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An explorative study of the use and implementation of new digital technologies in the management of Norwegian development cooperation projects

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This thesis has been written as a part of the MSc in Economics and Business Administration at the Norwegian School of Economics. We consider ourselves privileged to get the opportunity of exploring both an area of interest and to dedicate ourselves deeply into a single area of research. Through this research we have discovered how much there are yet to know. Yet surprised by how much we are able to learn within a short timeframe. This endeavor has in many ways been a journey in discovering aspects of our own personal life alongside the process of writing the actual thesis. We have not been travelling on this journey alone and would like to thank those who have walked together with us and helped us on the way.

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Abstract

This thesis merges the aspects of results-based management systems and new digital technologies together and explores what characterizes the use and implementation of new digital technologies in the management of Norwegian development cooperation projects. Through three research questions the research explores how Norwegian non-government organizations (NGOs) involved in development cooperation projects: (1) Collect, aggregate, present, and use data in decision making and reporting in existing management systems. (2) View the main barriers and opportunities of new technologies and innovations in improving current management systems and tools. (3) Perceives how new digital technologies can help facilitate learning and use of results data in the organization.

The analysis of this thesis is based upon fifteen in-depth semi structured interviews across ten Norwegian NGOs involved in development cooperation projects. The interviews revealed several issues in the use and implementation of new digital technologies in Norwegian development cooperation projects that would need further research and investigation. (1) There were large variations in both the kinds of digital technologies the NGOs used in current management, and large variations in the aptness of these tools to solve the management issues at hand in the organization. (2) The small and large organizations had differentiated perceived needs and discussions in their responses to barriers and opportunities of new technologies, and that the response mostly encompassed technology as a barrier or opportunity in improving reporting rather than providing data suitable for management. (3) The research suggests that one of the constraints on learning in the NGOs might be that the organization primarily gathers results data on behalf of others rather than enabling their own management needs. Based on these findings further research is suggested in several areas, such as exploring suitable new digital technologies in the management of the NGOs involved in Norwegian development cooperation projects and unveiling possibilities of using new digital technologies to learn from the results data.

Dictionary and abbreviations

Activities. The things that a project "does" or the actions that are carried out in order to produce outputs. Examples include providing training, rebuilding infrastructure, making loans, monitoring implementation, evaluating impact.

Development cooperation is an overarching term of all activity that seeks to improve social and economic situations in development countries. Development cooperation is a part of the development policy and are often interchangeably used together with development cooperation aid, and assistance, however development partnership is currently preferred today because it reflects the ideal of cooperation. (Eggen, 2019)

Donor: The financial benefactor or grant authority.

Evaluation: Evaluation is an in-depth, retrospective analysis of a specific aspect (or aspects) of a project that occurs at a single point in time. Evaluation is generally more focused and intense than monitoring and often uses more time-consuming techniques such as surveys, focus groups, interviews and workshop.

Evidence: The available facts, circumstances and theory relevant to a conclusion being drawn, such as a decision.

Framework: A basic structure underlying a system, concept, or text.

Grant: A grant is a financial donation given by the contracting authority to a grant beneficiary which agreements have been entered into. Grants typically support specific projects or operations that are in line with specific goals**.**

LFA : Logical Framework Approach, specific framework for monitoring and evaluation.

Monitoring: Regularly collecting, reviewing, reporting and acting on information about project implementation. Generally used to check our performance against expected results or "targets" as well as ensure compliance with donor regulations.

Monitoring and evaluation (M&E) A term used for systems and frameworks that integrate monitoring and evaluation. Commonly used within development cooperation. See also monitoring and evaluation.

NGO: Non-governmental organizations. Organizations which are independent of government involvement.

Norad: The Norwegian Agency for Development Cooperation. This is the Norwegian directorate for development cooperation and works to ensure effective foreign development cooperation including quality assurance and evaluation.

Partner: Primarily understood as the implementing party of the NGO. In some cases the grant recipient.

RBM: Results Based Management. Management framework oriented towards achieving clearly defined and demonstrable results.

Results data: Empirical evidence on results that have been observed by the organization, interchangeably used with results information.

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1. Chapter 1 - Introduction

1.1 Background

Norway has planned to spend 39,2 billion on humanitarian development aid in 2020 (*Statsbudsjettet*, 2020). Committed to the 2030 Agenda and the Sustainable Development Goals (SDG) the United Nations seeks to eradicate poverty in all forms and dimensions (UN General Assembly, 2015) During the last 20 years Results Based Management (RBM) has been implemented in development organizations (Vähämäki & Verger, 2019) Shifting the emphasis to the outcome and long-term results-level in the sector (Norad, 2008). Furthermore, there is a recent trend towards a greater push on evidence and results which are used for future projects.. (Solhjell, 2020) However, seeking and considering evidence is often not a part of management, and consequently project managers often don't see themselves as having enough time to manage for results. (Rieper et al., 2010, p. 144)

By using the Logical Framework Approach (LFA) and Theory of Change (ToC) a project is planned logically with a series of actions that are intended to lead to the desired outcome. Measuring the effects and impacts usually require time and in-depth research.(ITAD Ltd & Chr. Michelsens institutt, 2014) and (Lloyd et al., 2014) However, the activities inputs and projects, that the different humanitarian organizations manage could be measured and reported today. This information is supposed to provide measurement and evaluate success and help strategic performance decisions in the different organizations. (SSØ, 2010). Unfortunately, this is found to not be the case within the Norwegian aid administration:

