

For the sake of research!

What drives applications to individual and collaborative research grants?

Name: Pippa van den Brand

Student Number: 6195174

Supervisor: Semih Akçomak

Wordcount: 21.514

Program: Public Policy & Human Development

Date: 08-08-2019

Cohort of participant: September 2018



UNITED NATIONS
UNIVERSITY

UNU-MERIT



**Maastricht
University**



Maastricht Graduate School of Governance

Declaration of Academic Integrity

I, Pippa van den Brand (name), hereby declare with relation to my master's thesis

For the sake of research! What drives applications to individual and collaborative research grants? (title)

that:

- I am aware of and have understood the rules and regulations stipulated in the Education and Examination Regulations (EER) regarding fraud and plagiarism;
- I am aware of the possible consequences and disciplinary measures in the case of fraud and plagiarism in my master's thesis;
- I have conducted myself in accordance with the Thesis Guidelines, Education and Examination Regulations and generally established standards of academic integrity in writing my master's thesis;
- I have carefully marked and referenced all direct quotes and references all indirect quotes included in my master's thesis;
- my master's thesis is an original result of my own work and does not include the work of others except in the case of direct and indirect quotes that are recognizable as such (exception: master's theses that have been co-authored as requested from and approved by the examination committee).

08-08-2019

Date, place



Signature

Abstract

Climate change is one of the world's most important grand challenges today. To reduce the effects of climate change, research is necessary to find sustainable solutions. However, high quality research requires neatly designed funding policies, therefore governments need to know what makes certain types of research funding attractive to researchers. The literature describes the selection process for research funding as a two-stage process, where the first step is the self-selection or the motivation to apply; the second stage is the external selection process or the application process (Enger & Castelacci, 2016). This research explores the differences in motivations of the researchers in the field of climate change to apply for the individual and collaborative research grants. NWO grants and EU's collaborative Framework Program (FP) grants are chosen to investigate the motivational differences of researchers. The methodological tool of semi-structured interviews is used to conduct the research. The eventual sample consists of ten researchers who received the Innovational Research Incentive grant and the collaborative FP funding from the EU. For the Innovational Research Incentive grants the overall motivations were funding, career opportunities and the lack of similar opportunities to achieve research goals. For the collaborative FP funding it was found that networking, the opportunity to connect to interdisciplinary research and sharing knowledge are important drivers.

List of Content

Abstract.....	iii
List of Content.....	iv
List of Tables	vii
List of common abbreviations	viii
Introduction	1
1.1 Why do researchers seek funding?.....	1
1.2 What methodology for investigating researcher motivations?.....	4
1.3 Which motivations drive researchers to obtain funding?	5
1.4 Synopsis.....	6
2.0 Literature	7
2.1 Why researchers apply for funding?.....	7
2.1.1 EU research funding.....	7
2.1.2 Dutch research funding.....	8
2.2 Why researchers collaborate?	9
2.2.1 Sharing of costs	10
2.2.2 Division of Labor	10
2.2.3 Complex problem necessities	10
2.2.4 Knowledge sharing.....	11
2.2.5 Research productivity	12
2.2.6 Research field.....	13
2.3 Summary of the literature	13
2.4 Funding research.....	14
2.4.1 EU funding.....	14
2.4.1.1 The beginning of the Framework Programs	14
2.4.1.2 Lisbon Strategy.....	17
2.4.1.3 The Sixth Framework Program.....	17
2.4.1.4 The Seventh Framework Program	18
2.4.1.5 The Eighth Framework Program or the Horizon 2020.....	19
2.4.1.6 Instruments.....	20
2.5 NWO funding	21
2.5.1 General overview	21
2.5.2 Evaluation	23
3.0 Methodology.....	26

3.1 Method.....	26
3.2 Sampling method	29
3.3 Conducting the interviews	31
3.4 Analysis of the Interviews	32
3.5 Limitations of the Method	34
4.0 Results.....	35
4.1 Motivation.....	35
4.1.1 Motivation for both NWO and EU Funding.....	36
4.1.2 Motivation NWO Funding	37
4.1.2.1 Prestige	37
4.1.2.2 Funding for early stage career	39
4.1.2.3 Promotion	40
4.1.2.4 Freedom	41
4.1.3 Motivation for the EU funding.....	43
4.1.3.1 Collaboration.....	43
4.1.3.2 Network	45
4.1.3.3 Cultural exchange is rewarding.....	46
4.2 The Application Process.....	47
4.2 Application Process NWO	47
4.2.1.1 Ease of Application.....	47
4.2.1.2 Mis-match in knowledge between the panel and the grantee	49
4.2.1.3 Assistance in application.....	49
4.2.2 Application process EU FP's.	50
4.2.2.1 Complex application and bureaucracy.....	50
4.2.2.2 Choice dilemma: partner or coordinator?	51
4.2.2.3 Assistance in Application	52
4.3 Discussion.....	53
5.0 Conclusion.....	55
5.1 Limitations.....	57
5.2 Recommendations for future research.....	57
5.3 Policy recommendations.....	58
References	61
Appendix 1: Outreach Email	66
Appendix 2: Explanation folder.....	66
Appendix 3: Consent form	69

Appendix 4: Oral Consent	70
Appendix 5: Interview guide	71

List of Tables

Table 1 Overview of Target groups in Innovational Research Incentive Grant	9
Table 2 Summary Information of FP's, 1984-2016	19
Table 3 Overview of the Sample	30
Table 4 Overview of the Themes	33
Table 5 Motivations behind applying to funding.....	35
Table 6 Themes in the application process.....	47

List of common abbreviations

EU	European Union
EC	European Commission
FP	Framework Program
FP1	Framework Program 1
FP2	Framework Program 2
FP3	Framework Program 3
FP4	Framework Program 4
FP5	Framework Program 5
FP6	Framework Program 6
FP7	Framework Program 7
NOW	Nederlandse Organisatie voor Wetenschappelijk Onderzoek (Dutch Scientific Organization)

Introduction

Climate change has become a grand challenge and will become increasingly important over the next 30 years. Adaptation to climate change including societal transformations has recently announced as one of the five broad missions of the EU in combatting grand challenges by involving in research and innovation activities. Dutch government also has implemented a climate agreement with ambitious objectives for which they admit they are short of all the solutions. Research can provide such solutions or at least enable further advances.

But tackling grand challenges is an expensive business and conducting research in some fields of climate change requires working together as well as funding. The exact amount of research funding currently spent on combatting climate change is not clear. However, the overall expense of the Netherlands on climate related issues in 2019 is 57.991.000 euros (Rijksoverheid, 2018). Another institute, which received money from the Netherlands in 2018, was Wageningen University. They received 11.000.000 Euros subsidy to spend on climate research (Kwant, 2018). These numbers reflect how expensive is involving in climate change research. In order to conduct such research researchers need funding from the government. However, if the Dutch government wants researchers to do ground breaking research they need to implement funding schemes that are attractive for researchers.

This thesis attempts to find what makes research funding attractive to researchers by looking at the motivations to apply for research funding comparing two different funding schemes. The first one is the individual Innovative Research Incentive scheme granted by the Dutch government (i.e, the NWO grants) that provides research money for individual researchers. The second is the collaborative European Union (EU) Framework Program (FP) that funds collaborative research. This has led to the research question: “what are the motivational differences of researchers who apply for individual funding of NWO and collaborative funding of EU’s FPs?”

1.1 Why do researchers seek funding?

In the past year the Dutch Government has been working on a climate agreement meant to be a package of 600 agreements and hundreds of regulations in multiple sectors that all need to be implemented before 2050. One of the sectors included is for example electricity, where

the agreement has been made that by 2050 70% of electricity comes from renewable sources such as wind and sun. Another sector included is the industry, by 2030 the industry should be able to see a significant reduction in CO₂ emissions from the industry. By 2050 the industry should be circular and produce very little CO₂ emission. In a similar manner regarding building and urban planning sector it is planned that by 2050 7 million houses and 1 million buildings need to be climate neutral (Rijksoverheid , 2019).

The costs to implement this agreement will be 1.6 billion to 1.9 billion per year from 2016 to 2030 (NOS, 2019). This climate agreement was in part implemented because the Dutch government and media doubt if the Netherlands is be able to reach the objectives within the Paris agreement or the agreement made within the European Union. The Paris agreement was signed by 186 countries that are responsible for 96% of the carbon emissions in the world. The first goals were set for 2020 (Rijksoverheid , 2015).

However, within the Dutch climate agreement it also becomes clear that not all the solutions necessary to achieve the objectives are available. These solutions will still need to be discovered by involving in research and development activities. Currently, there is no exact budget for the research within the climate agreement, but the parties involved have made it clear that all parties have to contribute to achieve the targets in the climate agreement.

Over the past decades science policy or policies to support research and development activities have been in the forefront of attention of both national and supranational governments. Research creates knowledge, which diffuses and through positive externalities help to generate further knowledge where in most cases the social returns of creating knowledge exceed the private returns (Aguiar & Gagnepain, 2017). Market failure is only one of the explanations why there is less than optimal investment in research. But because of knowledge creation and externalities many countries fund research activities in the universities. Countries sometimes provide funds or subsidies directly to the individual researcher such as the Dutch NWO grants or the European Commissions' European Research Council (ERC) grants. Sometimes to induce diffusion and knowledge sharing countries fund collaborative research. It is assumed that by collaborating they will internalize part of the positive externality.

Over the past decades both national and supranational governments have developed various tools to support science and research activities. The Framework Programs of the European Commission in general and Horizon 2020 specifically is a policy tool in this direction. The first Framework Program was set up in 1984 to streamline the community research policy. Over the years it has changed into a financial and strategic tool to implement EU research and innovation policies. The last Framework Program, named Framework Program 7, ran from 2007 until 2013 and had a total budget of 50 billion euros (European Commission, n.d.). The Framework Program running now, the Horizon 2020 has a budget of 80 billion euros. The next round starting in 2021-27 named as Horizon Europe will have a budget of around 100 billion euros. One of the main characteristics of the Framework Programs is that in order to apply firms and researchers need to build a consortium, thus they need to collaborate making it one of the largest collaborative research funding in the world (European Commission, n.d.).

Nations also have their own funding schemes sometimes complementary to the FP funding. In our particular case of the Netherlands, national scientific organization (NWO) has been founded with the mission of advancing world-class scientific research that has scientific and societal impact. Even though their main task is financing of research NWO focuses on all kinds of research through NWO Institutes (NWO, n.d.). In particular the Innovational Research Incentive Scheme, also known as the Veni Vidi Vici program, provides funding for researchers at different levels in their career. The funding is awarded to individuals or single entities by competition pursuing thorough selection procedures.

The aim of this research is to identify motivational differences of researchers who obtain individual and collaborative research grants in the field of climate change. The literature review in chapter two shows that for the individual funding the primary motivations are career opportunities and increasing productivity. The motivations found for researchers to apply for collaborative research are sharing of costs, division of labor, complex problem necessities, sharing of knowledge, research productivity and specific requirements of research field.

However, the primary motivation for researchers to apply for funding is to receive money to continue their work. In order to conduct high quality research time and resources are needed. In 2015 the Dutch government spent 30 billion euros on tertiary education and 2.1% of GDP

on Research & Development activities (World Bank, 2018). The costs of conducting scientific research are high, however no direct numbers can be found, but the numbers can be derived if we look at the amount of funding that is given in the Innovational Research Incentive grants. The grant with the smallest funding package (Veni) is 250.000 euros for a three-year research project and this number can reach to 1.5 million euros for an advanced grant such as Vici (NWO, 2019). These numbers reflect that conducting research is costly and it is even more costly for some research fields such as climate change.

1.2 What methodology for investigating researcher motivations?

Even though there has been quite some research conducted on research funding policies there is no research to our knowledge on why these funding schemes are attractive and with which motivations researchers apply to such funding. This gap in the literature has led to the following research question: what are the motivational differences of researchers who apply for individual funding of NWO and collaborative funding of EU's FPs? The chosen funding schemes are both running for a long time in their specific categories and include researchers from all career stages which makes the research more inclusive. The only apparent comparison criteria is whether research effort is individual or collaborative.

The method chosen to answer the research question involves a qualitative design based on in depth interviews with nine researchers in the field of climate change who had been granted both types of funding and one who had only one type of funding (one NWO grant and an ERC grant). The fact that there is no comparable data for both funding schemes and because that there is little information on the motivational drivers of researchers a qualitative research methodology is chosen. The setting in the thesis is researchers who work on climate change and manage to obtain NWO and FP funding (Eisenhardt, 1989) Within this setting we look at multiple cases (Yin, 2003).

The reason why the candidates had to have both type of funding is to be able to compare individual motivations per grant for different researchers. The setting could also be the researchers who applied to both funding types however there is no information on the applications (i.e., who applied) thus focusing on the researchers who obtained the funding became the setting of this research. The candidates and prospective candidates were reached via email and the eventual interviews were held via skype. The interviews lasted 20 to 30 minutes. After the interviews were held, they are transcribed and analyzed by determining

common recurring codes, reflections and themes using the Gioia method (Gioia, Corley, & Hamilton, 2012).

1.3 Which motivations drive researchers to obtain funding?

Enger & Castelacci (2016) state that application for funding is a two-stage process. The first stage is based on self-selection or the motivation of the researcher who decides if he or she is willing to apply for the funding. This thesis shows that there are four different motivations why researchers apply for the Innovational Research Incentive Grant. The first one is prestige. This is because the grant is unique in the Netherlands and there are many applications with a relatively low success rate. The second is that apparently there are not many funding options in the Netherlands for researchers in early stages of their career or researchers who have not yet made it to professorship. NWO grants enable them to establish themselves in this early stage of their career. The third is promotion. In the Netherlands a high number of researchers compete to get a tenure track position. In order to progress within this track, researchers need to receive personal funding within the first few years and show a good track of bringing money to the university or the research group. The fourth reason why researchers apply for the Innovational Research Incentive grant is because the grant gives them a lot of freedom in terms of topic and the method, but also freedom in their career.

For the EU FP grants there are three reasons why researchers decided to apply. The first reason is collaboration, because it allows them to involve in interdisciplinary or bigger research projects than that they would be able to do on their own. The second reason is networks, which give them the opportunity to meet other researchers and establish new contacts that could possibly help them in their research. The third reason is that they find the cultural exchange rewarding. The EU FP projects give them the opportunity to meet and connect with researchers from other countries.

The second stage in the selection process for funding described by Enger & Castelacci (2016) is external to the researcher and is where the researcher is selected for the funding. The first comment we found on the application process for the Innovational Research Incentive grant is the ease of application. According to the interviewees the application process for the grant is straight forward, transparent and fair. The second comment on the application process is that there is sometimes a mismatch between the panel and the topic of proposal. This happens because the panel of the Innovational Research Incentive grants is broad and

sometimes there is no one similar to the expertise of the researcher in the panel and thus the proposal may be undervalued. The third comment was that most applicants receive help during the application process from colleagues, training programs or specialized desks within the institute.

