategic Space', the current situation for lifelong learning, the trends and expectations will be discussed. The upcoming trends and expectations of LLL be identified by taking a close look at the existing literature and by looking at statistics from the CBS, which is the Dutch bureau of statistics, and 'Onderwijs in Cijfers' in order to make a trend analysis.
Next to that, an expert interview with a member of the scenario team is conducted to identify trends and expectations from the perspective of the University of Twente. The point of view of this strategic team will be useful in formulating the scenarios because it regards lifelong learning and digitalization of higher education and how they plan to stay relevant in the future.
In step four, 'Uncertainty/Relevance Matrix', the factors and trends will be ranked on their relevance and likelihood that they will happen, after that these factors and trends will be put into a matrix. In step five, 'Scenario Plots', the first scenario's will be formulated and briefly described. In step six, 'Elaborating Scenarios', these scenarios will be further described and analyzed, also the impact of the events happening in the scenarios will be discussed. Step five and six will be combined. In the final step, 'Strategy Development', strategies will be developed to respond to the scenarios in the best way possible, taking into account the relevant factors, trends and stakeholders. Following this method will result in three scenarios for 2030. These scenarios will take into account what the business environment for lifelong learning is currently like, and how it will most likely change in the future. Lifelong learning will likely be subject to changes throughout the years, some of these changes can be foreseen, other changes might not be as predictable, since our knowledge is limited (van der Duin, 2016). All potential changes, foreseen or unforeseen can affect both short-term and long-term futures of lifelong learning in the Netherlands. In this scenario planning, the scenario's will be made for 2030, since lifelong learning and digitalization of higher education are subject to rapid changes and any prediction beyond 2030 might be too far ahead and the scenarios will be equivalent to taking a wild guess. Next to that, the scenario's will be mainly focused towards analyzing the possibilities for the university of Twente in the Netherlands regarding lifelong learning and answering whether or not focusing on lifelong learning might be a fruitful endeavor.

What makes this model a relevant method for developing strategies, is the use of scenarios. In this particular case there is quite a complex business environment with various influencing factors, parties and uncertainties which need to be considered. Scenarios allow us to vary on the most uncertain and relevant factors, parties and uncertainties. These potential futures will be taken into consideration and will therefore be useful when developing a proper strategy. (Postma & Liebl, 2005)

4. RESULTS

In this chapter, the seven step model will be filled in with data that is gathered along the way and at the end of this chapter strategies were developed in order to best respond to the scenarios in a cost effective way

4.1 Focal Issue

The University of Twente has produced an internal strategic report in which they anticipate a reduction in the number of student enrollments from non-European countries, especially from Africa and Asia, in the years following the corona crisis. This reduction of new students might lead to a decreased revenue for the University of Twente. The university would in that case have to find a way to increase student enrollments again, or focus on a different segment of the market in order to gain access to new streams of revenue.
Meanwhile, the demand for lifelong learning has increased, as will be discussed in chapter 4.3, which may be a 'business opportunity' for the University of Twente, which has also recognized this increased demand for lifelong learning.
This means that there is both an internal need for change, the anticipated decreased inflow of 'traditional students', as well as an external motivation for change, the new business opportunities that the increased demand of lifelong learning provides.

The focal issue therefore is whether and how the university can develop a profitable digital lifelong learning model.

4.2 Actors and Factors

In this section, the main stakeholders regarding lifelong learning in the Netherlands will be discussed.

4.2.1 Government

The Dutch government released a letter to parliament in 2018, saying that they wanted to achieve a breakthrough with lifelong learning.[1] One of the reasons they feel that this is important is because they want people to be able to take their careers into their own hands and that people can keep developing themselves.

The Dutch government wants to achieve this breakthrough by teaming up with educational organizations, social partners and other stakeholders. There are 3 main goals formulated by the government:

1. Make it easy for people to know their opportunities and the possibilities regarding lifelong learning so that people can more easily develop their skills and take course of their own career.
2. Stimulate that everybody has an individual budget that they can spend on education and their personal development.
3. Achieve a culture in businesses where lifelong learning is stimulated. Support small businesses to adopt this culture.

In the letter, it is also said that the government will provide subsidies for lifelong learning. However, the letter mainly focuses on MBO and university of applied science level lifelong learning, which is not university level. In the letter it is not specifically mentioned that there is an intention to subsidize and promote lifelong learning on an academic level.