> *Notably, we found evidence to suggest that partner's RBM systems are being skewed to meeting the reporting expectations of the aid administration. In some cases, this focus on reporting was the driving force behind the partner's entire RBM system. In these cases, we found data being collected which partners do not see the value of, and do not use to inform internal decision making, but collect because it is a reporting requirement. (Balogun et al., 2018, p. 9)*

There is however a positive correlation between the quality of monitoring and evaluation (M&E) at the project level and the rating of a project (Vähämäki & Verger, 2019). By improving measurement and issues of methods, research shows that we could circumstantially improve the quality and rating of a project. Specifically by: In time (Ongoing) measurement (Murphy et al., 2019, p. 705). Digital data can potentially enhance the evidence base for development policy and programming. Which can ultimately support development impact on the ground and reduce manipulation of data, and make the reported information more reliable and credible (Hailey &

Sorgenfrei, 2004). The level of competence and innovation could be raised through aggregation and the systematizing of learning, information and knowledge; which would provide a shift from accountability to learning through development cooperation. (Vähämäki & Verger, 2019). In 2018 the Norwegian government published a strategy report on the digital strategy for Norwegian development policy which aims at using new digital technologies as a catalyst in Norwegian development cooperation initiatives (Utenriksdepartementet, 2018). The previous Minister of International Development concludes the preface of the report with the following words:

> *"I want Norway to take the lead in enabling developing countries to benefit fully from the opportunities provided by innovation and digitalization across the entire spectrum of development policy. The aim is to achieve maximum return on development support invested"*
>
> *- Nicolai Astrup, previous Minister of International Development (Utenriksdepartementet, 2018, p. 4)*

1.2 Problem statement and research question

An extensive focus has been given to the policies and grant level of aid (Balogun et al., 2018). We therefore focused our attention on the partner level, represented as Norwegian non-governmental organizations (NGOs), and investigate how technology and the attributes of the different management tools affect the project management processes, including learning within the organization. By having this focus, we wanted to have a more practical approach to what was being used in the organizations rather than focusing on the design philosophy and theory behind the frameworks. We want to explore in particular how partners collect and synthesize results data across their portfolio, and how the partners use the results data to manage projects and programs and learning. In this thesis we therefore seek to answer the following problem statement:

What characterizes the use and implementation of new digital technologies in the management of Norwegian development cooperation projects?

We have created a basic research model as a simple visualization of our study. We will explore how the concepts of RBM and digital technology interacts with the information and evidence available, and sequentially how they affects the management of Norwegian aid projects and programs. We will also investigate how the two concepts affects each other. By dividing the problem statement into three different research questions we aim to capture the important aspects in the concepts of our research model, and how they interact and affect the grant partner in management of development cooperation.

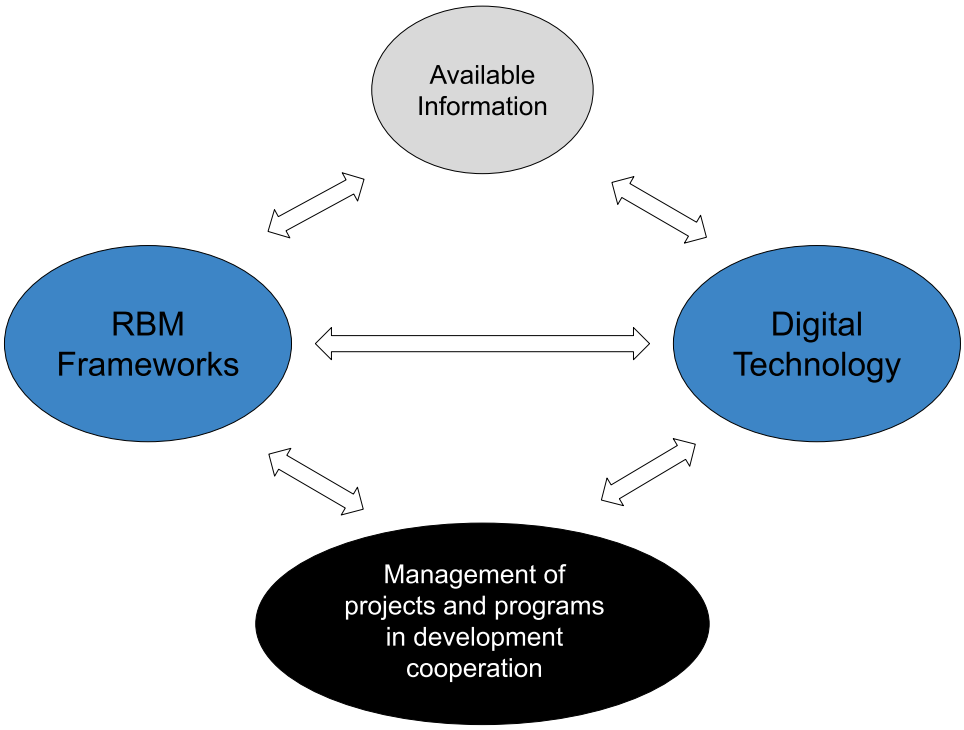

Figure 1: Research model

1.2.1 First research question

Both Balanced Scorecard, LFA and RBM seeks to align the aid projects behind a clear set of strategic goals. (Lawrie et al., 2006). The organization then tries to deliver according to these outcomes and indicators, driven by the prospect of success and funding according to the contract. The partners funded by Norad have to collect comparable, aggregated performance information to manage control over a diversified project portfolio and results framework, in support of measurable results and further funding (Vähämäki & Verger, 2019). This brings us to the first research question.