For the EU FP grants there were three main findings as well. The first one is the fact that the application process is very complicated. According to the interviewees the application process is opaque and especially the financial forms are hard to fill in. The second comment is the choice of being a partner because of the administrative burden of being a coordinator. Finally, similar to the NWO case applicants received help during the application process but much more extensive in the form of special training.

1.4 Synopsis

This thesis is organized as follows. After the introduction, the second chapter contains literature review, where in the first part the reason why researchers apply for funding and why they want to collaborate is outlined. In the second part of the literature review the funding policies will be explained. In the third chapter methodology, sampling, interviewing and analyzing processes are discussed. The fourth chapter outlines the results in two parts. The first part presents the motivations of the researchers for both funding programs based on the analyses depicted in chapter three. The second part contains further information on the application process. The fourth chapter has a short discussion at the end. The fifth chapter concludes by summarizing the results in the context of the literature. The limitations of the research and advice for further research are also given in this last chapter.

2.0 Literature

2.1 Why researchers apply for funding?

2.1.1 EU research funding

When it comes to the decision of applying for research funding, Engel & Castelacci (2016), using as example European Union research funding, state that it is important to understand that there are two stages in the application for research funding in order to determine who receives research funding. The first stage is the self-selection stage, the second stage is the board of people governing the funding policy deciding whom to give the funding to.

A very important part of the self-selection stage is the motivation researchers have to apply for research funding. It could even be argued that the self-selection stage is the stage in which researchers decide if they are motivated or willing enough to apply for research funding.

The paper continues by stating that there are two possible explanations why researchers apply for a certain type of funding. The first one is whether the researcher has already participated in this type of research funding. If previous participation has been successful this could indeed provide researchers with a good enough reason to apply again for research funding, however it does not explain why the researcher chose to apply the first time for research funding. The second component is the availability of national funding.

If national funding for this type of research is not available, it can be seen as logical that researchers look towards foreign or international funds to supply resources for their intended research. Sometimes national governments even encourage their citizens to apply for international research funding because they want to internationalize their research systems. However, Enger & Castelacci (2016) argue that if governments truly want to internationalize, they should implement policies encouraging collaboration with other countries in research at the national level. It was found that one of the flaws in, for example, the European research funding that the Horizon 2020 is not able to mobilize the highly skilled Norwegian researchers who participated in the study of Enger & Castelacci (2016). Enger (2018) gives a different explanation, for the application for EU funding instead of national funding: the type of research the researcher wants to conduct. In general, there are two different types of research that are managed differently. The first one is exploratory research, defined as the development of new knowledge as a tool for radical innovation. The second one is exploitation, which is defined as the honing or extension of knowledge. Here researchers

build on knowledge already available, seeking greater efficiency and other improvements to innovate incrementally. In other words, because firms, institutions and governments need both, research funding also need to supply for both types of research. However, it might be the case that some research funding might fit exploratory or exploitation research better. This could also be motivation to decide for a certain type of research. The third reason why researchers might want to apply for research funding from the EU is because of the network they can build. The EU requires researchers to cooperate in order to apply. This means that they need to have a network before they apply and can extend it or strengthen during the research process.

2.1.2 Dutch research funding

A possible motivation for scientists to apply for an individual research grant is career opportunity. In a study conducted by the Centraal Plan Bureau, the effect of funding on the career of the researcher was measured. According to the analysis, people who have received a grant are more likely to stay in academia and the probability to become a full professor or to receive a follow-up grant increases. As discussed previously, a disadvantage of receiving external funding is that the bond between university and researcher becomes less strong when researchers receive a grant. Thus, they are also less likely to receive a permanent employment contract.

In the previous paragraph on the evaluation of the funding programs, it was concluded that the funding program indeed increases the productivity of researcher. This could also be a reason: researchers want to apply for research funding to increase their productivity.

An aspect of the funding that might be discouraging or might lead less people to apply is the excellence policy of the Dutch Government. This policy ensures that funding only goes to researchers who have shown outstanding achievements in the past. Because of this criterion only a certain group of people are likely to apply. In order to apply for research funding from Dutch national programs a self-selection process takes place. In Table 1 the target group is specified with the percentage of people that had applied.

Table 1. Overview of Target groups in Innovational Research Incentive Grant

	Target group in years since PHD	Percentage that had applied	Target group working at university + age that had applied	Percentage that had applied
Early career	0-3 years	8.5%	Aged 30-32	34.9%
Mid -career	4-8 years	3.3%	Aged 33-37	10.7%
Later career	9-15 years	1.1%	Aged 38-44	4.4%

From the table we can deduct that people working at a university have a much higher chance to apply for the Innovational Research Incentive grant than people with just a PHD, even though the gap decreases in size through the years (Gerritsen , Plug, & van der Wiel, 2013).

2.2 Why researchers collaborate?

One of the unique selling points of the Framework Programs is the cooperation of researchers in different institutes under the European Research Area (ERA). The main goal of the EU by implementing the Framework Program this way was advancement of knowledge by cooperation between different researchers and to enhance researcher productivity (Luukkonen, 1998).

Even though in the paper above the collaboration among researchers is described as something new or unique, this is not the case. Scientific collaboration has been around for decades if not centuries. Scientists have always shared results and communicated with each other. However, over the past couple of decades governments, in our case the EU, also started to make collaborative research part of their science policy, as a tool to promote internationalization (Melin & Piersson, 1996).

Before a discussion can be held on if the collaboration of researchers works or if it increases productivity, research collaboration should be defined. Marten & Katz (1995) find research collaboration hard to define since it is mostly defined by the social conventions among scientists. There is little knowledge of where the formal links between researchers end and where collaboration begins. What some may see as a formal collaboration might to others be just a loose grouping of informal links (Katz & Marten, 1995).

In this thesis we define research collaboration or collaboration among researchers as: *“a team of researchers working together on a project funded by the European Framework Programs.”* Now, that there is a definition of research collaboration, the question arises why researchers

are interested in collaborating with other researchers. From the literature six well-defined reasons for collaboration emerge. An overview of these will be given in the paragraphs below.

2.2.1 Sharing of costs

An important reason given by literature is the sharing of the cost. The reason for this is that the often-scarce resources necessary in order to conduct the research are costly and such cost are increasing (Lee & Barry, 2005). An example of these costs could be building and maintaining expensive international installations for experimental work. This could largely explain the high rate of international collaboration in physics and in earth and space science as well as the focus of this thesis, climate change. Other factors, why researchers might wish to collaborate could be funding agencies' need to save money and the decrease in the amount of available funding.

2.2.2 Division of Labor

Another basic motivation of researchers to collaborate on research projects is that conducting scientific research has been increasing in scale. Some research projects are of a scale that is impossible for researchers to conduct the project on their own. This motivation is also related with the next two reasons for collaboration during research. However, the possibility of dividing the tasks is also related to the research field. If the research field is restricted it is hard to divide tasks than in a very open research field. For example, if research subject is very narrow and based on the expertise of one specific researcher it will be harder to divide the tasks than on a very broad research topic (Fox & Faver, 1984).

2.2.3 Complex problem necessities

In their paper Katz and Marten (1995) argue that the problems some research fields have been trying to solve become much more complex over the years. To solve these problems high specialization in multiple research areas is necessary. Thus, interdisciplinary research is now referred more frequently. This is hard to achieve for one person, however if the researchers collaborate in a team this would be much simpler to achieve (Katz & Marten, 1995).

Porter & Rafols (2009) agree with Katz and Marten (1995) in their study of interdisciplinarity in six research fields from 1975 to 2005. Within the timeframe of their research they measured an increase in the number of articles that were published focusing on interdisciplinary research. They also state that the number of articles written under

collaboration has seen an increase at the same time. They finally conclude that these two trends are correlated. Another interesting remark is that they noticed that interdisciplinary research is mostly conducted combining neighbouring fields. Some examples of this would be biology, psychology and medicine.

As their research was conducted some years ago it can be assumed that this trend has continued and that we see a continued need for collaborative and/or interdisciplinary research.

2.2.4 Knowledge sharing

Over the past decade's knowledge has been recognized as one of the most important resources for human society to progress. Now, of course research is all about creating new knowledge, and research funding is all about enabling the creation of new knowledge. However, researchers have learned over the years that they can learn a lot from each other.

McFayden & Cannella (2004) find that the number of relationships and the maintenance of these relationships are important although, the number of relationships is subject to diminishing returns. They warn that the amount of time maintaining these relations will eventually start taking up time that was meant to be spent on creating new knowledge (Mcfayeden & Cannella, 2004). Napahiet & Gohosal (1998) state that knowledge sharing is important, however the creation of such a network is costly (Napahiet & Ghosal , 1998).

In another paper they go more into specific detail of what the advantages of knowledge transfer are. They find that researchers are much more willing to share knowledge through non-commercial channels than through commercial channels. They also find that knowledge transfer is more important in some research fields than in others. Similar to what was mentioned in the previous paragraph, they warn that research cannot be reduced to the transfer of knowledge (Landry, Amara , & Ouimet, 2007).

Analysing the results from these three papers, it could be said that the EU collaborative funding mechanism is a good system to transfer knowledge and to build and maintain a network. Researchers can build up and maintain their network by participating in the FP projects. Nonetheless, researchers need to be in a consortium in order to apply for funding. Researchers receive benefits of maintaining the network in the form of research funding and to certain extent research productivity.

2.2.5 Research productivity

The main reason why the EU decided to introduce research funding and an important reason why researchers might want to collaborate is to increase research productivity. From this the question arises if collaboration really increases productivity?

Research suggest that collaboration between universities, industries or institutions, may indeed increase researchers' productivity. However, the paper also suggests that in order to increase productivity certain factors need to be in place. In the paper they state that the geographical closeness of partners is an important factor for research productivity. In fact, it was found that being close to industry significantly affects researcher's productivity, whereas collaborating with peers or institutions has a lesser effect (Landry , Traore , & Godin, 1996). It should be considered as well that since this paper was published, in 1996, the borders in the EU have broken down further and with the advancement of technology it is now much easier to collaborate.

In a study conducted by Defazio, Lockette & Wright (2009) the determinants of research productivity are discussed. One of the hypotheses is called the “sacred spark” hypothesis. This hypothesis suggests that the differences in the productivity of researchers come from the difference in personality of the researchers. This is deducted from the general understanding that every human is different in its behaviour and personality, therefore every human has different motivations. However, there is no clear evidence that these differences are as big as the differences in publication rates between researchers.

They also suggested that the effectiveness of cooperation to increase productivity depends on the effectiveness of the relationship between the researchers. This shapes the motivation to share resources and knowledge. Another argument used is that collaboration among researchers has a positive effect, but the relationship that is established during the project has diminishing marginal returns.

The article concludes that funding has a bigger positive effect on research productivity than collaboration, however, collaboration developing in the post funding stage of the research has a stronger effect on research productivity (Defazio, Lockett, & Wright, 2009).

Defazio, Lockett & Wright (2009) and Landry, Traore & Godin (2007) discuss that there are certain factors that need to be in place before collaboration in research can be successful.

However, Lee & Barry (2005) suggests the contrary. In their paper productivity is measured as the number of articles researchers publish. From the empirical research it is concluded that collaboration affects productivity if the amount of publications per researchers are normally counted, thus even if there are seven other authors contributed to the paper this is still counted as one publication. If it is done via fractional counting, thus the amount that researcher has participated in a research project is considered, collaboration and productivity are not correlated.

One study has looked at the effect of breaking down of borders on the collaboration and the research. They state that the breaking down of the borders by the EU helps with eliminating the difficulties that are posed by the differences in location. Researchers have more freedom to travel back and forth, because physical distant relationships are stable over time (Hoekman, Frenken, & Tijssen, 2010).

2.2.6 Research field

Another factor that may contribute to collaboration is the research field. Scientists in humanities (theology, philosophy, literature) were found to be less productive in collaboration than were others. This is probably due to the fact that their fields of research do not easily lend themselves to collaborative research. Scientists involved in collaboration aimed mostly at producing patented and unpatented products, scientific instruments, software and artistic production also collaborate less. Those last two results however need to be taken with some caution given that there are few researchers in humanities and not a lot of research can lead to the development of the above-mentioned products (Landry , Traore , & Godin, 1996).

2.3 Summary of the literature

The first part of this framework gives an overview of the motivations of researchers to apply for individual and/or collaborative funding. When researchers decide to apply for any type of funding, the self-selection stage is a key step. In this step researchers decide if they have the intrinsic motivation for the application for the EU Framework Programs. Another reason why researchers might want to apply for EU funding is the non-availability of the necessary funding in their country. National governments might even encourage the participation in EU funding programs to internationalize the research executed in the country. Another reason is of course networking and using the network built up in the past.

For the Dutch funding program, the reason is more focused on career opportunities. However, the excellence policy governed by the Dutch government seems to decrease the application rate as it signals funding for only the best proposals and researchers.

The second part of the literature focuses on why researcher might want to collaborate. From the literature six reasons have been deducted. The first one is sharing of cost. The tools and manpower necessary to conduct research has risen sharply over the past decades. Therefore, researchers might find it attractive to collaborate in order to share the financial burden. The second reason is the division of labour. In the last century the number of hours required to conduct research has increased and with that the work load as well which may necessitate collaboration. The third comes forth out of the fact that research problems have become increasingly complex. This has led to the research becoming more interdisciplinary, which means that expertise is required in different fields. In most cases researchers are experts in their own fields but not in others. The fourth reason ties in strongly with the third reason, which is the sharing of knowledge. As stated before research problems have become increasingly complex and interdisciplinary, this means that expertise in multiple fields is required. The fifth reason is to collaborate for better research productivity. This was also the primary motivation of the EU to implement the Framework Programs. The sixth reason is that the research field may require it. In some research fields collaboration is simply necessary.

2.4 Funding research

2.4.1 EU funding

2.4.1.1 The beginning of the Framework Programs

The EU started in 1951 as the European Coal and Steel Community. During these first few years the research and development policies focused on coal and steel. In 1958 the Treaty of Rome established the European Economic Community, within this treaty no research components were specified. As a consequence of this treaty cooperation between European member states in the field of research and development was ruled under intergovernmental initiatives between countries.

The discussion about European cooperation in the fields of research and development was first fuelled in the 1960s when the member states started noticing the increasing gap in technology between Europe and the United States. Therefore, in 1971 the European

Cooperation in Science and Technology (COST) was founded as an intergovernmental framework.

A decade later Etienne Davignon took office as the new commissioner for Industrial Affairs, Energy, Research and Science. Back then the research programs funded were low budget and incoherent. A communication was published in 1981, stating that Europe was falling behind its main competitors, and urgently needs to start making use of its financial resources. The commission proposed a true community framework for research where the strategy would be in the shape of an overall Framework Program. In 1981 and 1982 the commission started adopting the first Framework Program. The first Framework Program was implemented in 1984 (Reillon, 2017).