The government organization DUO provides lifelong learning credit loans to people under the age of 56 who want to partake in lifelong learning.[2] This is a loan granted by the government that people can pay of within 15 years and it can be used for programs that have a duration up to 4 years.

Recently, in 2020, the Dutch government released a new letter to parliament in which a roadmap for lifelong learning is presented. In this roadmap, the ambition is to make university level education more flexible through the use of digitalization and micro credentials, which will cause education to be more modular and flexible.[3]

4.2.2 Universities

This part are split into two sections, one on publicly funded universities and one on private universities. For the public universities, the results from an interview with the strategic manager of digitalization from the University of Twente will be used.

4.2.2.1 Public universities

Public universities in the Netherlands mostly tailor towards young students. This can be derived from the fact that nearly every program is full-time which is not the most convenient for older people who are most likely already working. The programs that are offered by the universities are mostly three-year bachelor degrees and one or two year master degrees. However, a handful of universities do offer master classes for executives and sometimes a part time master program. These programs are often mainly focused towards executives.

An example of a public university that primarily tailors to the lifelong learning market is the 'Open Universiteit.' This university offers 735 programs, however only 40 out of these programs are bachelor and (pre)master programs. The other 695 of these programs are courses, short duration programs and 'professional programs'. These professional programs are tailored to further developing the knowledge of working professionals and allow them to obtain additional certification and qualifications. The majority of these professional programs are online, which means that the open university has already digitalized lifelong learning.[4] The bachelor and master programs can be paid for by using the lifelong learning credit. The lifelong learning credit can however not be used to pay for any of the professional programs and are often paid for by the individual or by the company which he or she works for.

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[1] https://www.rijksoverheid.nl/documenten/kamerstukken/2018/09/27/kamerbrief-leven-lang-ontwikkelen

[2] https://duo.nl/particulier/levenlanglerenkrediet/index.jsp

[3] https://www.rijksoverheid.nl/onderwerpen/leven-lang-ontwikkelen/documenten/kamerstukken/2020/11/13/kamerbrief-over-routekaart-leren-en-ontwikkelen

[4] https://www.ou.nl/opleiding-overzicht

However, most public universities tailor mostly towards regular students that follow bachelor and master programs

4.2.2.2 Private universities

Private universities on the other hand do tailor to a broader customer group by providing the possibility to study part-time. This type of education is therefore more suited towards people who are already working and want to expand their knowledge. Examples of privatized schools in the Dutch market that offer lifelong learning are NCOI, LOI, NTI and Scheidegger (which is part of the NCOI group[5]). These universities offer LLL programs primarily at MBO and university of applied science level. There are however also master programs offered by these private universities.[6]

4.2.3 Students

The students in this case can be seen as the customers of the university. This group therefore has a very big influence in the success or failure of LLL.. The LLL programs need to be tailored to the need of the students.

The students in the LLL programs would most likely primarily come from the Netherlands and perhaps from Germany and Belgium. The reason why there are likely less students from the rest of the world is because the LLL programs are digital. A perhaps lesser known university such as the University of Twente would probably have more of a difficult time when trying to compete on a global level against universities that are much more known and have already established their own LLL programs. However, in the Netherlands and nearby countries, the university of Twente is likely better known to the point where people would be interested in following a LLL program.

This can however change if the University of Twente would create a unique program that other universities do not offer.

4.2.4 Costs

In order to determine if developing lifelong learning programs will be sufficiently profitable in order to cover the expenses, an estimation of the costs is highly important.

In a meeting with a member of the strategic team of the University of Twente, the average costs of developing a regular program were said to be around €250.000.

This number may however not be accurate for a lifelong learning program, since the duration of the regular programs at the University of Twente is 3 years. Lifelong learning programs on the other hand are often shorter in duration, often shorter than 3 weeks (CBS) which would likely result in lower development costs compared to traditional programs.

Next to that, digitalization might decrease the average costs of a lifelong learning program even further. However, the upfront costs of developing the infrastructure and systems for digitalized lifelong learning are estimated to be quite large, around €1.5 million according to the member of the strategic team.