RQ1: How are data collected aggregated, presented, and used in decision making and reporting in existing management systems?

1.2.2 Second research question

(Silva & Fernandez, 2016) questions the sustainability of the Monitoring & Evaluation system beyond the project lifecycle, and further states that digital frameworks in Information and Communications Technologies for Development (ICT4D) have been failing substantially. Between 60% and 85% of the project implementation failing amongst government services offered in development work (Silva & Fernandez, 2016). There is, however many opportunities and trends that innovation and technology make possible; Developing countries are digitalizing fast (World Bank, 2016) There is a potential in new emerging new technologies related to mobile technology and cloud computing (Ganju et al., 2016; Majchrzak et al., 2016; Mrhaouarh et al., 2018) Technology is accelerating at an exponential rate (Theis & Wong, 2017). However, there has been little cross-academical studies combining development aid, technology and management tools. On this basis, we wanted to explore these concepts through our second research question:

RQ2: What are the main barriers and opportunities of new technologies and innovations in improving current management systems and tools?

1.2.3 Third research question

(Solhjell, 2020) states that the Norwegian development cooperation administration is commitment to be results orientated and ensure that the funds deliver results. RBM and Logical Frameworks have become associated with demonstrating and reporting results. (Norad, 2008). While the use of the framework in the development cooperation organizations might give better transparency, learning have been identified as a weakness in the implementation of the RBM framework. (Zuzul & Edmondson, 2017) We therefore wanted to further explore how the collected results evidence was used beyond reporting requirements, in relation to learning and future decisions made, and the potential of new technology effecting this learning.

RQ3: How can new digital technologies help facilitate learning and use of results data in the organization?

1.3 Outline

This thesis is built up by seven chapters, these chapters have two levels of subchapters based on their topics. The second chapter provides a brief overview of the context, history and organization of Norwegian development cooperation, it also introduces the latest research and literature on the concepts of results-based management and digital technology and presents our research questions. Chapter three presents the methodological choices in this thesis, including the conceptualization and matrix used in the analysis. The results and analysis will be presented in chapter four. In chapter five we discuss the limitations of this study, followed by suggestions for further studies in chapter six and the conclusion in chapter seven.

2. Chapter 2 - Litterature and background

This chapter has three sections exploring the concepts of our research model. First we briefly explain the history, context and organization of Norwegian development cooperation projects and programs. Later we will introduce management tools and ideas that are used and developed to use in the management of these projects and organizations. We will also give an overview of the new technologies and recent innovations that are changing the modern world, and how they could be implemented in aid organizations. After each section we will try to critically review some of the challenges of each topic. Lastly, based on our preliminary findings we formulate our research questions.

2.1 Background and current state of Norwegian development cooperation

To understand the need of digital technology and management in development projects and programs it is important to understand the current organization and structure of the aid administration. Providing the regulatory context affecting the Norwegian NGOs. In this section we will present the history and tradition of development cooperation, followed by the current structure of the aid administration, grant process, the goals and current challenges of the Norwegian development cooperation structure.

2.1.1 History of Norwegian development cooperation

Norwegian development history started in 1952 with the creation of the trust for "help to undeveloped regions", formerly known as the "India trust" (Utenriksdepartementet, 2002) Up until after the Second World War, humanitarian aid had primarily been initiated by NGO's and non- profits. First thru Christian mission, and later true labor union initiatives motivated by a greater concern for international solidarity. (Eggen, 2019) Norway, being a recipient of the post war Marshall Plan, had experienced the benefits of development cooperation themselves.

In 1961 the outline for a more extensive Norwegian involvement was introduced in the draft resolution; (St. prep nr 1, 1961). This led to the creation of Norwegian developmental aid (Norsk utviklingshjelp) in 1962. Which further developed to an independent directorate; Norwegian Agency for Development Cooperation (Norad) in 1968. In the seventies there was an increase in the size of the projects. Which was both in the form of resources to the infrastructure and expert assistance, this type of aid was part of a long-term strategic approach and the term "primary

cooperation county" was introduced. The resources were also part of the Norwegian foreign affairs agenda through the support of national liberation movements like the African National Congress in South Africa.

In 1972 the government made a principal decision that within 5-6 years Norwegian aid should be one percent of the gross domestic product. In 2020 this is estimated to be 39,2 billion NOK (*Statsbudsjettet*, 2020). Throughout the 1980s there was a shift from independent projects to integrated programs targeting the social sector and direct actions to reduce poverty. In 1983 Norway got their own development cooperation minister and the subsequent year its own department (Department for utviklingshjelp). It was already in 1990 merged into the Ministry of Foreign Affairs (MFA) representing the stronger correlation between development policy and foreign affairs. Norwegian aid focused proportionally more on humanitarian aid promoting peace, reconciliation and the development of democracies.

2.1.2 Current structure of Norwegian development cooperation administration

In this section we briefly explain the different roles of the stakeholders in Norwegian Aid Administration, the first section explains the role of Norad, followed by the MFA and the embassies.