What distinguishes the research done under the European Framework Programs is the collaborative aspect. If researchers want to apply for the European Framework Program, they first have to form a consortium, which is a group of partner universities, institutions or companies that will cooperate during the research process. Once a consortium is formed, it can start applying to calls of tender from the European Commission. The European Commission puts new calls of tender online every four to six months. These calls of tender are research assignments that the EU wants to outsource. This means that they do not have the facilities to conduct the research in-house, but they would like to benefit from the knowledge gained from the research. These calls of tenders are in the form of open competitions where consortiums can write a proposal to conduct the research for that specific call. The consortium with the best idea receives the assignment and the grant belonging to the assignment.

The first Framework Program (FP1) was implemented in 1984 and ran until 1987. FP1 had 3.75 billion euros as a budget. This budget was divided over three main points of attention.

- Improvement of the management of energy resources;
- Promotion of industrial competitiveness;
- Improvement of living and working conditions.

In 1986 the Single European Act was implemented with the objective of "strengthening the scientific and technological basis of European industry and encouraging it to become more competitive at international level". This objective influenced the targets for the second

Framework Program (FP2). FP2 was implemented in 1987 and ran until 1991. It had 5.4 billion as budget. This budget was spent on the following three targets.

- A larger market and information and communication society;
- Energy;
- Modernization of the industrial sectors.

Following FP2, the third Framework Program (FP3) was implemented in 1991. The FP3 ran from 1994 and had a budget of 6.6 billion euros. FP3 had as primary objective of strengthening the scientific and technological basis of the European industry.

The following Fourth Framework Program, ran from 1994 to 1998 with a budget of 13.1 billion euros. Some major changes were introduced. The first change was adding new fields of research to the already existing research fields such as: Information and Communication technologies, Industrial technologies, Environment, Life Sciences and Technologies, Energy, Transport and Targeted Socio-Economic Research. The second change was the implementation of two new horizontal programs. The first new program consisted of the promotion of RTD cooperation with third countries and international organizations. The second program was named INCO and consisted of the dissemination and optimization of results and training and mobility of researchers. The objective of this new research tool was to give researchers the opportunity to share knowledge and cooperate with other researchers (Jeupiste , 2018).

In this thesis, the author decided to only use researchers who had participated from the sixth Framework Program (FP6) onwards, because the previous framework programs only lasted three years, had smaller budget, and the obtaining FP funding was not vital for conduction research and promotion. The following programs all lasted five years and the Horizon 2020 even seven years, they have much larger budget and universities increasingly push researchers to bring research money. Furthermore, the Lisbon strategy was implemented in 2000. From the implementation of the Lisbon Strategy the focus on research and development in the European Union increased. A brief overview of the Lisbon strategy will be given below.

2.4.1.2 Lisbon Strategy

An important note to consider when investigating the three last FPs is the implementation of the Lisbon strategy. The Lisbon strategy was launched in March 2000 with the main aim of making Europe the most competitive knowledge-based economy in the world. This strategy was based on two pillars: the first one was sustainable economic growth with more and better jobs, and the second pillar was greater social cohesion. One year later at the European Summit in Gothenburg a third pillar was added, namely the environmental pillar. In order to implement these pillars, the Open Method Coordination provides a common framework for actions to be taken at member state level (European Committee of Regions, n.d.).

2.4.1.3 The Sixth Framework Program

The FP6 program was launched in 2002 with a budget of 17 billion Euros. It differed from the previous programs because it had a focus on space research.

The innovation support given in the FP6 is framed under two important objectives. The first objective was to contribute to a common European Research Area, the second objective was to obtain the targets set in the Lisbon strategy.

FP6 consisted of multiple packages. The first package was supporting innovation European Union wide. The main vehicle to achieve the objectives mentioned previously was to encourage an innovation friendly environment to stimulate technological innovation and the setting up of technologically innovative businesses with a budget of 319 million euros.

Within the overarching objective three other objectives were listed:

- The setting up of European Innovation System by networking possible participants and promoting cooperation, breaking down barriers and encouraging transnational learning;
- To investigate and test new approaches and deduct lessons from the experience of Framework Program research projects and promote entrepreneurial innovation;
- To offer services that needs to be provided at European Scale.

The smaller second package, with a budget of 55 million euros, was created to support coherent development of research and innovation policies. The funding mostly went to Global

Monitoring for Environment and Security (GMES) and Satcom (Satellite telecommunication) with a budget of 135 million euros.

The third package focused on research and innovation with the main theme on space innovation. The development of a European Space policy started in 2000 with a jointly written communication from the European Commission and the European Space Agency. The main objective stated in the communication was strengthened relationship between the European Commission and the European Space Agency. In addition to the main objective there were also three other objectives:

- Strengthening the foundation for space activities;
- The improvement of scientific knowledge in order to understand our planet and its atmosphere better;
- Obtaining the benefits from the space activities and technologies in the single market (Rietschel, et al., 2010).

4.2.1.4 The Seventh Framework Program

The seventh Framework Program (FP7) ran from 2007 until 2013 and had a budget of 50 billion euros. The goals and aims were the same as in the previously mentioned sixth Framework Program.

The only real difference between the FP6 and the FP7 was that FP7 also had a theme, namely nuclear energy. The European Commission argues that this was important because it was the only climate friendly energy source available in most member states.

The first and main objective of the Framework Program was to create an International Thermonuclear Experimental Reactor (ITER). This should have been followed by setting up of a demonstration fusion powerplant (DEMOS). The European Commission argued that before an ITER or a DEMOS can be created there should be sufficient R&D conducted. The budget for this operation was 1.947 million euros between 2007 and 2011. For the years 2012 and 2013 the budget was 2.209 million euros (Fresco, et al., 2015).

2.4.1.5 The Eighth Framework Program or the Horizon 2020

In 2011 the governments of the European member states called on the European Commission to implement all the previous research Framework Programs under one big program. This eventually became the Horizon 2020. The Horizon 2020 Framework Program is meant to run from 2014 until 2020 and has a budget of 80 billion euros.

The Horizon 2020 is structured around three pillars: excellent science, industrial leadership and societal challenges. Each of the three pillars has their own set of priorities and challenges. The program has two additional priorities: the first one is spreading excellence and widening participation, the second one is: science with and for society.

The implementation of the Horizon 2020 was expected to integrate research, development, education and innovation in a way that would lead to higher levels of economic competitiveness. It was also expected to have an impact on societal challenges, EU policies and environmental challenges.

Table 2. Summary Information of FP's, 1984-2016

Title	Period coverage	Budget (in billions of Euros)	# of Projects	Average Duration of the Projects (day)	Average Cost of the Projects	Average Funding of the Projects
FP1	1984-1987	3.3	3,282	1,073.74 (3,281)		
FP2	1987-1991	5.4	3,896	1,010.23 (3,452)	1,089,751.97 (187)	536,459.01 (188)
FP3	1990-1994	6.6	5,527	931.28 (5,236)	1,435,484.87 (550)	1,031,637.3 (1,089)
FP4	1994-1998	13.2	14,567	831.29 (13,676)	1,968,140.19 (3,772)	913,115.88 (4,027)
FP5	1998-2002	14.9	17,202	1,358.43 (16,121)	1,381,296.12 (15,441)	816,407.6 (15,439)
FP6	2002-2006	19.3	10,091	991.19 (9,903)	4,135,682.23 (6,363)	1,853,125 (9,578)
FP7	2007-2013	55.9	25,607	1,196.01 (25,472)	2,358,498.29 (25,054)	1,727,511 (25,472)
H2020	2014-2020	80.0	9,055	1,088.14 (9,055)	2,101,884.92 (9,055)	1,712,488 (9,055)

Source: Akcomak, Erdil & Cetinkaya, 2018.

In addition to implementing the funding instruments another important aspect of the Horizon 2020 was the 3% rule. The rule that by the end of the project all member states had to spend 3% of their GDP on R&D. (European Commission, Unit A.1 – Internal & External communication , 2014)

2.4.1.6 Instruments

The European Commission (EC) has organised the funding scheme with various instruments. The EC uses these tools to encourage and support their member states in conducting research.

Most of the applications for these funding programs go via calls for proposals. This means that the EC sets out a general task and companies, research institutes and individual researchers can apply by submitting a proposal that explains how to achieve a given task (i.e., specific research topic in the call).

The first instrument is Networks of Excellence. These are multi partner projects, mainly aimed at universities and research facilities, with the primary objective of gathering all the knowledge and resources available for a specific scientific theme. The gathered resources and expertise should provide the opportunity to become a world power in a specific scientific domain. The primary result should be sustainable restructuring and reshaping of the way research is carried out in Europe in a certain area.

The second instrument is Integrated Projects, which are also multi partner projects. These projects are meant to support objective driven research, where the main result should gather sufficient knowledge to fulfil one of the thematic priorities. They should bring together an amount of knowledge that would be able to fulfil a specific goal either aimed at European competitiveness or addressing major societal needs. These projects must contain a research component however, they may consist of multiple components such as technological, demonstration and when appropriate a training component.

The third instrument is Specific Targeted Research Project or Specific Targeted Innovation Projects. These are multi partner projects with the purpose of supporting research, technological development and demonstration or innovation activities of a more limited scope and ambition than the previously mentioned Integrated Projects.

The fourth instrument is Coordinated Actions, these are multi partner projects intended to encourage the networking and coordination of research and innovation activities. They will cover the definition, organization and management of joint or common initiatives as well as activities such as the organization of conferences, meetings, carrying out studies, exchanges of personnel, the exchange and dissemination of good practice, setting up common information systems and expert groups. EU funding is given for the costs of co-ordination (not for the research) in the form of a grant up to 100% of the total budget.

The fifth instrument is specific support action. These projects aim to actively contribute to the implementation of the work programs, the analysis and dissemination of the results and the planning and enabling of future research activities.

The sixth and seventh instruments are specifically aimed at research projects for Small and Medium sized Enterprises. The sixth instrument is the CRAFT or COST project. Within these projects a number of SME's from different countries work on a specific problem that entails research and development (R&D) activities. The main goal is to solve a given problem and hereby contribute to the objectives of making the EU more competitive or address societal challenges.

The seventh instrument is Collective Research. These are research projects carried out by the R&D experts. These projects are aimed at solving specific problems for groups of industries. The target is to expand the knowledge of the SME's (European Communities , 2007).

This research will focus on researchers that took part on the collaborative research funding instruments offered by the European Union.

2.5 NWO funding

2.5.1 General overview

In the Netherlands the Ministry of Education, Culture and Science is responsible for science policy and the ministry of Economic Affairs is responsible for innovation policy. The fact that these policies are being developed by two ministries means that they have separate policy documents. However, in reality these two policies are connected and also partially overlap.

Since the 1990s the Dutch have specifically sought for excellence in their science policy and scientific research programs. As the word excellence says: these programs are meant for researchers that are especially talented (Rathenau Institute , 2019).

The research financing instrument selected for the writing of this thesis is the *Vernieuwingsimpuls programma* or the Innovational Research Incentive grant. The author has selected this funding program because it targets individual researchers at different stages of their career. Thus, the main difference from the FP funding is that whereas NWO funds individual researchers, FPs fund consortiums where researchers collaborate. This is a competitive program aimed at researchers that are doing high quality innovative research in all stages of their career. An important aspect of Innovational Research Incentive grant is the requirement that universities need to contribute at least 32% and a maximum of 67% to the funding acquired by the Innovational Research Incentive grant.

The program is divided in three parts: Veni, Vidi, Vici.

Veni focuses on researchers who have just received their PHD. It is meant to give them the opportunity to explore their research themes. The maximum grant is 250.000 euros.

Vidi target researchers who have done a postdoctoral research project and thus are a bit further in their career than the researchers applying for the Veni grant. Researchers who have won this type of funding can obtain a maximum grant of 800.000 euros.

The third is the Vici program that is meant for senior researchers who have proven that they are able to develop their own research agenda. Researchers who have won this type of funding are able to obtain a maximum grant of 1.5 million euros (NWO, 2019).

Even though it is logical that governments want their university and research institutes to excel, it is also the topic of debate. It is argued that the excellence policy is becoming one sided and highly selective. Lately, this debate has been complemented whether the distribution of science positions or funding is subject to the Mathew Effect, i.e., the trend that people who have previously received research funding are more likely to receive it again. In a study on the NWO Innovational Research Incentive grant researchers have found that researchers who have won an early career grant, a Veni grant, are 2.5 times more likely to

receive a mid-career grant. The chances of obtaining a mid-career grant do not differ with respect to any other characteristics of the researcher (Bol, de Vaan , & van Rijt , 2018).

In November 2014 the government published a policy document ‘Strategy 2025: Choices for the Future’. Against the background of three societal challenges, namely: growing international competition, the need to connect science more closely with society and industry, and the growing pressure on Dutch scientists, the government set out three goals with actions designed to achieve them.

For the implementation and execution of the Dutch funding policies the government of the Netherlands founded the Dutch Organization for Scientific Research, commonly referred as NWO. This organization focuses on improving the quality and innovation in science and its impact on society. NWO mostly do this through providing funding for researchers in all scientific fields and at all stages of their career. They have about 200 different funding programs available for researchers and companies.

Over the past couple of years NWO has tried to harmonize the admission requirements for all their funding schemes. In the end they came up with these six harmonized requirements.

- Talent program: funding schemes that focus on research talents;
- Open competition: anyone who has curiosity-based research idea can apply;
- Programs for scientific or societal breakthroughs: wide range projects based on the National Science Agenda;
- Public Private Partnerships: projects or programs in collaboration with external public or private partners;
- Specific programs: programs that are meant for a specific target group or research field;
- Infrastructure: research focused on the realization of wide range infrastructure (Ministry of Education, Culture and Science , 2014).

2.5.2 Evaluation

The funding program used in this thesis has been evaluated before for the years 2000 until 2007 by Dialogic and Technopolis. The report gives clue about why researchers apply to Innovative Research Incentive grant.

A possible reason why researchers apply to the funding program is because of possible career opportunities. Researchers who have participated have a higher chance of receiving follow up funding or being appointed permanently. The research consultancies found that funding is good for a researcher's career however is not pivotal. The funding received had the most impact for the Vidi group, because they are at a cross road in their career.

Another impact the Innovational Research Incentive grant has is the trend that universities tend to focus more on research talent than they did previously. Receiving a scholarship is becoming more often an objective of a temporary contract, meaning that when a scholarship from the Innovational Research Incentive is granted to researcher, this researcher has a bigger chance of receiving a long-term contract (Bongers , et al., 2007).