This upfront investment could potentially be partially or fully negated if the University of Twente would collaborate with a Dutch university of applied science that already has the infrastructure for lifelong learning. The University of Twente considers this a favorable possibility, according to the conversation with the strategic team.

There are a lot of aspects that influence the potential costs of developing lifelong learning and therefore these costs are not easily determined. Furthermore, these costs could be regarded high if the university only wants to tailor their lifelong learning towards a very regional market, or perhaps low if the university wants to tailor their lifelong learning programs to a worldwide market where the earning potential could be much higher due to the larger market size.

4.2.5 Technological readiness

When developing digital lifelong learning programs, the university will need the digital infrastructure to support these programs. The university of Twente is currently already offering some programs online as MOOC's.[7] A few universities of applied science, such as Saxion, have already developed infrastructures to support digital LLL.[8] Therefore it can be derived that digitalization of LLL is possible in terms of technologies that need to be used.

4.3 Current Situation, Trends & Expectations

Lifelong learning is becoming increasingly common in the Netherlands, this is because the world is becoming more globalized and because new technological developments require employees to keep their skills and knowledge up to date. According to the organization 'Onderwijs in Cijfers' (education in numbers), an organization which conducts researched education in the Netherlands, every year about 1.71 million adults between the age of 25 and 65 are partaking in some form of education in the Netherlands in 2017, while in 2014 this number was 1.63 million. This can be seen in figure 2 below.

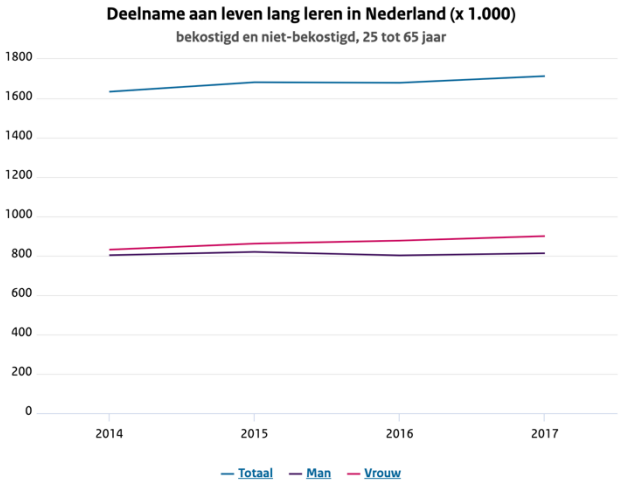

figure 2: participation lifelong learning

This means that about 19 percent of Dutch people between the age of 25 and 65 were partaking in lifelong learning. The majority of these people is highly educated which has to do with the fact that highly educated people tend to do more knowledge based work which requires them to keep up with developments compared to people whose level of education is

[5] https://www.werkenbijncoi.nl/nl/over-ncoi-groep/onze-merken

[6] https://www.ncoi.nl/opleidingen/alle-masters.html

[7] https://www.utwente.nl/onderwijs/cursussen-en-lezingen/moocs-online/

[8] https://www.saxion.nl/bedrijven/parttime-school/flexibel-onderwijs

lower that tend to do more manual based work (Gaymer, 2006). A slightly increased interest and rate of participation can be derived from these numbers and the demand for lifelong learning is increasing, mainly for people who enjoyed higher education.

It can also be seen that the duration the individual lifelong learning programs is most often less than 6 months or more than 1 years. The figure that shows this is figure 3, right below.

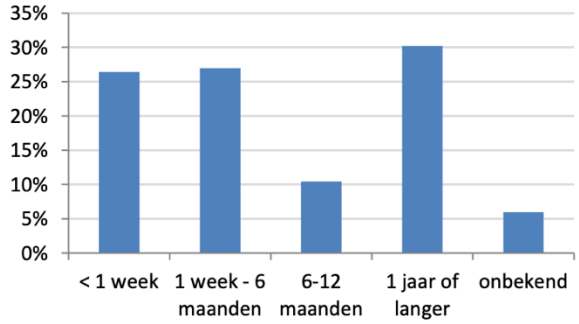

Figure 3: duration of LLL program

Currently, the University of Twente gets most of their revenue from direct government funding. In 2019 the university received 227 million euros in government funding, compared to 29,3 million euros received from tuition fees (University of Twente website facts and figures[9]). The university however developed scenario's where the direct government funding is cut by up to 40% and a decrease in student enrollments from outside of the EU. It is however not clear where these numbers are based on. From the 11.740 enrolled students in 2019, 6601 students were enrolled in a bachelor program and 4377 students were enrolled in a master program. 762 students were enrolled in other types of programs. It is not stated that these other type of programs regard lifelong learning, however it is clear that lifelong learning is currently not the core business of the university.