From 2011 towards 2015 Norad's most important role was to secure results and quality in Norwegian aid. However, Norad's mandate may not have been clearly understood, specifically what its roles and responsibilities were. Multiple evaluations credit this lack of clarity to the ongoing changes in development cooperation. These changes were concerning the size of the aid budget, the direction of development aid, the use of different aid channels and the distribution of tasks and responsibilities among the different parties in the aid administration (Norad, 2019, p. 8). The ongoing aid reform has tried to solve some of this issue by moving most of the responsibilities of the minister if international development to Norad (Gunnar Zachrisen, 2019). According to (Ministry of Foreign Affairs, 2019a) this includes international development efforts in countries outside the OSCE, the Middle East, North Africa and Afghanistan. Norad is also responsible for development cooperation under the auspices of the UN system, the World Bank, the regional development banks and other global funds and programs. The responsibility for assessments, and for quality assurance, project implementation, follow-up, control and reporting will, as a rule, be delegated to Norad. (Ministry of Foreign Affairs, 2019b) This means that the development and usage of different electronical management tools are also under this department.

The Royal Norwegian Ministry of foreign affairs will have responsibility for deciding the strategic focus of Norway's aid, and for drawing up policy documents such as action plans. (Ministry of Foreign Affairs, 2019b) The Ministry will also administer the long-term bilateral development cooperation.

The embassies have ongoing communication with local governments, communities, and the multilateral representatives. They also have the responsibility to plan, execute and follow up the Norwegian governmental cooperation with that country. The embassies get support from Norad to accounting, revision and reports of results. (Gunnar Zachrisen, 2019)

2.1.3 Current process of Norwegian development cooperation

Itad and Chr. Michelsen institute produced a report for Norad in 2014. This report compared project cycles stages across multiple organizations in different countries (ITAD Ltd & Chr. Michelsens institutt, 2014, n. Annex 5). The Norwegian cycle is recited in this section.

Staff of the MFA and Norad do not prepare projects but receive applications from potential grant recipients and negotiate the objectives, project plan and funding of the project. Since 2010, Norway has a standard proforma for an applicant, which includes details about the objectives of a grant and the indicators to monitor performance. The form can be completed online or used as a checklist against a grant applicant's own documentation, the MFA and Norad have also a joint digital portal where some of its grant schemes are currently included. In the application, the applicant will set out a hierarchy of objectives and planned indicators for follow up, this is the logical framework, and assumptions for a project. The MFA provides templates and forms for budgets and frameworks. Norway's requirements for progress reports and reviews vary according to the grant scheme and are not mandatory for all grants. (ITAD Ltd & Chr. Michelsens institutt, 2014) Another form provides a structure for the follow up report. Finishing this form is not obligatory but can be used as a checklist. The final report is however mandatory.

2.1.4 The goals of Norwegian development cooperation

The SDG also known as the global goals or 2030 agenda were adopted by all United Nations member states in 2015 and replaces the millennium development goals (UN General Assembly, 2015). It is the overarching framework for the Norwegian governments development cooperation policies, nationwide and globally. One of the central principles is that no one shall be left behind, and the most vulnerable and marginalized groups shall be included in the development, the Norwegian government focus its effort on the areas of education, humanitarian aid, economic

development and job creation and sustainable energy. Additionally are climate change, human rights, gender equality and anti-corruption overarching considerations in the aid. (Utenriksdepartementet, 2016) The government wants to active urge the use of new technology and digitalization, so to better assist greater effectiveness and better results in the development programs. It is also committed to the creation of a new portal for results, enabling the use and learning from historical performance. (Regjerningen, 2019) Currently the results of Norad projects are presented in its online results portal, while the financial grants given are presented at the MFA grants portal.

2.1.5 Challenges of Norwegian development cooperation

The overall conclusion in Norad's evaluation report of the Norwegian aid administration's goal- and performance-management is that their current practice is inadequate and not contributing to the improvement of Norwegian aid (Balogun et al., 2018). Although the aid administration has rigorous quality requirements for the reporting of results, they fail to systematically assemble and analyze their data for strategic improvement of their practice. The administration's competence and time prove to be inadequate to perform the necessary analysis of data to improve their practice. This may be due to the lack of a culture of learning within MFA and Norad, in addition to an inadequate focus on goal- and performance-management, thus resulting in a practice dependent on each person's interpretation of the goal. Furthermore, the rigorous quality-requirements is a financial burden for the partners that do not necessarily increase the efficiency of the aid. The partner's work to comply with the requirements is not utilized when the data they provide in their results are not analyzed and evaluated for strategic improvement.

2.2 Management concepts in Norwegian development cooperation

This subchapter will give a short introduction to the need of management concepts and discussions of current monitoring and evaluation trends. It then introduce concepts used beginning with the LFA followed by RBM. Thirdly this chapter shortly explains ToC and a specific theory of "*Six enabling factors*". The second last section will describe how learning is integrated into the frameworks. The final section closes with some of the criticism of RBM.

(Hailey & Sorgenfrei, 2004) finds that the demands of greater accountability, the concerns about quality, funding constraints and the development of a contract culture have created demands for more sophisticated performance measurement strategies. Donors and governments increasingly

emphasize effectiveness and sustainability as seen in the Norwegian governmental platform *"granavolden plattformen"* (Regjerningen, 2019) and in the United Nations sustainability goals (UN General Assembly, 2015) As a consequence, NGOs are under pressure to invest more to evaluating their work and measuring its impact . This has led to an increasing interest in how best design and apply new performance measurement frameworks.