It is not clear what kind of impact the funding has on research. However, research that has been conducted with a grant from the Innovational Research Incentive grant is generally seen as ground breaking. The researchers also tend to be more productive, by producing higher number of articles in research journals. Another paper written by Godin (2003) confirms this result for the effect of research funding on productivity in general. Godin looked at the Canadian equivalent of the Innovational Research Incentive grant, namely the NSERC, they concluded that researchers funded by the NSERC produce 12.000 papers per year. Researchers funded by the NSERC write 36.5% with foreign co-authors and 20% with Canadian co-authors. The papers published by the researchers funded by the NSERC have a higher impact factor than other research papers. (Godin, 2003)

There are both advantages and disadvantages of the funding scheme. The advantages are that the program is more of a bottom up program, because the pre-selection done by universities has decreased. Another advantage is that the mobility of researchers increases.

The primary disadvantage is a less tight relationship between the researcher and the university. The researcher is less embedded in the university and that career perspectives are more insecure. The Innovational Research Incentive grant does not have an impact on the position of women in research (Bongers , et al., 2007).

Another evaluation report written by the Central Bureau for Economic Policy Analysis (CPB) state that even though the program reaches its main goal this cannot be defined as a success. For the study the researchers followed two applicants with the same type of research project

and similar qualifications, however one received a grant and the other did not. The first reason why the program cannot be defined as a success is the fact that there might be a displacement effect among the fixed amount of research positions in Dutch universities.

The second reason why the program cannot be defined as a success is that it is questionable if it is worthwhile for a scientist to spend time writing a research proposal to obtain an individual grant. Depending on whether or not this time would have spent in any other way, it could be considered wasted if a candidate does not come through the selection. This being said, there could be benefits of a granting system in terms of general productivity within the science system. That is, individual grants provide incentives for all researchers to remain productive throughout their academic lifecycle.

The literature summarized in this chapter will be used as guidance throughout the rest of the thesis. In the first part of the chapter the motivations for researchers was summarized. This gave an overview of the motivations already defined in the literature. In the second part of the chapter different funding schemes used in this thesis were explained and reviewed. This was useful to create an understanding of the funding schemes. Here, it also became clear that the motivations of researchers were not used to evaluate the funding schemes.

3.0 Methodology

3.1 Method

The idea for the methodology was outlined after the research question was constructed: what are the motivational differences of researchers who apply for individual funding of NWO and collaborative funding of EU's FPs? The first reason why this research question has been chosen is to understand research funding policies better, because I believe that these are essential for enabling R&D and innovation within a country. The second reason is linked to the motivation aspect. I did not only want to learn about the flaws in the funding policies, but also wanted to know what the positive (and negative) aspects of being funded are. If we know why some research funding policies are successful, it might be possible to transfer this knowledge to other funding policies or it might help with implementation of new funding policies.

It was decided that the best way to answer this research question was by conducting interviews with researchers who had been granted both the individual Innovative Research Incentive Grant and the collaborative EU FP funding in the field of climate change. On the basis of these requirements a sample was selected consisting of 10 researchers. Thus, this thesis employs a qualitative research design. The reason why I wanted to interview researchers who had been granted both individual and collaborative funding was because I wanted to understand the differences in motivations between the two funding types. Though there is data for NWO at the researcher level there is no data available for the FP projects at the researcher level. This is the main reason why the data has to be produced specifically for this thesis to enable comparison between different funding programs. Thus our setting is researchers who work on climate change and have obtained both NWO individual grant and FP collaborative funding. Within this setting we look at multiple cases.

Once the interviews were conducted, I transcribed all the interviews. During the transcription period the data was also anonymized in order to fulfil the confidentiality requirement. After the interviews were transcribed I analysed the data by looking for similarities and differences in codes, statements and personal views in other words, recurring patterns within the different cases. These trends of codes that drive from actual statements were eventually formed into themes. From these themes I derived my results, final conclusion and policy recommendations.

This thesis was conducted using qualitative methodology. The first reason why this method was chosen was because of the research question: what are the motivational differences of researchers who apply for individual funding of NWO and collaborative funding of EU's FPs? The purpose of this research was to find out and compare the motivations of researchers who applied for both individual funding and collaborative funding. The qualitative methodology is based on a cross comparison between the motivations of different researchers who applied for the individual NWO Innovative Research Incentive grants and the collaborative European Framework Programs. By conducting interviews, it was possible to see different trends and differences within the motivations of researchers who apply for two different types of funding.

It was decided that in order to achieve this goal the best methodological tool would be conducting interviews. The reasons for this will be outlined below. The first reason is that the general purpose of interviews fits with the purpose of my research because the general purpose of research interviews has been defined as to explore the views, experiences, beliefs and/or motivations of individuals on specific matters (Gill, Stewart, Chadwick, & Treasure, 2008).

This, in my opinion, could only be achieved by having private conversations with different researchers on their motivations. Asking about motivation is very personal. I thought that I would receive more honest answers by doing individual interviews than doing for example a focus group. The comparison aspect led me to interview people who had received both types of funding, because I assumed that an individual researcher had different motivations to apply for the individual and collaborative grants. By focusing on individual researchers, I was able to see the motivational differences per person per funding.

Furthermore, over the past decade interviews have been increasingly used in applied policy research to understand the complex needs of individuals, cultures and societies. Applied policy research differs from 'theoretical' or 'basic' research by its aims to meet specific information needs and search for actionable outcomes. Interviews have become more popular because qualitative methods are generally seen to give a more in-depth understanding of a social phenomenon than quantitative research and are therefore seen as

most appropriate when little is already known about a phenomenon or where detailed insights are required from individual participants (Spencer & Ritchie, 2002).

The specific funding types within the research were also carefully chosen. For the collaborative grants the EU's FPs were chosen because they are one of the longest running programs that in a way forces collaborative research. Another reason for choosing the FP grants is that the research is conducted not only in collaboration between different researchers but also between different countries, which lifts the collaboration aspect to a bigger scale.

The Innovational Research Incentive grant was chosen because it is one of the oldest grants of its kind, it is for example older than the EU's ERC grants. A further reason why the Innovational Research Incentive grant was chosen was because it included researchers from all different career levels.

The second reason is that, to our knowledge, there is no previous research available on the motivations of researchers who both applied (and obtained) individual and collaborative grants. Therefore, there is no specific data available on this topic. While data could be gathered on the NWO side it is not possible to obtain similar information for the FP's as the FP database only include information on the work package leaders of collaborative research projects who may not even be a researcher. This made it difficult to conduct quantitative research. Collecting such data was not realistic because of the time frame, but also because the type of information I need to answer the research question is very hard to express in numbers.

The third reason why this method was chosen was because of the specific setting: researchers who are involved in climate change research and who applied and obtain both individual and collaborative research grants. Ten cases within this setting were explored in order to find out the differences and similarities within the motivations of researchers. There might be quantitative analyses published on the FP or NWO grants (mostly looking at researcher performance) but they do not have the motivation variable included or researchers in the field of climate change cannot be singled out. Thus, there was no data available that is necessary to conduct a quantitative analysis of sound quality.

Within this research I wanted to explore the individual motivations of researchers applying for research grants. In other words, I wanted to evaluate a policy by studying a specific aspect, and from there be able to make policy recommendations. Therefore, I think that my research falls in the category of applied policy research. To fully understand the motivation of the researchers and thus be able to evaluate the funding policy, I need detailed information on the motivation of these researchers therefore interviews appeared to be the best methodological tool.

3.2 Sampling method

In the context of the study the setting is defined as researchers in the field of climate change who had both received funding from the Dutch NWO, or more specifically the Innovational Research Incentive grants and who had participated in the collaborative European Framework Programs during FP6, FP7 or the Horizon 2020 (Eisenhardt, 1989). Within this setting multiple cases were selected (Yin, 2003).

The term climate research was broadly defined as researchers whose research focuses on different climatic influences. The researchers interviewed were for example specialized in marine biology, plant sciences, but also in social sciences with a focus on climate change.

The eventual sample consisted of ten researchers. My final sample consisted of seven researchers who had received the Veni grant; one researcher who had received the Vidi grant; two researchers who had received more than one NWO grant. Nine out of ten researchers have participated to an FP project and one researcher obtained NWO and ERC grants. The summary information of the sample is presented in Table 3. below.

The researchers were selected from the list publicly published by the NWO of receivers of one of the Innovational Research Incentive grants. The first selection round was made if the topic of their projects focused in some way on environmental sciences or topics related or with an extra focus on climate or climate change. In the second selection round I specifically looked whether they had participated in climate change research. I found this information by looking at the Curriculum Vitae's of the sample or any other public career related profile. If they had also participated to collaborative FP projects, then publicly available phone numbers or email addresses are collected.

This selection procedure was applied four times during the research. The first time eight participants were selected. The second time four participants were selected. The third time five participants were selected. The fourth time three participants were selected.

The eventual sample consisted of ten researchers out of 20 identified. The rest did either not respond or did not have the resources to participate. This sample was found broad enough, as well as that it was not possible to extend the pool any further without going beyond the previously given setting. The detailed information on the sample was compiled in an excel file. Table 3 presents summary information.

Table 3. Overview of the Sample

Researcher	Location	Age	Gender	Area/ Discipline	granted NWO	granted EU FP	Marie Curie Grant	ERC Grant
R1	Wageningen	61	Male	Biology	Yes	Yes	Yes	No
R2	Utrecht	36	Male	Biology/ Geology	Yes	No	No	Yes
R3	Wageningen	39	Female	Physics	Yes	Yes	No	No
R4	Utrecht	39	Male	Environmental science	Yes	Yes	No	No
R5	Wageningen	45	Male	Plant sciences	Yes	Yes	No	Yes
R6	Rennes	48	Male	Earth Sciences	Yes	Yes	Yes	Yes
R7	Wageningen	36	Male	Biology	Yes	Yes	No	No
R8	Wageningen		Male	Public Administration	Yes	Yes	No	No
R9	Amsterdam	44	Male	Political Science	Yes	Yes	Yes	No
R10	Utrecht	51	Female	Marine Biology	Yes	Yes	No	Yes

The stages of the careers of the researchers varied. NWO Innovational Research Incentive grant is divided in three different grants based on the different stages of the researcher's career, and I wanted to research all three grants, not just one.

In the FP side, I decided to include the FP6, FP7 and Horizon 2020 in my research. This is because the Innovational Research Incentive grant has been running since the start of the FP6. In the end my sample consisted of two researchers who had only participated in the FP7

and seven researchers who had participated in more than one of the FPs. Furthermore, in the sample there were eight men and two women.

As can be seen in the Table 3 below the sample used during this research project was sufficiently heterogeneous. However, when it came to age it varied from mid thirty to beginning of sixty. The gender of the researchers was a little less heterogeneous because the sample consisted of eight male researchers and two female researchers. Also, the field of study varied per researcher. Furthermore, all of the researchers except one have been granted both the Innovational Research Incentive grant and the EU FP grant. Some of the researchers have been granted a Marie Curie Grant or a ERC grant.

3.3 Conducting the interviews

The process of conducting interviews started by reaching out to different researchers in the sample. The outreach was done via email (appendix 1) asking for an interview and with an explanation folder (appendix 2) included explaining the purpose of the interview, examples of questions, time etc. This was done with the vision of informed consent. I understand that in order to receive informed consent, participants need to be aware of the purpose and possible risks of the interview, with this information folder I tried to give them all the information necessary, so they could make an informed decision on whether they wanted to participate in the interview.

After a target participant had responded positively to the question regarding the interview, I asked them when they would have time to conduct the interview. I did this because I know and respect that researchers are busy people and thus I wanted to find a time that would suit them best.

Once an appointment for the interview was made I kindly asked them to sign a consent form (appendix 3). In the consent form I assured of their anonymity and the confidentiality of the information. I also made sure that they knew what would happen to the data I received from them. Assuming that they had read the information I send to them previously, this would fulfil the criteria of informed consent.

The signing of the consent form was often a couple of days before the actual interview was conducted, therefore before I started with the interview I asked them again for consent, but this time orally. The oral consent consisted of largely the same information as the consent

form. Again, assuming that they had read and listened the consent, I fulfilled the informed criteria.

In the end I conducted semi-structured interviews with the researchers in the sample. The questions asked during the interviews were first written down in an interview guide checked for appropriateness by my supervisor. The interview consisted of four parts with different questions. All the questions in the interview guide were open ended, making sure to avoid yes and no so I could get as much information as possible out of one interview. The first part was personal questions that mostly had the function to warm up the interviewee and get them used to answering questions. The second part consisted of questions about the motivation for and their experiences with the individual level funding. The third part held similar questions to the second part but on the topic of the collaborative grants from the EU's FPs. In the fourth part I ask the researchers to compare different grants and ask specifically which one they preferred and why.

The eventual interviews were conducted during April and May of 2019 via Skype. In the email in which I sent the consent form I also asked them for their Skype details. I made sure to have searched for them on skype 15 minutes before the interview took place, and I asked if I was correct that we had an appointment for the purpose insuring I had the right person in front of me. The average time of the interviews was 20 to 30 minutes. The interviews were recorded and saved on my computer via a program called MP3 Skype recorder.

3.4 Analysis of the Interviews

It was previously noted that this research project falls under the category of applied policy research or in other words policy evaluation and analysis meaning that the analysis is targeted towards providing answers about the contexts for policies and programs and the effectiveness of their delivery and impact (Spencer & Ritchie, 2002).

As described by Spencer, Ritchie and O'Connor (2003) the primary tool researchers use for analysing qualitative data is themselves, and the available tools and aids are there to support the researcher but cannot take over the work. In this case it was no different. I transcribed all the interviews by hand. I did this by playing back the recording of the interview on my head phones and by slowly typing out the entire interview. For the purpose of differentiating between the interviewer and the interviewee I put the initials of both the interviewer and

interviewee in front of each question and answer. I did not use any transcribing programs in the process (Ritchie, Spencer, & O' Connor , 2003). I decided to do the transcribing of all the interviews after I had finished the last interview and do them all at once within a week. This way, I had most of the interviews fairly well learnt when I started actual analysis of the data.

The analysis was guided by the literature review in Chapter two, where I created base level knowledge of the specific funding programs as well as the different possible motivations of the researchers in obtaining funding hinging on previous research.

Table 4. Overview of the Themes

Themes of motivation	Themes of process
Both NWO and EU funding	
Funding	
NWO funding	NWO funding
Prestige	Ease of application
Funding for early stage career	Mis-match in knowledge between the panel and the grantee
Promotion	Non-constructive feedback
Freedom	Assistance in application
EU funding	EU funding
Collaboration	Complex application and bureaucracy
Network	Choice dilemma: partner or coordinator?
Cultural exchange	Assistance in application

The primary focus here was to interpret common sense and meaning from the data or in other words to interpret the motivations to apply for the funding programs of the researchers and their experiences during the application. Furthermore, the process of analysis was an inductive process, where the results emerged from the data. I used the cross-sectional coding method for deriving themes from the data. In this method the researcher derives a common system of categories, which is applied - manually or with a computer - across the whole data set and used as a means of searching for and retrieving chunks of labelled data. The procedure of analysis started by reading the transcripts of the interviews multiple times and marking possible codes, or in other words marking motivations to apply or experiences with the application, within the transcripts. After I felt that I had enough possible quotes I started to put the codes that had a similar subject into a table. Once all the codes were in the table, I

read the transcripts and the codes in the table again; afterwards I started to name the sub-themes that are presented in Table 4 above. Then I started to group the sub-themes into themes to see what the overall results looked like (Gioia, Corley, & Hamilton, 2012).