Another trend which can be seen is a steady increase in the amount of people that enroll in bachelor and master programs, both from inside of the EU as well as from outside the EU within the last 5 years.[10]

4.4 Uncertainty & Relevance Matrix

In steps 1 through 3, the focal issue, actors and factors and the current situation, have been identified. In step 4, the uncertainty & relevance matrix, the issues and trends described in the previous steps will be put into a matrix that considers the impact of these factors and the degree of uncertainty around these factors. Issues that have a very low relevance or impact will not be considered and accounted for in the strategies later on in this thesis, however, trends that have the potential to play a big role and are therefore very relevant will be touched upon in the development of the strategies.

For some of these factors, the uncertainty will depend. This will be further clarified in the scenario's part.

The uncertainty relevance matrix can be seen in figure 4 right below.

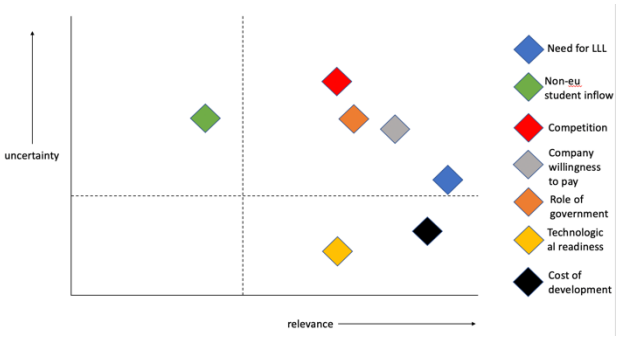

figure 4: uncertainty/relevance matrix

4.4.1 The most relevant and uncertain factors

In this section the most relevant and uncertain factors will be discussed. These will be the factors that the scenarios in the next section will be developed for. In the matrix, there are four factors which have the ability to greatly impact the success of developing lifelong learning. These four factors are: The need for LLL, the competition, the role of the government, and the willingness of companies to pay LLL of their employees.

4.4.1.1 The need for LLL

When developing an education program, LLL or traditional, it is important that there is an actual need for the program so that a university can cover the costs of developing such programs. Therefore the relevance of this factor is very high since it directly influences the success of developing LLL.
From various sources it can be derived that there is a need for LLL and the importance of LLL is recognized. Among these sources are the CBS, Onderwijs in Cijfers, and the government. From trend analyses it can be seen that an increasing amount of people partake in LLL. This is however a small increase (see figure 2: participation lifelong learning). The uncertainty is not that high. However, it is currently unsure what form LLL will take in the future. Whether LLL will be seen as a flexibilization of the regular masters level education, more suitable for retraining or more as new type of program that is aimed towards building upon the existing knowledge and experience of working individuals, defined as 'supplementary training', is still an unsure factor.

4.4.1.2 Competition

When looking at competition, the focus will be on the competition within the Dutch market. The reason for this is because the global market already has very big and well known universities competing in it. A smaller university such as the University of Twente is perhaps lesser known which could make it more difficult to attract students. Next to that, when offering LLL programs, it builds upon the existing knowledge and experience of the individual, in the case of supplementary training. Every country has it's own working culture which perhaps could make a Dutch program less suitable for an individual from e.g. China. Focusing on the home country of the university makes sure that the university does not have to deal with this problem.
The main competitors in the Netherlands are other regular Dutch universities, private Dutch universities such as LOI,

[9] https://www.utwente.nl/en/facts-and-figures/#key-figures

[10] https://www.utwente.nl/en/facts-and-figures/education/#key-figures

NCOI, Open Universiteit and Scheidegger which already offer their own LLL programs, as well as the various universities of applied science within the Netherlands.
From the interview with the strategic team it was derived that the University of Twente could potentially work together with a Dutch university of applied science to develop LLL programs.