The management development practice has thus shifted the recent decade. This has been accompanied by a widespread introduction of new management tools and professional techniques, driven by what is commonly referred to as the "results agenda" (Valters & Whitty, 2017). And has been followed by a shift towards result-based management systems (Murphy et al., 2019). This has brought with it a tension between feedback and learning and performance management. Organizational learning and innovation are recognized as critical to organizational success and sustainability (Balogun et al., 2018).

The logical approach and later results based management agenda is structuring the main elements in a project with logical connections between intended inputs, planned activities and expected results(Norad, 1999). Credible information about own results is necessary for Norwegian governmental businesses to adopt to changes in the society and perform on its strategic goals (SSØ, 2010). Results-based management are also applied as performance and management frameworks in humanitarian organizations like the UN (Bester, Angela, 2016). Other development agencies, including the Norwegian aid administration have committed, through adherence to the Paris Declaration and the Accra Agenda for Action, to implement the results agenda and to support capacity building in that area (Norad, 2008).

2.2.1 Logical Framework approach in Norwegian development cooperation

"If you don't know where you are going, any road will get you there." This paraphrased citation from Lewis Carrol's Alice in wonderland have since its quotation in the 1970's report been popularized by consultants, researchers and organizations all over the world which tries to implement management reforms that emphasis result based practices. The report summarized the evaluation of non- capital projects within the United States Agency for International Development (USAID). It also introduced and formalized the LFA (Rosenberg et al., 1970).

Logical Framework, LogFrame or logical framework approach is an analytical management framework, it is used to plan, monitor and evaluate projects, and gives a greater context to the M&E discipline (Lawrie et al., 2006). It was originally developed for the US Department of

Defense and later adopted USAID (Grant, 2014) It emerged as a response to the lack of logic and connection between a project and its higher goals and introduced a framework that could provide a common frame of reference for evaluation. It helped shift the orientation from the resources put into a project to the output of a project. The USAID complemented the initial LFA by introducing the LogFrame Matrix (Licina & Schor, 2007). The matrix consists of two dimensions : Goals, Purposes, Outputs and Activities or Inputs on a vertical axis; and Narrative, Indicators, Means of Verification, and Assumptions on the horizontal axis, see Table 1

Typical logical framework format with interchanged terms

Term	*Narrative summary*	*Objectively verifiable indicators*	*Means of verification*	*Assumptions*
Goal/ Effects/ Overall Objectives/ Impacts	The overall aim to which the project is expected to contribute	Measures (direct or indirect) to show the project's contribution to the goal	Sources of information and methods used to show fulfillment of goal	Important events, conditions or decisions beyond the project's control necessary for maintaining the progress towards the goal
Outcomes/ Objectives/ Main problem/ Project purpose/ Mid-term Outputs	The new situation which the projects is aiming to bring about	Measures (direct or indirect) to show what progress is being made towards reaching the objectives	Sources of information and methods used to show progress against objectives	Important events, conditions or decisions beyond the project's control, which are necessary if achieving the objectives is going to contribute towards the overall goal
Outputs/ Causes/ Intermediate objectives/ Short term outcomes	The results which should be within the control of the project management	Measures (direct or indirect) to show if project outputs are being delivered	Sources of information and methods used to show delivery of outputs	Important events, conditions or decisions beyond the project's control, which are necessary if producing the outputs is going to help achieve the objectives
Activities/ Output Expected output	The things which have to be done by the project to produce the outputs	Measures (direct or indirect) to show if project outputs are being delivered	Sources of information and methods used to show that activities have been completed	Important events, conditions or decisions beyond the project's control, which are necessary if completing activities will produce the required outputs
Inputs	Resources – type and level of resources needed for the project Finance – overall budget Time – planned start and end date			

Table 1 LFA matrix, adopted from (Mikkelsen, 2005, p. 42), (Örtengren, 2016) and (Bakewell & Garbutt, 2005)

The popularity and freedom given to adaptors has resulted in a wide usage of the terms. A report done for the Swedish International Development Cooperation Agency (SIDA) classifies it into three categories: The LFA as a formal system, the LFA as a way of thinking and the LFA as a badge/ or brand to keep donors happy (Bakewell & Garbutt, 2005). (Dale, 2003) chose to separate the Logical Framework, which are understood as the matrix, while the Logical Framework Approach, which are the overall process by which the elements which go into the matrix are

formulated. It is also a great variance in the terminology used for the different objectives in the matrix as shown in the Table 1

Usage and benefits of logical frameworks

It has since its beginning been applied and modified by many bilateral donors, in theory it allows for the central planning of activities and remote delivery and assessment. LogFrames are used buy a variety of private voluntary, governmental and nongovernmental humanitarian organizations. (AusAID, 2005) Even thou primarily applied by NGO's and Development Organization's (DO's) it is considered helpful in complex and unpredictable environments where financial indicators and non-financial outcomes are difficult to measure and predict. (Bakewell & Garbutt, 2005) states that one of the major advantages of the logical framework is that it provides a simple summary of the key elements of a development initiative in a consistent and coherent way that enables rapid understanding of the broad outline of a project. The standardized format adapted by fund giving organizations have made the framework become a familiar project management approach in the fund receiving organizations as well. Overall it has played a central role in the planning and management of development organizations the last twenty years. (Bakewell & Garbutt, 2005) It provided a more holistic approach in project planning., helping users to be explicit about the logic between the hierarchy of goals. The benefits of standardization of procedures of collecting and assessing information among institutions and countries makes sectoral and comparative studies easier (Norad, 1999).