Once this procedure was completed, I send it to my supervisor. He conducted the same process I did, and we ended up deriving similar codes and themes from the transcripts. This was done with the purpose of increasing robustness and triangulation. Afterwards we agreed on the themes and sub-themes and I eventually constructed the tables.

3.5 Limitations of the Method

As any method, there are also a number of limitations to the method used in this research project. The first one is that our sample is quite small and there were specific requirements for the sample selection. The first limitation to our sample is the fact that only researchers from one field were selected, this was done to create uniformity among the participants. Another reason was to make the research feasible in the time frame. Another limitation to our sample is that I only interviewed people who had received both the individual Innovational Research Incentive Grants and collaborative EU FP grant. This was again to create uniformity among the participants, but it was also done because I wanted to compare the motivation for the grants with equal experiences. There are cases that researcher applied to such grants but were unsuccessful as well as the cases that researchers successfully obtained such grants. The former group has to be omitted because it would have been difficult to construct the sample, as there is no information source that can be used to determine the researchers who applied to NWO and FP funding.

4.0 Results

In the literature review it was stated that the selection process for funding is a two-stage process. The first stage in the process is the self-selection stage where researchers choose if they want to apply to this funding program. The second stage is the external selection stage or the application process. Section 4 will also be divided into two subtitles referring to these two stages. Section 4.1 will present results regarding the motivation and section 4.2 will present results of the external selection round or the application process.

4.1 Motivation

Table 5. Motivations behind applying to funding

Codes	Themes
	Both NWO and EU funding
Opportunity to get a lot of money for a research (R1); They get a lot of money out of it and also that they get a free researcher (R4); Free to put in any idea, doesn't matter, as long as it is a good idea (R10).	Funding
	NWO funding
It is prestigious (R1); I think because they want sort of prestige (R4); So if you do get one it is considered to be rather prestigious (R8).	Prestige
It actually gives you the opportunity to get money for the first time for an idea that had yourself (R2); It was the best possible opportunity for me at this time (R6).	Funding for early stage career
It is one of the requirements to get Tenure (R3); For promotion you need one of those (R9); It would be good for my career and I generally agree so that is another reason why they pressured me in (R8).	Promotion
It gives you all the freedom you need (R2); You become independent that is as simple as that (R7); You have much more freedom to do whatever you want to do (R8); The money provides you the freedom to pursue new ideas and the means (R10).	Freedom
	EU funding
I have very good experience with these collaborations (R1); Allow for large scale collaboration (R3); You can work together with collaborators from outside of the Netherlands (R7); Each of these collaborations involve people with their own expertise and their own niche (R2).	Collaboration
We were collaborating with 40 research groups in Europe (R1); Most important reason is for to set up and to extent my network (R5).	Network
The cultural exchange is very rewarding (R1); If you have this experience you would never vote for a nexit or a Brexit (R1); It is fun because you meet a lot of different mentalities, different national background, different ethical background and so onso it is very inspiring (R7).	Cultural exchange

4.1.1 Motivation for both NWO and EU Funding

During the analysis recurring patterns in the motivations for the funding programs were determined. The motivations are grouped as common and separate motivations that apply to both individual and collaborative funding. The main pattern here is that for both funding programs the main reasons to apply is that the programs provide money to individual researchers, universities and research institutes.

Within the Innovational Research Incentive three different grants are given for researchers at different stages of their career. The more advanced the researcher is in her/his career, the higher the amount of funding received. For the Innovational Research Incentive grants, the maximum amount of funding covered by a Veni grant is 250.000 and covers the researcher's salary and supplies for three years. For the Vidi grant the amount of funding received is 800.000 and for the Vici grant the amount of funding increases to 1.500 000 (NWO, 2019). This amount of funding covers the salaries of the researcher but also provide funding for PHD students and Post-Docs. This is also advantageous for universities since they are able to decrease their costs, improve their research group and signal that they can obtain external funding.

"In all the groups that I have worked in there is a lot of pressure to apply for these types of personal grants, so they really value this highly... also for the fact that they get a lot of money out of it and also that they get a free researcher out of it." (R4)

For the collaborative FP grants the evidence on whether the money given was sufficient was contradictory. Some interviewees stated that they received enough funding in order to cover the overhead costs as well as the staff and research costs. Overhead costs include for example the renting of workspace, or other costs that are not directly related to personnel and research instruments.

"The financing is quite good it is not only personnel that they pay for but for example also work space the overhead costs are quite good in comparison to other grants." (R5)

*"Well it gives good money there overhead is included which is important."
(R2)*

Other interviewees contradicted the previous statements by stating that at times there were problems covering all of the necessary staff costs during these projects, or that there would be too many partners in a consortium, and it would be hard to pay full staff costs for longer periods. The reason of this problem could come from the differences in call for proposals. The budget of the FP changes per year, call and project. This has implications that some projects have a higher budget than others, causing some calls for proposal cover most expenses. It could also be the case the distribution of the funding among staff costs, travel, overhead etc. differs for each partner in the project.

“It covers most of your salary which is not always the case in FP7 project. The funding goes to others instead of your own time which is not the case for individual grants.” (R8)

“Only that these consortia get so big because if you get everyone in your consortia there is no more competition but that leaves with very little money per PI, and that is sometimes a problem.” (R3)

4.1.2 Motivation NWO Funding

4.1.2.1 Prestige

One of the motivations given by interviewees to apply for NWO funding is the prestige of the program. Since the 1990s the Dutch government has developed an excellence policy within their scientific policies. The Innovational Research Incentive grants are prime example of the excellence policy. For this reason, the program looks for the “best” researchers with excellent talents. The small success rate for applicants contributes to rendering this image. For example, for the Veni grants: 1115 researchers applied but only 154 received the grant, this has led to an award rate of 14% (NWO, 2019). However, the success rate decreases for each career level of the researcher, for instance, for the Vici grant only 32 researchers received the grant. For this grant there were 239 proposals, leading to a success rate of again 13% (NWO, 2019). Thus, if you receive this type of grant as a researcher it is considered an achievement, especially at a higher career level.

“I think it has to do with prestige.” (R9)

“It is prestigious also?” (R1)

Another reason for application related to this motivation is the apparent pressure from departments or research groups, often prestige as the reason behind the encouragement. According to the interviewees it is used in evaluations of research groups or to improve the image of a department as well as evaluation for promotion. On national level, the quality of the research in the universities is measured according to the Standard Evaluation Protocol (SEP) and was introduced in 1992. This protocol describes the ongoing evaluation of the quality of the research. The evaluation is made once every six years on the following three criteria: research quality, relevance to society and viability (van Drooge, de Jong, Faber, & Wetserheijden, 2013). To prepare for this external evaluation the unit writes a self-evaluation report covering the three criteria, but they add the training of the researchers and scientific integrity. Within the description no mention towards the amount of funding received per unit is made (VSNU, 2019). Hence, the national policy does not dictate looking at the Innovational Research Incentive grant as a measure of prestige of the department, which leads to the assumption that this is a university policy and not a national policy. It could well be the case that “prestige” is taken for granted within the academic community regardless of the university policy.

“But I must say that the prestige is also a very significant part because they use it in, I don’t know how frequent these evaluations are, how many grants a group has as a whole is an important factor in our group evaluations.” (R4)

“I think it has to do with prestige, so the social sciences in (university) does not receive that many Veni grants maybe one every year, so if you do get one it is considered to be rather prestigious. It is not only nice for the group but also nice for the department.” (R8)

However, the motivations that are considered below are also reasons for the grant being prestigious. The grant is unique for early career researchers and is a criterion to be promoted to the next stage of their careers. Within the description of the grant the NWO states that the grant is only for the most talented researchers, implying that they want only the most qualified researchers. The two previous factors combined gives the impression that these researchers are the best ones in their field and have the talent to grow into stand-alone researchers within a university. For the university researchers, this type of prestige or talent

is a possible marketing tool both towards the government, when asking for subsidies or other assistance tools, in attracting new students and even in growing their professional network.

4.1.2.2 Funding for early stage career

Another reason why researchers apply for the Innovational Research Incentive grants and especially for the Veni grant is because there is lack of funding for researchers in the early stages of their career. The interviewees express that there is plenty of funding available in the Netherlands, but that this is often only accessible for researchers with a permanent contract or who are already at a later stage in their career. The only other similar grant mentioned was Rubicon, however with this grant candidates need to apply in the last year of their PhDs or in the year after they received their PhDs, while for the Veni researchers have up to 3 years after the PhD to apply. This might not be ideal for a lot of researchers (NWO, 2019). There is also a list published with 244 grant opportunities for early career researchers, the only grants that were published were the Veni and Vidi Grants. The quotes below state different characteristics of the funding which make it unique for early career researcher (Lukas, Khan, & Quintana, 2018).

“At that stage of your career this is the only funding scheme that allows you to bring in money yourself. There is lots of opportunities to acquire funding in the Netherlands. For most of those schemes but for most of those funding schemes you need to be already a professor or assistant professor in order to apply” (R7)

“It is limited, as a non-permanent researcher you cannot apply for too many things. If you apply for a PHD position your contract has to be for four years, and longer rarely exist. I just applied for an ERC starting grant but that is after. So let’s say in this stage of the career the options are very limited.” (R7)

R7 mention that there is no other funding scheme, which allows early career researchers to bring in money themselves. In other words, most of the times the funding for the project has been acquired by a Professor who wants to research a certain topic and has already received the funding for the research on this topic and with that funding he or she hires a post doc. This scheme allows the early career researchers to be independent in their funding and thus not have to look for a professor or a senior researcher who does research in a topic that they

are interested in. Here again the only alternative funding type mentioned was Rubicon, as previously stated this funding program has its disadvantages as well.

“But the Veni grant, next to Rubicon, it actually gives you the opportunity to get money for the first time for an idea that had yourself. And therefore, I really liked that. I had a great idea and eventually I got funding.” (R8)

“Because there are almost no programs where you are free to put in any idea, doesn’t matter, as long as it is a good idea. All other money is usually given to a team that is pre-defined.” (R10)

The two quotations above are related and it again has to do with researchers searching for independence in the beginning of their career. The Innovational Research Incentive grant gives them the opportunity to be independent in topic as well as funding. As a consequence, they can increase their expertise in a topic that they are interested in, and with that create a resume and build expertise on this topic. This will give them an advantage when opportunities in this specific topic come up.

This motivation can be connected to the previous motivation of prestige discussed above. One of the reasons why the grant is more prestigious than other grants is because it is unique, especially for researchers in early stages of their career. The fact that only researchers with the high competences and good proposal are able to receive this type of funding creates prestige.

4.1.2.3 Promotion

Another motivation to apply for the Innovational Research Incentive grants is because of career opportunities, especially if the researcher wants to get a tenure track position. Tenure track was first developed in the USA and was later brought to Europe. This was because universities wanted to improve their research quality and scientific integrity.

In the USA the term tenure means a position that cannot be terminated or be decreased in working hours without a clear explanation. Tenure is offered for a period of 5 to 7 years in which the researcher needs to prove him or herself. During this period the researcher is evaluated yearly (sometimes once after three years and then yearly), based on their performance in three fields: research, education and the providing of service within the

institute such as, being on committees. Afterwards, on the basis of these assessments, the decision is taken if the researcher is offered a position (or the position is prolonged) (VSNU, 2019).

In the Netherlands the duration of the tenure track differentiates between different universities and faculties. For example, the University of Groningen offers a full maximum tenure track of 12 years and it ends when the researcher is a full professor (Rijksuniversiteit Groningen, 2019). At Wageningen University tenure track lasts 7 years and ends when the researcher has become an associate professor (Universiteit Wageningen, 2019).

“Well it is one of the requirements to get Tenure... Yeah to get a permanent position in the end it is required that you get a big grant in 5 years.” (R7)

“I am in a sort of tenure track system, that means that you have to fulfill certain requirements in order to be promoted to the next stage of your academic career and one of them is showcasing that you are able to acquire funding basically to cover your own salaries and your own costs.” (R8)

This is also related to the previous two motivations to apply for the Innovational Research Incentive grant. One of the reasons why the Innovational Research Incentive grants is so prestigious is because it is a unique opportunity for early career researchers and most of the time it is a necessary requirement in order to get promotion. In other words, young researchers that have been promoted to a next stage will often have received an Innovational Research Incentive grant. This also adds to the prestige of the grant.

4.1.2.4 Freedom

One of the motivations that researchers have to apply for this program is that it gives researchers a lot of freedom. This freedom can be interpreted in multiple ways. The first one is freedom of research topic. The Dutch policy has unwritten rules that the topic on which the research is conducted needs to be relevant for society. This can obstruct scientific freedom. However, the type of freedom mentioned by the interviewees was a lot more specific. In the first quotation below it is stated that mostly, researchers do post-docs on topic that a professor or supervisor has laid out for them. With the funding from the Innovational Research Incentive grant researchers can do researchers on topic that they chose.

"In a way a Veni is a post doc. If you apply for a post doc with someone there is already a professor or a supervisor who has laid out a plan for your research and what you can do. It depends on how strict the professor or supervisor is how much freedom you get in this idea." (R2)

"And then why I personally applied to them is because I wanted to have some freedom. It basically gives me a lot of freedom to do whatever I want in terms or research direction." (R4)

"The second thing is the degrees of freedom you have much more freedom to do whatever you want to do, if you think you have a good idea you can submit it to the Veni Vidi Vici which allows you to build a profile and research the things that you are mostly interested in." (R8)

The second way to interpret the motivation of freedom is the fact that researchers can spend the money and change aspects of their research as they want. In other funding schemes this is apparently not the case. The growing dependence on project financiers was also mentioned by the KNAW as a possible obstacle for freedom in research. If a researcher is dependent on financial resources from a third party, this third party might influence the research direction and even research may go in to a direction not necessarily what the researcher wants to investigate (KNAW, 2018). This type of freedom also comes in different forms. The first quote below is from a researcher who had spent a year writing the proposal, and after the participant received the grant, he discovered that his plan did not work. The Innovational Research Incentive grant allowed for him to make the changes necessary to continue to do the research he wanted to do. The second quote below is from a researcher who needs very specific tools in order to perform research in their specialization. The Innovational Research Incentive grant allows the participant to budget in the way that is necessary to perform research.