4.4.1.3 Company Willingness to Pay

The relevance of this factor depends on a few factors and is therefore not easily defined. In the case that the Dutch government decides to subsidize LLL on an academic level, this factor will become less relevant. However, when the Dutch government does not subsidize LLL on an academic level, the willingness for companies to pay for LLL becomes very relevant.
Furthermore, the company willingness to pay could potentially be higher when focusing on supplementary training instead of retraining, but this could be different depending on the type of company. The reason for this is because 'supplementary training consists of flexible LLL that is most often shorter in duration, and it aims at improving the knowledge of the individual in the field that they are currently working in. A reason why this is good for a company is because it could make the employee more productive or qualified and the company can be more competitive as a consequence. Retraining is also often done by individuals who want to switch careers. This can be a career switch within the company and in that case the likelihood of the company paying for LLL will be a bit higher, however, if the individual decides to switch careers outside of the company, the individual itself would most likely have to pay for the education.

4.4.1.4 Role of the Government

The last factor with the ability to greatly impact the success of LLL is the government.
Firstly, The government has released a letter in which they say that they want to subsidize LLL and that they see the importance of LLL. However, the government only mentioned MBO and university of applied science LLL. Academic level LLL was not mentioned so it is therefore unsure if the government intends to subsidize LLL on an academic level.
Secondly, the government also has the power to motivate people and make it easier for people to know what their options are regarding LLL. In the letter the government stated that they find it very important that individuals keep educating themselves. The government can stimulate individuals to keep educating themselves however it is unsure if they will do this for the academic level LLL.
If the government does subsidize LLL on an academic level, and also motivates and stimulates people, the success of LLL is more than likely positively impacted.

4.5 Scenarios

In this section, three scenarios will be described where there is variation in the four influencing factors. These factors are: The need for LLL, competition, company willingness to pay, and the role of the government. These scenarios are potential future situations of the Dutch LLL landscape in 2030. These scenarios are based upon the trends, expectations, factors and uncertainties that were discussed previously and are to be used as a tool to develop a strategy.

The three different scenarios are visually displayed in figure 5 right below.

	Scenario 1	Scenario 2	Scenario 3
Need for LLL	High	High	moderate
Competition	High	Low-moderate	low
Company willingness to pay	Low	High	Reluctant
Role of the government	Subsidies in place	No subsidies on academic level, no encouragement	No subsidies for academic, encouraging

Figure 5: Scenario Table

4.5.1 Scenario 1: Government subsidies,

In this scenario, the government has decided to subsidize LLL on an academic level, company willingness to pay has become less important since individuals can still partake in LLL through subsidies. Competition increases due to decreased risk and increased profitability through subsidies. The need for lifelong learning keeps steadily increasing throughout the years.

Since the government subsidizes LLL, the demand for retraining would likely increase, therefor it would be interesting for the university to focus on developing LLL focused on retraining. There is however more competition due to the government subsidies so universities really needs to find a way to differentiate themselves from the rest of the Dutch market. Next to that, an opportunity to differentiate might be through collaboration with a university of applied science, since those schools tend to be a bit more practically focused. Next to that, by collaborating with a university of applied science, the cost and the time it takes to develop a digital LLL infrastructure could be decreased since LLL infrastructure of universities of applied science is already more developed.

4.5.2 Scenario 2: No LLL Subsidies for Universities

In this scenario, the government has decided not to subsidize LLL on an academic level, however the government did decide to subsidize LLL on MBO and university of applied science level. Next to that the government does encourage people to engage in LLL through perhaps campaigns. Company willingness to pay becomes more important and companies see the value in LLL.
There are no subsidies on an academic level, this means that there is potentially less competition on the academic level, however there is competition on the MBO and university of applied science level.
There is still opportunity in this scenario. This opportunity is to focus on supplementary training to increase the perceived value of LLL for companies. This type of LLL allows the employees of a company to further develop themselves in their current field of work which will benefit the company as well, which may lead to an increased willingness to pay for companies.

Another opportunity might be to seek collaboration with a university of applied science, since LLL on the MBO and university of applied science level are subsidized in this scenario. If the University of Twente were to collaborate with a university of applied science, the investment in LLL infrastructure will likely be lower. The benefit for the university

of applied science is that the collaboration with a university could increase the perceived value for the LLL students. Furthermore the programs of the university of applied science could be improved due to the research done by the university in order to develop better programs. This could lead the those LLL programs to become more popular than comparable LLL programs of other universities of applied science that do not work together with an academic research university.