Challenges of logical frameworks

It was often critiqued for being too rigid, and the difficulties of predicting which indicators that will be relevant, especially with intangible qualities of outcome and impact. Its linear thinking does not embrace learning process or unexpected outcome. Measuring the ultimate outcome can also be especially difficult with small projects and in organizations with limited resources. Furthermore, there is no guarantee for the causality of the logical steps. (Grant, 2014) So, although it has become universally known it is far from universally liked. It has been subject for acknowledged weaknesses both on the theoretical basis of the approach, and the way it is applied in practice. (Bakewell & Garbutt, 2005) It rests on a very linear logic and generate a mechanical view of the development process, while many services and programs are not linear and has a range of factors that influence the results. (Bornstein, 2001) It is a general analytical tool, and policy neutral on such questions as income distribution, employment opportunities, access to resources, local participation, cost and feasibilities of strategies and technologies or effects of the environment. The full benefits of utilizing LFA can only be achieved through systematic training

of all parties involved and methodological follow-up (Norad, 1999) The usage of LFA are now therefore often used as a part of the Result-Based Management.

2.2.2 The transition to Result Based Management in Norwegian development cooperation

RBM is a performance management strategy that puts the measurements of results at the center of the management. It has in different forms been around for a long time, but particularly since the Paris declaration on Aid Effectiveness in 2005 (Simister, 2017). It emerged in the developmental sector after the OECDs reforms during the 1990s following the increased pressure to reform due to change in social economic and political pressure. Central to this was the need to better learn and assess what kind of programs that had its effect and why. In the beginning it was a set of management principles that the local executive saw appropriate, not a specific methodology but it has later been "harmonized" over the different UN sub divisions (Ortiz et al., 2004) OECD assign four main purposes for the result information: accountability, communication, direction/decision-making and learning. (Vähämäki & Verger, 2019)

There is no universal definition of what RBM is, but the United Nations (UN) gives a typical definition for development cooperation purposes:

> *"Results-based management is a management strategy by which all actors, contributing directly or indirectly to achieving a set of results, ensure that their processes, products and services contribute to the desired results (outputs, outcomes and higher level goals or impact) and use information and evidence on actual results to inform decision making on the design, resourcing and delivery of programmes and activities as well as for accountability and reporting." (UNDG, 2011, p. 7)*

It has been adopted by institutional donors the past decade. Norad also chose to switch to the RBM approach as it was deemed less rigid. (Norad, 2015) It has, because its familiarity been associated with the linear planning tools like LFA and the result chain. The result chain is a standard in all performance management in the public Norway and is used to illustrate the value creation process in a business and organization (SSØ, 2010). Furthermore, it is a simplification of the anticipated causal relationships between its various elements (Norad, 2008)

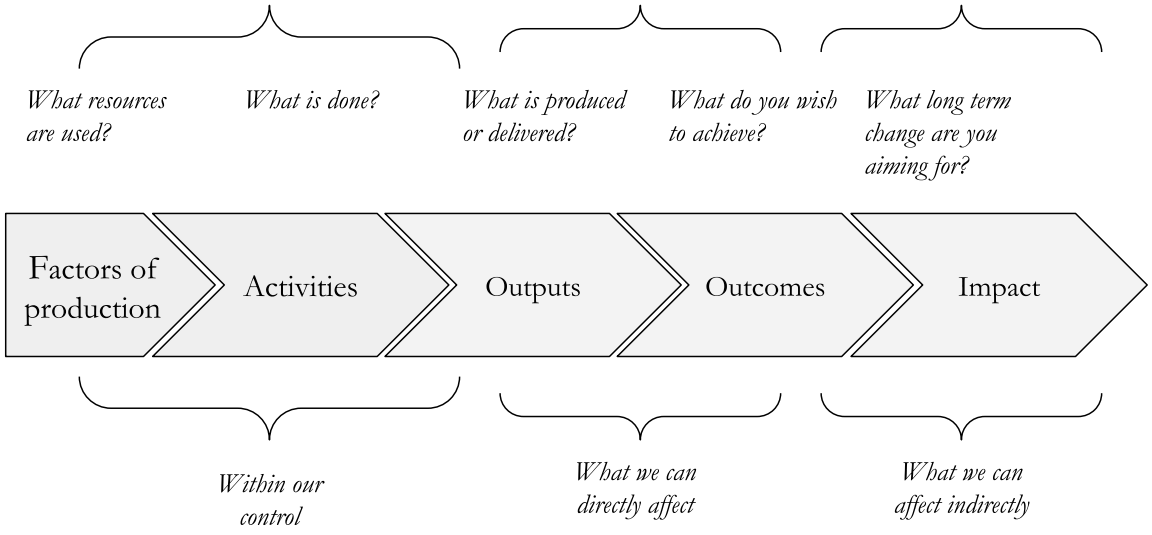

Figure 2: Results chain adopted from (SSØ, 2010) and (Norad, 2008)