"It gives you all the freedom you need. However, detailed your plan is it gives you all the freedom to change things So if something does not work out you have all the freedom to adjust course and do something you really want." (R2)

“The money provides you the freedom to pursue new ideas and the means. It is not only the freedom but also the means to do it.” (R10)

The third way to interpret the freedom motivation is professional freedom, the freedom to choose whether or not they want to do certain tasks, as a consequence of providing their own salary and not being dependent on the university. The quotation below is from a participant who had quite a few tasks in the university. The participant was in multiple committees, taught courses, supervised PhDs and Post-docs etc. The grant allowed him to say “I am going to focus on my research for the coming years” which is a luxury even for successful researchers for proven publishing record.

“And the Veni allowed me to say I am not going to do that much teaching I am going to focus on research for the next three years.” (R8)

The freedom is also what makes it a good career opportunity. As has been stated previously, because the researchers are free to choose their own topic, they can build expertise in a topic that they are interested in. This can be an advantage when applying for career opportunities in this line of research in the future.

In addition, the ability to choose their tasks is also a freedom. If researchers do not need to teach and can focus on their research, this will enhance their productivity and quality. This will also create prestige for the researcher, which will make them a more valuable asset for the university and increase their chance of receiving tenure.

4.1.3 Motivation for the EU funding

4.1.3.1 Collaboration

As has been stated in the literature review one of the requirements to apply for funding from the Framework Programs is a self-build collaborative network that is committed to fulfilling the objective of the proposal together. In the literature these networks are named as consortiums or joint research networks. They have been defined as formal agreements to cover non-equity agreements and organized in a way that public or private partners can pool resources in order to conduct joint research activities (Barajas, Huergo, & Moreno, 2011).

The opportunity to collaborate is also a motivation for researchers to apply. The collaboration aspect allows them to do interdisciplinary research, which is important and sometimes necessary to solve societal problems depicted by the EU. As was mentioned in the literature

review: the problems of today have become much more complex and thus necessitates collaboration outside the borders of disciplines. Additionally, participating in the collaborative EU FP grants is a good opportunity for researchers to involve in areas that is not possible to do on their own individually either because of interdisciplinary aspect or scale and complexity of the problem.

The FP gives a lot more time for research than the individual grants, sometimes up to five years. This longer timeframe may be useful to set up a research team and follow a research agenda. It may be also the case that the research and innovation action after its completion supported by a coordination action of FP, which even extends the timeframe.

Another reason why researchers are motivated to collaborate as already mentioned in the literature review is division of labour. The quote below is from a participant who took part in an ambitious study that could help multiple countries on a certain research topic, but none of these countries are able to fulfil this project on their own. Thus, collaboration is sometimes necessary.

“So, unlike the personal grants these collaborative grants allow for large scale collaboration. For example, we have a large-scale project that is with 7 countries... None of these countries can do that by themselves. And these are things that the personal grants do not allow for.” (R3)

“So they are really interdisciplinary, with multiple partners often in multiple countries where you have case studies. So, it is usually very ambitious and broad and that is why interdisciplinary and transdisciplinary projects are often better suited in my opinion under these types of Framework Programs rather than in individual merit- based funding.” (R9)

“But the real advantage is collaboration some of our long standing or still running projects are with EU grants. Recently we wrote a paper on data that we have been collecting since 1996. That we are still running experiments on.” (R1)

A further reason why researchers are motivated to collaborate is because of their research field. In some research fields not collaborating is not an option because the sharing of

knowledge is important in order to solve problems or to see outcomes in a broader perspective.

“Yes of course for (research field) that is always by default. There is no (researcher) who works on his own. Collaboration and specifically international collaboration is a given with (researcher). I really like that because each of these collaborations involve people with their own expertise and their own niche and so you slowly build your reconstructions of what the earth looked like in the past.” (R2)

4.1.3.2 Network

The second reason why researchers decide to apply for EU funding is to extend or set up their network or be included in networks. The growing amount of communication technologies available to researchers makes it easier for them to contact other researchers at different universities to ask for expertise or help.

Within the European Framework Programs participants are required to set up a consortium, which means that they need to collaborate with other researchers in different universities often situated in different countries. This makes it a very good opportunity to extend their network. One of the consequences of good network is sharing of knowledge. The reason why knowledge sharing is an important factor is the fact that each researcher has a different specialization and often climate change research necessitates knowledge in other disciplines. If you have these people in your network, then you can ask them for help on their expertise and collaborate with them

“Well different reasons, the major and most important reason is for to set up and to extent my network.” (R10)

Another researcher also stated that the network component has been becoming less of a reason to participate in the FP grants because they are becoming more restricted in the choice of topic and in the choice of partners. Similar to the Dutch funding policy, the EU also aims to use societal issues as a guideline for research. However, the EU within the Horizon 2020 projects has a more direct and bigger influence on the topics, because the candidates need to apply to calls of proposal, in these the EU has already set out a topic or direction for the research. The stricter and the narrower the topic is the less diverse the collaborative teams

will be. With the new mission-oriented mind-set that will be applied in Horizon Europe the issue of whether pre-determined research calls setting the direction inhibits within team diversity and novelty will be an important question to answer.

“This is something I currently miss at the moment while I am participating in the ERC grants so the personal grants. But the collaborative projects they are still there but they are now very much defined o in the past it was very open in topics and it was really great, so you could build your own network with your favorite partners” (R2)

4.1.3.3 Cultural exchange is rewarding

The third reason why researchers decide to apply for EU funding is because they find the cultural exchange rewarding. This also is related with the sharing of knowledge aspect especially in fields such as environmental sciences, where researchers mostly study their own country’s environment. Thus, it can be very interesting to hear about the results from other researchers on their country’s perspective and research on climate. In addition, the researchers find it fun to collaborate with different cultures.

“The cultural exchange is very rewarding. It is nice to get to know people from different from different European countries. If you have this experience you would never vote for a Nexit or a Brexit.” (R1)

“And then within the project it is fun because you meet a lot of different mentalities, different national background, different ethical background and so on so it is very inspiring.” (R7)

4.2 The Application Process

Table 6. Themes in the application process

Codes	Themes
	NWO funding
I always had the feeling that I was treated fairly (R4); I think it is much more transparent (R6); It was sort of very standardized in a way... It was just normal, I would say (R9).	ease of application
There is a bit of a selection against some great proposals (R1); They are not the specialist (R1); Also because you know that in the panel that judges all the proposal there will be no one with any experience in your field (R3).	mis-match in knowledge between the panel and the grantee
Training and helping and shaping the proposal, shaping the idea (R2); I let other people read my work (R4); I was also helped by people outside of my direct research field (R5); I received some help from my colleagues (R6).	non-constructive feedback
Training and helping and shaping the proposal, shaping the idea (R2); I let other people read my work (R4); I was also helped by people outside of my direct research field (R5); I received some help from my colleagues (R6); I have asked quite some people for comments (R7); The (name of institute) provides some training (R7).	assistance in application
	EU funding
Things went a bit slower I must say (R4); A lot of administration (R1); it was a lot of work (R1); Financial forms are very very complicated (R5); It is quite demanding in terms of the administration that is required (R8).	complex application and bureaucracy
I prefer to be a partner, because being a coordinator is a lot of work (R3); I must say my roles were pretty small so I was not asked for any input (R4); I prefer to be partner (R5).	choice dilemma: partner or coordinator?
Only from our financial department who help with the budget (R1); They also read your proposal and help with it (R7); We have a research support office, so they always check our part and especially the finances (R10).	assistance in application

4.2 Application Process NWO

4.2.1.1 Ease of Application

The process of application for the Innovational Research Incentive grants is a two-step procedure, where the researcher first writes a proposal, which is reviewed by the panel. The panel sends the reviewing scores to the applicants and can write response defending or changing their choices of method, topic or budget. If they pass this stage, they are invited for an interview.

Overall, the interviewees were satisfied with the application process of the Innovative Research Incentive grants. They stated that it was a straight forward two-step procedure and that the instructions were clear both in English and Dutch. They also stated that they felt the process was done fairly and professionally.

“But I had the feeling that things were being done in an honest way so to say. So, in that sense I was quite happy with it. And also, the first time after I wrote my rebuttal letter and after I had my interview I always had the feeling that I was treated fairly and If I did not get the grant that I still would have done everything I could have done. So I was pretty positive during the entire process.” (R2)

The quotation below is from a participant who received Veni and Vici but did not obtain a Vidi even though several applications were made. This is a good example of how competitive the grant is and that there is no guarantee for success.

“Well it is tough, of course it is very competitive, but I really like the way they evaluate and have set up this whole grant system, because I think it is a fair system there are a lot of rounds and it is evaluated by experts in the field and you also have the interviews, so it is difficult to get. The Veni I applied once and got it, the Vici I applied three times and luckily got the last time, because that was the last time I could apply and the Vidi I applied three times and never got. And that already shows that it is no guarantee of success.” (R1)

The statement below is from a participant who had previously applied to one of the individual EU FP grants and commented on the transparency and ease of the application process for the Innovative Research Incentive Grants in comparison to the EU FP grants.

“I think it is much more transparent with the NOW programs and in terms of experience it was clear, and I don't speak Dutch, but the English explanation were very straight forward for the small grant but also for the Veni Vidi Vici grants it was really easy to know what was going on, so in terms of application it was good.” (R6)

4.2.1.2 Mis-match in knowledge between the panel and the grantee

The panel that reviews the proposals for the Innovational Research Incentive grants is a broad panel, where professionals with backgrounds in all types of disciplines have a seat. This is different from other funding programs, where the panel reviewing the applications consists of experts in the field of the applicant or there are specific academic referees to evaluate the proposal.

Even though the people seated in this panel are all highly skilled professionals, it is difficult for them to judge a proposal on a topic of which they have no or basic knowledge and sometimes no academic knowledge at all. This increases the chance of proposals not being granted funding because the panel may not evaluate the true scientific value of the proposal.

Another impact of the broadness of the panel is that the proposals have to be written in specific way. There needs to be sufficient background for the reviewers within the panel to understand the topic but also it should be detailed enough to prove the scientific value of the topic so that the proposal is interesting, novel and clear for people in the applicant's field of research.

"Once I was invited I got the proposal. The committee makes a decision, but they have to be careful. They are all highly skilled professionals but if they have to make up their mind about a topic they are not the specialist in than it is very hard to say a bunch about the proposal. There is a bit of a selection against some great proposals." (R1)

"Also, because you know that in the panel that judges all the proposal there will be no one with any experience in your field. So, you need to write enough background for the external reviewers and then have a general amount, so the panel gets what it is about." (R3)

4.2.1.3 Assistance in application

The majority of the sample received some form of help during the application process, some by colleagues reading the proposal and making comments or having discussions with former supervisors. Others received training from universities or from a specialized bureau at the university.

The training mostly focuses on what is expected during the application process and what they see as necessities for the proposal to be successful in the applications. Some universities also offer mock interviews or mock presentations in order to prepare the researcher.

"I did, so well here at the institute we discuss about applications and so on, so with my former head of the department and my post doc supervisor he gave help. I have asked quite some people for comments and they are all quite willing to help and provide some comments." (R7)

"The (university) has a grant desk and they organize various help if people apply for those grants including mock interview and feedback rounds on the proposal itself, I am not sure, I can't remember 100% which of those I did, but I did receive some help yes." (R9)

"Yeah, so for the first application I did do an in-house training, which was basically an explanation what the Veni was all about and the requirements as well as some more deep analysis of what a good proposal looks like and some support in drafting the outline for the proposal." (R8)

The majority of interviewees received feedback from colleagues or from their former PHD supervisor, by reading the proposal and giving feedback.

"Several colleagues have read the proposal."(R1)

"From colleagues, from my former PHD supervisor" (R2)

4.2.2 Application process EU FP's.

4.2.2.1 Complex application and bureaucracy

The EU application process is generally more complex than the two-step procedure of the Innovational Research Incentive grant.

One of the aspects that make the application process for the FP's so complex is also one of the advantages of the program: writing of the application with multiple partners. When writing a proposal with ten (or even more) different institutions from multiple countries it can be difficult to make everyone agree on the direction of the topic and the method used within the research. Additionally, within the proposal everyone needs to describe and justify their

role within the research project and the method that they will use to conduct their part of the research. This process entails transaction cost in the form of coordination. If the project is financed these transactions costs prevails.

Another aspect is that the proposals are being judged to very rigid standards where proposals need to fulfill certain criteria, which are not always clear. In a paper by Barajas, Huergo and Schuurbiers (2010) it is found that the more experienced institutes have with applying for the Framework Programs, the more likely they are to succeed for following applications possibly because of the experience they accumulated over the years. Over the past years the application process has been becoming so complex that institutes have started hiring external experts in order to guide them in the proposal.

“The experience is that it is quite demanding in terms of the administration that is required, also here often two-step procedure where the final application will be 150 pages for a consortium of course.” (R9)

“So tremendously complicated these applications they cost far more time than, and far more organizational skills than the personal grants we were just talking about.” (R5)

“But most important it is becoming so technical and so complex and they are using professional help in order to hand in these proposals and I can tell from the judge side and I think this is a very dangerous path.” (R6)

Another aspect that makes the application process complicated is the detailed budget that needs to be filled in. Often this is a budget of millions of euros depending on the call. When researchers hand in the proposal the budget is immediately checked (together with the eligibility criteria) and if it has miscalculations the proposal may just be rejected.

4.2.2.2 Choice dilemma: partner or coordinator?

The EU FP projects are known to be an administrative burden to researchers because for example they need to write down every hour they work on the project to justify themselves. Within the EU FP projects there is the possibility of having one of the two different roles. The first role is the coordinator. This is so to say the leader of the project that is responsible for the application and the management of the project. One of the advantages of being that

coordinator is that you are in the lead and you can make a lot of decisions regarding the project, however one of the disadvantages is the extra administrative work and a huge coordination cost. The project administration alone is often an extra work package by itself, there is no research in this work package. This is of course not what researchers want to do when they apply for a funding scheme.

The other role is being a partner. The disadvantage of this role is that you have less independence and authority than the coordinator. The advantage is that the workload or the amount of administrative work necessary is more attainable. This is also the reason why the majority of the interviewees preferred to be a partner because of the extra workload of the coordinator. Partners can alienate themselves from the administrative work and more focus on research.

"I always prefer to be in the core group to write a proposal because I like it and I think I am now pretty well good how to put it together. We try to make different people coordinator or partner at different times so not one person has to carry the load." (R2)

"I prefer to be a partner, because being a coordinator is a lot of work." (R3)

"Well, with EU it is thing to be the coordinator, but I prefer to be a partner." (R5)

4.2.2.3 Assistance in Application

For the application of this grant there is also help in the form of training and from help desks. The quotation below is from a participant whose institute receives training and assistance from an external company. They assist by reading the proposal and offering training on what to expect from the application process.