4.5.3 Scenario 3: No Subsidies and No Company Willingness to Pay

In this scenario, the government does not subsidize LLL on an academic level and companies are reluctant to make large investments in the aftermath of the Covid-19 crisis. The government does however encourage people to keep developing themselves. There is still a need for LLL from people. Competition is low since the risk of developing LLL will be higher in this scenario

These factors will lead to less incentive for people to engage in supplementary training LLL, since companies do not recognize the value of LLL. Therefore, the focus should be more on trying to tailor to the needs of the employee or the student.
A major factor in the success of LLL will be the cost of LLL, since it is neither subsidized nor paid for by companies. Digitalization of LLL allows for cost savings for universities, and it is therefore important that these cost savings are forwarded to the students and that there is an option to pay for LLL in increments.
Next to that the type of education that will become important is retraining, since the students will probably be less inclined to voluntarily study LLL related to their current profession (supplementary training), given that the company does not stimulate this type of LLL.

4.6 Strategy Formulation

The two main influencing factors in the likelihood of success for LLL are the company willingness to pay and the role of the government. The factor 'competition' is also classified as important, however this factor is dependent on these main two variables. This is because competition from other universities will likely increase as companies are willing to pay for academic level LLL education for their employees or if the government does make LLL more accessible for people by providing incentives for LLL through e.g. subsidies.
If the company willingness to pay is high, or if the university can make companies see value in the LLL that is offered, the focus should be on developing specific supplementary training LLL programs that allow employees to sharpen their skills and become more competent at their jobs. The university would therefore have to provide LLL that is shorter in duration and make this education flexible so that people can follow a program next to their jobs. LLL would not result in a degree but in a certification that state that the employee has acquired new skills regarding to their profession.

If the government decides to provide incentives for engaging in LLL, the focus should be to make the master degrees flexible and more digital. This type of learning allows people that are currently unemployed to acquire new skills that make them better candidates for other jobs. Next to that, this type of LLL allows people that want to make a career switch to get their certifications while also working their current job. This type of education will be longer in duration and will lead to a formal degree. The flexibility of education should be a primary selling point in this scenario.
When it becomes more apparent which role the government and the companies will in stimulating LLL, one of these strategies should be followed.
Next to that, in nearly all the scenarios a collaboration with a university of applied science would be favorable. This is because both the University of Twente and the university of applied science can differentiate themselves from other universities. This way, the university will be better able to compete against other, and the programs will likely be developed quicker since the LLL infrastructure is already in place. Next to that the university of Twente will then have a larger regional network that can attract students from a larger geographical region.

5. CONCLUSION & DISCUSSION

Over the last years a trend can be seen where LLL is becoming increasingly popular and the number of people that partakes in LLL is steadily increasing. There are however still a number of important factors that are still quite uncertain and that have to be taken into account when a university wants to develop LLL, mainly the role that the government and companies will play in stimulating LLL. The outcome of these factors will largely decide which type of lifelong learning to focus on.
The scenarios in this thesis are partly based on actual statistics, trends and information that the government has provided. These statistics indicate a trend. However, this observed trend does not guarantee a continuation of this trend. Parts of these scenarios are based upon speculations and are therefore likely less accurate. The scenarios will become more clear the closer we are to 2030 when more is known about these factors.
Next to that, it is not specified which industries, subjects and niche the university should tailor their LLL to. In scenario two the speculation is made that there will likely be more competition due to government subsidies. Therefore universities will have to differentiate themselves from each other. Each university will likely have its own expertise. For example one university might excel at business programs, whereas the other university might be better at healthcare programs. Universities will have to assess for themselves what they are good at and how they can differentiate themselves from other universities in an area where there is demand. The subject of LLL programs may also be a large influence in the success of LLL since the willingness of companies to pay for LLL is also dependent on the industry that the company is part of. For example, if a company is part of an industry that is subject to constant and rapid changes, the willingness to pay will likely be larger. This is due to the fact that these companies will likely feel a higher pressure to make sure that their employees are qualified and that their skills are up to date in order to compete with other companies. This might be a totally different story for an industry where the developments are more stagnant and the need for LLL is not that high. Consequently the willingness to pay of companies in such an industry will likely be lower.

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