2.2.3 Using theory of change as a framework for evaluation

Theory of Change (ToC) emerged from the evaluation of community development programs in the mid-nineties (Weiss, 1995) Weiss argues that *"the concept of grounding evaluation in theories […] are based on explicit or implicit theories about how and why the program will work"* (Weiss, 1995, p. 66) He explains that the evaluation therefore has to construct methods for data collection and analysis to track the unfolding of the assumption. The aim is to examine to in what degree the program theories are valid. ToC has since been adopted by non-governmental organizations, international foundations, and evaluators in the development sector (Vogel, 2012, p. 8). Isabel Vogel (Vogel, 2012, p. 8) observes that ToC has increasingly become more and more widespread in the international development , she argues the driving forces for this expansion is how it enables organizations to explore and represent changes, in a way that reflects the systemic understanding of the results agenda and the complexity of development process.

2.2.4 Deriving the six enabling factors of results-based management

The six enabling factors reflect a simple theory of change proposed by Mayne in (Rieper et al., 2010, Chapter 7) and later adjusted for the Norad evaluation (Balogun et al., 2018) It highlights six assumptions which, if in place, will allow results evidence to be seriously considered within

results management. *"results information is "used" when it is seriously considered in discussions and debates surrounding decisions"* (Rieper et al., 2010, p. 128) The evaluation report of 2018 chose to structure the evaluation of the aid administration around these six assumptions. They found that most issues identified as important for operationalizing RBM in organizations fall within these six enabling factors and is therefore a comprehensive framework for understanding the driving and enabling forces of RBM within an organization. The six factors are listed in Table 2 and further explained.

Synopsis of the six enabling factors / assumptions

Assumptions as purposed by Mayne	*Enabling forces adapted for Norad Evaluation*
#1: There is an issue or decision to be addressed	#1: Key issues are identified beforehand so that appropriate results information can be provided in time to inform decisions made
#2: Relevant results information is available	#2 Tools and systems that allow the collection and aggregation of results evidence are available
#3: The information is made available in a timely fashion #4: The information is understandable	#3: The right results information is made available and presented in a form that suitable for use in decision making."
#5: The information is seen as reliable and credible	#4 Users believe that the results information presented is reliable and credible
#6: There is interest in results information by those involved	#5 The organization has enough staff to carry out the work and the relevant staff have the capacity and skills to analyze and communicate results data to facilitate its use. #6 The organization has a culture of seeking and using evidence

Table 2: Comparative overview of the six enabling forces / assumptions (Rieper et al., 2010, Chapter 7) and (Balogun et al., 2018, p. 41)

Assumption 1: There is an issue or decision to be addressed

This is in the Norad evaluation phrased as "*Key issues are identified beforehand so that appropriate results information can be provided in time to inform decisions made"* Mayne says that there has to be a clear use and purpose for the results information to be used, a context, a decision or discussion. When in

place, the results can contribute with greater understanding and clarification. *"Just providing information that looks interesting to people is unlikely to result in much use"* (Rieper et al., 2010)

Assumption 2: Relevant results information is available

The Norad evaluation extended this assumption to also include the aspects of the tools and systems needed to make the relevant information available: *"Tools and systems that allow the collection and aggregation of results evidence are available"* Mayne states this is a challenging assumption as: *"Decision makers may not be quite sure just what information they do want"* (Rieper et al., 2010, p. 132) He further explains that there are different types of results information and calls this results knowledge, this include concepts like: Basic results data, Results analysis with comparison and time trend, assumptions and rational casual claims.

Assumption 3: The information is made available in a timely fashion

Mayne states that "*The information has to be available prior to a decision being taken, and with enough time available to understand and consider the information"* (Rieper et al., 2010, p. 133). He argues that most decisions are planned operational, not the fire- fighting kind.

Assumption 4: The information is understandable

Mayne argues that this assumption frequently are not met. What form that is clear and understandable will depend on the audience. He further states; "*the challenge is to take the time to know how best to communicate the results information to the specific audience."* (Rieper et al., 2010, p. 134) In the Norad evaluation assumption 3 and 4 are merged together to factor 3: *"The right results information is made available and presented in a form that suitable for use in decision making."*

Assumption 5: The information is seen as reliable and credible

This is phrased as factor 4: *"Users believe that the results information presented is reliable and credible"* the Norad evaluation. The main questions of credibility is what can be considered as evidence, furthermore the credibility of those producing the results information also matters. The trust of the information available is essential for it used in decision making.

Assumption 6: There is interest in results information by those involved

This assumption are in the Norad evaluation divided into two separate enabling factors the most general and similar in: "*The organization has a culture of seeking and using evidence"* Mayne argues that "Learning from empirical evidence and analysis on past performance is what a results culture is all about".(Rieper et al., 2010, p. 140) He further states "*too often, seeking and considering evidence is not*

part of management" (Rieper et al., 2010, p. 144) And that managers often experience that they don't have enough time to manage for results.

Enabling factor 5

The organization has enough staff to carry out the work and the relevant staff have the capacity and skills to analyze and communicate results data to facilitate its use.