"Yeah there are a few workshops once a while, so we can ask (external company) for some help and so on and that is being used. they offer, or they give a general overview of what they think is needed and so on, but they also read your proposal and help with it." (R7)

Moreover, most researchers state that they need and receive help with financial forms and the budget.

“Uhm yes, only from our financial department who help with the budget, but mostly I just do it myself.” (R1)

“Well we have a research support office, so they always check our part and especially the finances.” (R10)

4.3 Discussion

In this part of the thesis the differences in motivation will be compared between the individual Innovational Research Incentive grants and the collaborative EU FP grants.

For the Innovational Research Incentive grant the motivations seem to have one common primary underlying characteristic that is the grant is unique in the Netherlands and is a good career opportunity especially for early career stage researchers. The main reason for its uniqueness is the freedom that it gives to researchers in terms of research topic and research spending. The grant gives the researchers the opportunity to do a personal project on a topic they want to investigate. As a consequence of the uniqueness the grant is prestigious which makes the program popular. The prestigious character of the grant makes it a good measure of research excellence and thus an important determinant of promotion.

On the other hand, for the EU FP grant the common underlying motivation seems to be the wish to do collaborative (and/or interdisciplinary) projects that are not able to fulfil individually. Another motivation seems to be the possible future advantages that the networks built during these projects give.

When it comes to the application process there seems to be a difference between the two grants. The Innovational Research Incentive grant's application process appears to be straight forward, transparent and fair for most of the researchers. The only critique given was on the background of the panel members not matching the background of the applicant and the problems it creates during the selection process where some good proposals are rejected.

The EU's FP grants' application process appears to be the opposite. Here the process is found opaque, complicated and administrative work intensive. The critique given here was that the application process in general is a lot of administrative work and the financial forms are very complex. Another finding was that the researchers preferred not to be in the leading role

(such as coordinator, work package leader), because of the extra administrative work this required.

Overall, the main difference between the motivations of researchers to apply for individual and collaborative funding is that the motivation to apply for collaborative funding seems to be more of a voluntary duty while the individual funding seems to be more of a requirement. Researchers apply to NWO because they see various advantages and it could be good for their future careers not to mention the pressure of the university administration and the colleagues. For the individual grants, the motivation seems to be much more externally influenced via the mechanisms of prestige and promotion. That promotion in the Netherlands especially in some disciplines is tied to obtaining individual grants may have resulted in such a finding.

5.0 Conclusion

This thesis investigates whether there are motivational differences between researchers who apply for individual funding of NWO and collaborative funding of EU's FPs. After a thorough literature review the focus of the thesis addresses the gap in the literature where we know more about the impact of obtaining research grants on productivity but less about why researchers apply to such grants in the first place. The research question necessitates a qualitative research design where semi structured interviews are conducted to ten researchers in the Netherlands in the field of climate change who has obtained both an individual and collaborative grant.

Within the first part of the results the motivations of researchers applying to an individual grant are discussed. Obtaining funding to do research is a common motivation for both the individual and the collaborative funding. Specific to individual grants, the first motivation is prestige that leads people to apply for the Innovational Research Incentive scheme. This may contradict to what was discussed in the literature review, where it was stated that the Dutch excellence policy in science might keep some good researchers away from applying in the expectation that they are not good enough. It is found that people apply for themselves for the prestige of the funding, but also that departments and research groups put pressure on the researcher because it is prestigious for the department and the university as well and obtaining such funding is important in the evaluations of academic departments and research groups.

Another motivation that has been found in this study is that obtaining such a grant is a prerequisite for promotion which increases pressure for early career researchers even more. Most of the researchers who mentioned this as a motivation during the interviews are in a tenure track position, which is a contract for several years for early career researchers who have the capabilities to grow into the role of professor. One of the requirements to be promoted within this track is to get a large grant or grants covering your salaries and research expenses. Thus, the motivation here is partially external as well linked to the Dutch university policy in promotion and their reflections on bringing in money.

Another reason why researchers apply for Innovational Research Incentive grant is freedom. The grant allows them to come up with their own idea and even sometimes their own method, which is unique especially for researchers in early stage of their career. The grant

covers their salaries and research expenses, which may give unique options for researchers such as buying teaching time so that the researcher is fully devoted to research. This means that they are not dependent on the university and they do not necessarily have to do other teaching and administrative tasks but can focus on their research.

The second part of the results is related to the motivations of researchers who apply for the EU FP grants. The first motivation mentioned here is collaboration. The reason given why researchers want to collaborate is strongly related to the complex problems that necessitate collaboration. Researchers want to collaborate because it allows researchers to involve in longer, bigger (in terms of money and network) and interdisciplinary research that they could not achieve on their own. So most of the time participation to collaborative projects is voluntary but in some disciplines such as the climate research it may even become a necessity if the research idea requires large resources in terms of finance, people and equipment.

The third part of the results discusses the findings on the application process of the Innovational Research Incentive grant. The first result found here is that the application process is relatively easy. It is transparent, straightforward and fair. This is an interesting finding as most funding applications are accepted to be dull, boring and time costly.

For the Innovational Research Incentive grants one of the results states there is a mismatch in the knowledge of the panel and the applicant especially in terms of academic knowledge. The Innovational Research Incentive grants have a very broad evaluation board with people from different backgrounds. If there is no one with the knowledge in the same field as the applicant in the panel, this can lead to a proposal not being evaluated in its true worth. This also produces risk of funding low quality projects, which are written and presented in a nice way compared to rejecting good projects that are badly presented. The third result is that the majority of the researchers receive some form of assistance during the application process to circumvent the point that is just mentioned above.

The fourth part of the results describes the comments on the application process from the EU's FPs. The first result found is that it is complex. Especially completing and when the project is financed managing the financial forms is burdensome. The second result is that because of the administrative burden most researchers interviewed prefer to be partner

instead of coordinator. In this way they can manage the admin-research work balance. The third result is that because of the complicated application process most of the applicants need help and get help during the application process. The assistance is sometimes in the form of help from the project office but sometimes there are specifically organized workshops and events to inform and to educate researchers on applying and managing EU projects.

5.1 Limitations

As any method, there are also a number of limitations to the method used in this research project. The first limitation to our sample is that only researchers from one field were selected. However, this was done to create uniformity among the participants. Another reason was to make the research feasible in the time frame. Another limitation to our sample is that I only interviewed people who had received both the individual Innovative Research Incentive Grants and collaborative EU FP grant. This was again to create uniformity among the participants, but it was also done because I wanted to compare the motivations of researchers for applying the grants with similar experiences. It could be case that the interviewee applied for both grants and not received either or the interviewee applied for both grants and receive one or both. The latter option was chosen because the other option would be very hard in terms of sampling given the tools for recruitment. The third limitation to our research is that it does not have any quantitative data to back up the results. But we think that this study is a preliminary step to identify the motivations of applying to individual and collaborative grants. Further research can use the identified motivations to design a questionnaire and gather data that can be used for quantitative analysis.

Another research topic that came up but fell outside of the scope of this thesis is a more detailed and specific research in how to improve the EU application process. The flaws within the EU application process were often mentioned during the interviews, but in order to properly make recommendations on this topic more detailed and specific research is necessary.

5.2 Recommendations for future research

This research has been conducted in a given setting as mentioned in the methodology. The first recommendation for future research is to conduct a similar study but with a broader sample or with a sample from a different research field, for example medicine or psychology.

The second recommendation for future research is to conduct a study on the same topic but this time with quantitative analysis in order to create further evidence on the topic. Quantitative analysis could easily benefit from the findings of this research in preparing questions on motivation and the application process. It would also solve the problem of sampling as data on researchers whose projects have been rejected or only one type of project has been accepted could be gathered. In this sense one can treat this research as a first necessary step in conducting a quantitative analysis.

The third recommendation would be to do research into the evaluation and selection of the EU application process to find out what the actual requirements are for selections and what the selection committee focuses on. This research can best be conducted by independent researchers, referees and panel members to understand both the researcher who applied and the person who evaluates. At the moment, participants apply several times for the EU grants just to understand how it works or just be included in a strong consortium with a minor role so to increase the chances success.

5.3 Policy recommendations

On the basis of the study conducted, some recommendations for policy makers can be made. In this part two types of policy recommendations can be found. The first type is related to improving the current policies. The second type of policy recommendations is related to implementing similar types of funding.

Dutch government should try to diversify and create more opportunities for early career researchers. During the interviews and the analyses, it became clear that one of the reasons for application was that there are not so many opportunities for non-permanent researchers, foreign researchers or researchers without a tenure track position. Another recommendation for the government is to highlight the element of “freedom” in spending research money and in research topic. This would not only attract local researchers but also useful to attract foreign researchers. The last recommendation is on the application process for the Innovational Research Incentive grant. It is better to make the panel members more diverse or better linked to the topic of the applicant.

The Dutch Universities may want to reconsider the “big grant” requirement within the tenure track and evaluation of departments as good research doesn’t always induce future funding

opportunities just as good funding may not produce good research. A solution for the promotion in the tenure track could be the establishment of a quota of how much funding a researcher should receive within the first few years of the tenure track that could be achieved by one big grant or two or three smaller grants, for example, participation in Framework Program projects or smaller individual grants. For the evaluation aspect, the total amount of funding generated and its diversity could be considered rather than focusing on certain grants such as the Veni, Vidi, Vici and ERC grants. If the department is involved in multiple international projects from different sources this could also be seen as prestigious because it means that the department has a large network and can manage projects from diverse sources.

When it comes to the application process for the Innovative Research Incentive grants the NWO might need to consider changing the current set up of their selection panel. Now, the selection panel consists of a wide variety of disciplines that review all the applications. While the researchers applying for this grant are often specialized in their field. This leads to the problem that some proposals are not selected because the panel may lack the specific knowledge to judge the true scientific value. In order to solve this problem NWO might consider organizing multiple application panels for the different fields. For example, one application panel for the Humanities and Arts, one for the medical and psychological sciences, one for the sciences that focus on societal behavior and one for the natural sciences. Or can use referees complementing the panels, where in the case of disagreement a more detailed evaluation may be conducted.

For the EU, the application process should be simplified, and two-stage application process should be applied to almost all the calls under the FPs. At the moment in most calls' consortiums apply for funding with the full proposal and most of the time there are many applications but only a number of available places. Thus, there is a huge cost for consortiums whose projects are not funded. Two-stage application process can be a solution for this problem where consortiums apply with the project idea, members and a tentative budget and only successful projects proceed to the second stage.

Another policy recommendation on the EU application process is to clearly state the selection criteria and form expectations for participants. This will help first-time applicants in knowing how to write the proposal and what to focus on in writing the proposal.

A different aspect of the calls that the EU could improve is the amount of freedom they give researchers within the topic. The calls for proposal have been becoming so strict when it comes to the topic that the freedom within the research and choice of partners becomes restricted which may make participation less attractive towards researchers.

A policy recommendation that would apply for both the EU and the Dutch government is to make streamlined policy when it comes to providing assistance and training for researchers during the application process (and even during the project phase). During the analysis it became clear that the majority of researchers receive some form of help during the application process. In order to make the process fairer, the governments might want to consider implementing training that is available for everyone and given in multiple places in the Netherlands or the EU.

References

- Aguiar, L., & Gagnepain, P. (2017). European cooperative R&D and firm performance: Evidence based on funding differences in key actions. *International Journal of Industrial Organization*, 1-31.
- Akcomak, S., Erdil, E., & Cetinkaya, U. (2018). *Knowledge convergence in European regions*. Maastricht: UNU-Merit.
- Barajas, A., Huergo, E., & Moreno, L. (2011). Measuring the economic impact of research joint ventures. *Technology Transfer*, :917–942.
- Bol, T., de Vaan, M., & van Rijt, A. (2018). The Matthew effect in science funding. *PNAS*, 4887-4890.
- Bongers, F., Broekholt, P., Vullings, W., Kern, S., van den Berg, B., & van Til, J. (2007, June 28). *Evaluatie Vernieuwingsimpuls 2000-2007*. NWO: <https://www.nwo.nl/over-nwo/communicatie/publicaties/nwo/vernieuwingsimpuls-evaluatie-2000-2007.html> adresinden alindi
- Defazio, D., Lockett, A., & Wright, M. (2009). Funding incentives, collaborative dynamics and scientific productivity: Evidence from the EU framework program. *Elsevier*, 293-305.
- Eisenhardt, K. (1989). Building theories from the case study research. *Academy of Management review*, 532-550.
- Enger, S. G. (2018). Closed clubs: Network centrality and participation in Horizon 2020. *Science & Public Policy*, 884-896.
- Enger, S. G., & Castelacci, F. (2016). Who gets Horizon 2020 research grants? Propensity to apply and probability to succeed in a two-step analysis. *Scientometrics*, 1611-1638.
- European Commission. (tarih yok). *What is FP7? The basics*. European Commission : https://ec.europa.eu/research/fp7/understanding/fp7inbrief/what-is_en.html adresinden alindi
- European Commission. (tarih yok). *What is horizon 2020?* European Commission : <https://ec.europa.eu/programmes/horizon2020/en/what-horizon-2020> adresinden alindi
- European Commission, Unit A.1 – Internal & External communication . (2014). *Horizon 2020*. European Commission: https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/H2020_inBrief_EN_FinalBAT.pdf adresinden alindi
- European Committee of Regions. (tarih yok). *Europe 2020 monitoring platform* . The Lisbon Strategy in Short: <https://portal.cor.europa.eu/europe2020/Profiles/Pages/TheLisbonStrategyinshort.aspx> adresinden alindi
- European Communities . (2007). *Research & Innovation*. European Commission : https://ec.europa.eu/research/fp7/understanding/fp7inbrief/home_en.html adresinden alindi
- Fox, M. F., & Faver, C. A. (1984). Independence and Cooperation in Research. *Taylor & Francis*, 347-359.

- Fresco, L., Martinuzzie, A., Anvret, M., Bustelo, M., Eugenijus, B., Cosnard, M., . . . Richard, P. F. (2015, November). *Commitment and coherence* . Publication office of the European Union : <https://publications.europa.eu/en/publication-detail/-/publication/7e74df87-ebb0-11e8-b690-01aa75ed71a1/language-en/format-PDF/source-80689114> adresinden alindi
- Gerritsen , S., Plug, E., & van der Wiel, K. (2013 , July). *Up or out? How individual research grants affect academic careers in the Netherlands*. CPB: <https://www.cpb.nl/sites/default/files/publicaties/download/cpb-discussion-paper-249-or-out-how-individual-research-grants-affect-academic-careers-netherlands.pdf> adresinden alindi
- Gill, P., Stewart, K., Chadwick, B., & Treasure , E. (2008). Methods of data collection in qualitative research: interviews and focus groups. *British Dental Journal*, 291-295.
- Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2012). Seeking Qualitative Rigor in Inductive Research: Notes on the Gioia Methodology. *Organizational Research Methods*, 15-31.
- Godin, B. (2003). *The Impact of Research Grants on the Productivity and Quality of Scientific Research*. NSERC: <http://www.csiic.ca/PDF/NSERC.pdf> adresinden alindi
- Jeupiste . (2018). *Historical timeline of the Framework Programme*. Jeupiste : www.jeupiste.eu/horizon-2020-and-around/historical-timeline-framework-programme adresinden alindi
- Katz, J. S., & Marten, B. R. (1995). What is research collaboration? . *Research policy*, 1-18.
- KNAW. (2018). *VRIJHEID VAN WETENSCHAPSBOEFENING IN NEDERLAND*. KNAW: <https://www.know.nl/shared/resources/actueel/publicaties/pdf/briefadvies-vrijheid-van-wetenschapsbeoefening-in-nederland> adresinden alindi
- Kwant, L. d. (2018, July 10). *WUR krijgt 11 miljoen voor klimaatonderzoek*. Resource: <https://resource.wur.nl/nl/show/WUR-krijgt-11-miljoen-voor-klimaatonderzoek.htm> adresinden alindi
- Landry , R., Traore , N., & Godin, B. (1996). An econometric analysis of the effect of collaboration on academic research productivity. *Higher Education*, 281-301.
- Landry, R., Amara , N., & Ouimet, M. (2007). Determinants of knowledge transfer: evidence from Canadian university researchers in natural sciences and engineering. *Technology Transfer*, 561-592.
- Lee, S., & Barry, B. (2005). The Impact of Research Collaboration on Scientific Productivity. *Social Studies of Science*, 673-702.
- Lukas, D., Khan, A., & Quintana , J. (2018). *Funding schemes for postdoctoral fellowships*. ECRcentral: <https://asntech.github.io/postdoc-funding-schemes/> adresinden alindi
- Luukkonen, T. (1998). The difficulties in assessing the impact of EU framework. *Research policy* , 599-610.
- Mcfayeden, M. A., & Cannella, A. A. (2004). SOCIAL CAPITAL AND KNOWLEDGE CREATION: DIMINISHING RETURNS OF THE NUMBER AND STRENGTH OF EXCHANGERELATIONSHIPS. *Academy of Management Journal* , 737-746.

- Melin, G., & Piersson, O. (1996). Studying research collaboration using co-authorships. *Scientometrics*, 363-377.
- Ministry of Education, Culture and Science . (2014). *Strategy 2025*. The Hague : Ministry of Education, Culture and Science .
- Napahiet, J., & Ghosal , S. (1998). Social Capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management* , 242-266.
- NOS. (2019, March 13). *Klimaatakkoord doorgerekend: doelen worden niet gehaald, meevaller totale kosten*. NOS: <https://nos.nl/artikel/2275778-klimaatakkoord-doorgerekend-doelen-worden-niet-gehaald-meevaller-totale-kosten.html> adresinden alindi
- NWO . (2019, July 19). *166 researchers awarded a NWO Veni grant worth 250,000 euros*. NWO : <https://www.nwo.nl/en/news-and-events/news/2019/07/166-researchers-awarded-a-nwo-veni-grant-worth-250000-euros.html> adresinden alindi
- NWO. (2019 , February 26). *32 scientists to receive NWO Vici grants worth 1.5 million euros*. NWO: <https://www.nwo.nl/en/news-and-events/news/2019/02/32-scientists-to-receive-nwo-vici-grants-worth-1-5-million-euros.html> adresinden alindi
- NWO. (2019). *Rubicon*. NWO: <https://www.nwo.nl/financiering/onze-financieringsinstrumenten/nwo/rubicon/index.html> adresinden alindi
- NWO. (2019). *Vernieuwingsimpulse* . NWO: <https://www.nwo.nl/financiering/onze-financieringsinstrumenten/nwo/vernieuwingsimpuls/index.html> adresinden alindi
- NWO. (tarih yok). *Wat doet NWO?* NWO: <https://www.nwo.nl/over-nwo/wat+doet+nwo> adresinden alindi
- Ovalle-Perandones, M.-A., Gorraiz, J., Wieland, M., Gumpenberger, C., & Olmeda-Go´mez, C. (2013). The influence of European Framework Programmes: on scientific collaboration in nanotechnology. *Scientometrics*, 59–74.
- Porter, A. L., & Rafols, I. (2009). Is science becoming more interdisciplinary? Measuring and mapping six research fields over time. *Scientometrics* , 719-745.
- Rathenau Institute . (2019). *Science policy and innovation policy* . Rathenau Institute : <https://www.rathenau.nl/en/science-figures/policy-and-structure/infrastructure-knowledge/science-policy-and-innovation-policy> adresinden alindi
- Reillon, V. (2017, September). *EU frameworkprogrammes for researchand innovation*. Europarl.eu: http://www.europarl.europa.eu/RegData/etudes/IDAN/2017/608697/EPRS_IDA%282017%29608697_EN.pdf adresinden alindi
- Rietschel, E. T., Arnold, E., Cenys, A., Dearing, A., Feller , I., Joussaume , S., . . . Lange , L. (2010). *Evaluation of the Sixth Framework Programmes for research and technological development 2002-2006*. Publication Office of the European Commission: <https://publications.europa.eu/en/publication-detail/-/publication/79d2ded6-6ba9-4a45-ad29-ad69e1ef3d4c/language-en> adresinden alindi
- Rijksoverheid . (2015, December 12). *Nederland stemt in met historisch Klimaatakkoord*. Rijksoverheid :

<https://www.rijksoverheid.nl/onderwerpen/klimaatverandering/nieuws/2015/12/12/nederl-and-stemt-in-met-historisch-klimaataakkoord> adresinden alındı

Rijksoverheid . (2018). *Rijksbegroting*. Rijksoverheid:
http://www.rijksbegroting.nl/2018/voorbereiding/begroting,kst236766_13.html adresinden alındı

Rijksoverheid . (2019). *Klimaataakkoord* . Klimaataakkoord :
<https://www.klimaataakkoord.nl/klimaataakkoord> adresinden alındı

Rijksuniversiteit Groningen. (2019). *Tenure Track*. Rijksuniversiteit Groningen:
<https://www.rug.nl/about-us/work-with-us/that-is-why/career-opportunities/tenure-track> adresinden alındı

Ritchie, J., Spencer, J., & O' Connor , W. (2003). Analysis: Practices, Principles and Processes. J. Ritchie, & J. Lewis içinde, *QUALITATIVE RESEARCH PRACTICE A Guide for Social Science Students and Researchers* (s. 199-218). London: SAGE publications .

Spencer, L., & Ritchie, J. (2002). Qualitative Data Analysis for Applied Policy research. A. M. Huberman, & M. B. Miles içinde, *The qualitative researcher's companion* (s. 305-316). Oaks California : Sage Publications .

Trajtenberg, M. (2012). Can the Nelson-Arrow Paradigm Still Be the Beacon of Innovation Policy? . *National Bureau of Economic research* , 679-684.

Universiteit Wageningen. (2019). *Career opportunity & steps*. Universiteit Wageningen:
<https://www.wur.nl/en/Jobs/Why-choose-WUR/Your-development-in-focus/Tenure-Track/Career-opportunity-steps.htm> adresinden alındı

van Drooge , L., de Jong, S., Faber, M., & Wetserheijden, D. (2013, May). *Twintig jaar onderzoeks-evaluatie*. Rathenau Institute :
https://www.rathenau.nl/sites/default/files/Twintig_jaar_onderzoeksevaluatie-F_C-Rathenau.pdf adresinden alındı

VSNU. (2019). *Kwaliteitszorg onderzoek*. VSNU: <https://www.vsnu.nl/sep> adresinden alındı

VSNU. (2019). *Onstaansgeschiedenis Tenure Track*. VSNU: <https://www.vsnu.nl/tenure-track.html> adresinden alındı

VSNU. (2019). *Tenure Track*. VSNU: <https://www.vsnu.nl/tenure-track.html> adresinden alındı

World Bank. (2018). *Netherlands*. World Bank Data :
https://scholar.google.nl/scholar?hl=nl&as_sdt=0%2C5&q=yin+2001&btnG= adresinden alındı

Yin, R. (2003). Case Study Research: Design and Methods. *SAGE, Thousand Oaks*.

Appendix 1: Outreach Email

Dear Mr xxx,

My name is Pippa van den Brand and I am a Master student involved in the MSC Public Policy & Human Development. During my studies I have chosen to specialize in innovation policy. Currently, I am writing my master thesis on the question: if there is a difference in terms of motivation for researchers to apply for the individual NWO Veni Vidi Vici grant or the Collaborative European Framework grants.

In order to conduct this research I would like to do interviews with people who have received both forms of funding.

I would like to ask you if you would be willing to participate?

In the attachment you will find a short introduction to the interview, with some example questions and further information.

Please be so kind to respond to this email indicating your participation.

Thank you in advance!

Kind regards,
Pippa van den Brand

Appendix 2: Explanation folder

Introduction to the interviewer

My name is Pippa van den Brand. I am 22 years old and I am born in Heerlen, a small-town east of Maastricht. Five years ago, I moved to Maastricht to study the BA European Studies at Zuyd University of Applied Sciences. After graduation, I decided to continue my studies with Msc degree in Public Policy and Human Development.

A short introduction to the Master program

The master Public Policy & Human Development is provided as a double degree of Maastricht University and the United Nations University. The program trains students to become policy makers and policy analysts. Examples of courses are: public policy, public economics, regression analysis and public policy analysis. After half a year, the students chose one of the six specializations.

About the interview

Logistics

The main language of the master program is English, that is also why the preferred language of the interview is English. However, on request the interviews can also be conducted in Dutch.

The interviews will take place face to face or because of distance and time limits via Skype. If you would rather conduct the interview via another medium, this can be arranged on request.

The interview will take an hour to two hours to complete.

Questions

During the interview questions will be asked on 4 main topics:

1. For some background information the researcher will first start with asking some personal questions related to name and professional functions. This information will be removed by the researcher afterwards and will not be used or published in the research.
Examples of questions: what is your name? What is your current function? What is your educational background?
2. The second strand of questions will be about your motivation and experience applying and working with the individual Dutch Veni, Vidi or Vici grants.

Examples of questions are: What is the name of your project? What was your motivation to apply for the grant? What was your experience in the application process?

3. The third strand of questions will be about will be about your motivation and experience applying and working with the collaborative EU framework funding?

Examples of questions are: What is the name of your project? What was your motivation to apply for the grant? What was your experience in the application process?

4. The fourth strand of questions will be a short comparison of the two funding programs.

An example question: if you could choose to apply for either of the two grants which one would you choose?

Anonymity

During the interview the data will be recorded and saved and protected under a password only known by the me. During the analysis I will remove references that could lead back to you.

Unfortunately, my university requests that the data is published on a data platform which can only be accessed by people of the university.

Consent

Before the interview I will either send you or give you a consent form which you will need to sign, and I will ask you for consent again before we start the interview. If you do not want to participate at a certain point please tell me, then the interview won't be conducted, or the data will be removed. If you are uncomfortable with any of the question, please tell me so, then we will continue to another question.

Appendix 3: Consent form

**INFORMED CONSENT**

I, _____, agree to be interviewed for the Master Thesis by Pippa van den Brand, Maastricht Graduate School of Governance, Maastricht University & UNU-MERIT.

I understand that all information collected during the study period will be kept strictly confidential and no reference to my identity is made in the study. I understand that I can decide not to answer any question, or to stop the interview at any time.

The tapes, transcripts and notes from the interview will become the property of the research project and will be kept anonymous in a secured environment, without any reference to my identity. I understand that the results of this study may be published in academic journals, policy papers or book.

I **agree/don't agree** to participate in one or more electronically recorded interviews for this project, and confirm that I have been informed of the confidentiality and anonymity of this project and any questions I have regarding this have been addressed.

_____ Date _____

Signature of Interviewee

If you cannot obtain satisfactory answers to your questions, or have comments or complaints about your treatment in this study, please contact:

Semih Akcomak – Supervisor
akcomak@metu.edu.tr

Pippa van den Brand– Master student
pippavandenbrand@gmail.com/p.vandenbrand@maastrichtuniversity.nl | +31 0643478851

Appendix 4: Oral Consent

My name is Pippa van den Brand. I am currently involved in the Public Policy & Human Development Master Program at Maastricht University and United Nations University. At the moment I am writing my master thesis on the differences in motivations of researchers in the field of climate change who received collaborative research funding from the European Union (Framework Programs) or individual funding from the Dutch Scientific Organization (NWO). During the interviews I will ask several questions regarding your participation in FPs and NWO funds. Are you comfortable with answering these questions and conducting this interview with me?

The data collected will only be used for research purposes

The data will be completely anonymized after the interview by the researcher. Personal identifiers will be removed. However, because of the regulations of my university the anonymized data needs to be replicable and thus needs to be shared in a public database. Is that okay with you? For the purpose of analysis later on I am going to record the interview. Is that okay with you?

Appendix 5: Interview guide

Personal part.

- What is your name?
- What is your educational background?
- What is your position or function?
- What are your normal tasks?

Individual funding.

- Have you applied one or multiple times for NOW funding?
- In which year did you apply for NWO funding?
- Did you receive any help during the application process?
- Yes, what kind of help?
- No, did you miss not having any help?
- With what project idea did you apply (the last time)?
- Did you work with a team of researchers during the project? etc.
- Could you tell me why you decided to apply for this type of funding?
- Why didn't you apply for any other funding?
- What is your experience with applying for individual research funding from the Dutch Scientific Organization?
 - Will you continue to apply to NWO or any other individual funds.
- Could you tell me something about the advantages and disadvantages of this type of research funding?

Collaborative funding

- Have you applied one or multiple times for EU funding?
- In which year did you apply for EU funding?
- Did you receive any help during the application process?
- Yes, what kind of help?
- No, did you miss not having any help?
- With what project idea did you apply?
 - What were your consortium members?
- Approx. how many different partners?
- How big is the project (in terms of money)?
- Were you a coordinator or a partner?
- Do you prefer any of the two positions?
- During which of the framework programs did you participate?
- Could you tell me why you decided to apply for this type of funding?
- Why didn't you apply any other funding organization with a similar project idea?
- What is your experience with applying for collaborative research funding from the European Union?
- Could you tell me something about working with the EU funds?
- Will you continue to participate in EU funds?
- Are there barriers of applying to EU funds?

- Or what was difficult for you when you applied?
- What was difficult for you when you were conducting the project?
- Could you tell me something about the advantages and disadvantages of this type of research funding?

Comparison.

- Which type of funding do you prefer working with and why?
- What are advantages and disadvantages in terms of doing research?
- What are advantages and disadvantages in terms of funding?