This enabling factor is derived from the sixth assumptions of Mayne and added in the evaluation report. "Building a culture of results in an organization does require a capacity to be able to articulate and measure results, and a capacity to understand how results information can be used to help managers manage" (Rieper et al., 2010, p. 141) Norad evaluation also draws on Bester, who suggests that institutionalizing RBM requires an widespread approach to capacity development, which means that the capacities of staff in operations management, as well as technical staff should be developed. (Bester, Angela, 2016)

We will in the following research use the revised version as adopted by the Norad evaluation, identifying six enabling factors for RBM across the aid administration, as this is already used in the Norwegian development cooperation framework and represents a theory of change for the routine use of results information in this context.

2.2.5 Results and learning culture in Norwegian development cooperation

The guidance for public management given by The Norwegian Directorate for Financial Management states that "*the purpose of results management, is that it shall lead to learning, development and improvement of the business."* (SSØ, 2010, p. 6) RBM is presented as a management wheel, where management employs a set of tools to reach the organizations objectives. The management wheel shows the generic visualization of the intended continuous management activities. This is illustrated in the Figure 3 below:

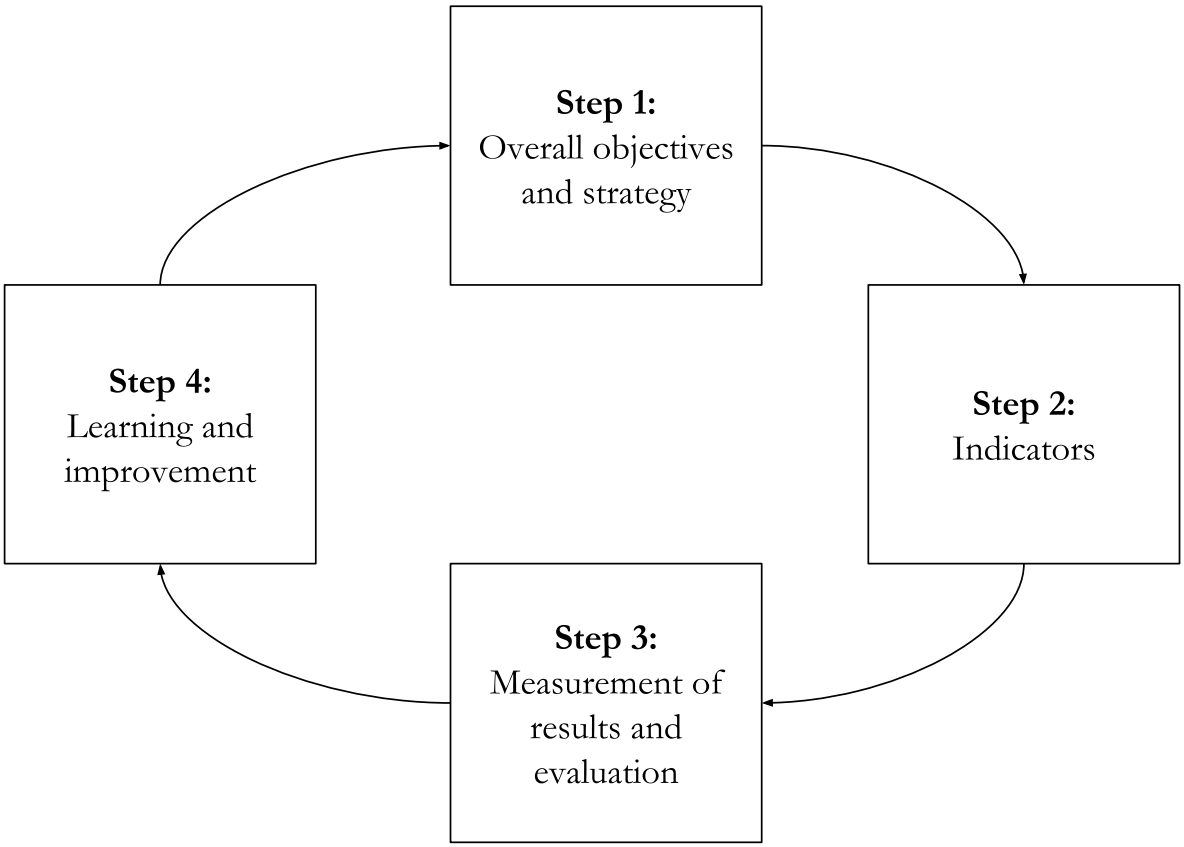

Figure 3: Management wheel adopted from (Balogun et al., 2018)

The fourth and final step in the management wheel is learning and improvement, it builds on the assumption that the use and evaluation of results are crucial if the entity to be adaptable, find good solutions and use its resources effective. (SSØ, 2010) The guidance further states that the use of information technology can enable easy communication of the results.

Norad specifically characterize four aspects of results and learning culture (Norad, 2018): The first is to seek out evidence of results of what has been achieved and use this to challenge or support action. The second is to make time to learn and reflect on what has worked and what has not. Third, is the ability to change plans and adapt what they are doing if the evidence supports it. The fourth and final is to encourage experimentation through seeking out new ways of operating and supporting risk taking.

2.2.6 Challenges of result-based management

Whether RBM is an appropriate framework to be used within developmental context is debated. Its strongest supports emphasis RBM's ability to enhance strategic planning, monitoring and evaluation. Critiques states that the "management" side is often overlooked and that the RBM are

applied in a rigid way that rewards and incentivize quantitative measurable results and short-term change. Increased pressure to justify funding. It is also a fear that the donor-initiated measurement will compromise goals and impacts on beneficiaries (Benjamin, 2012)

RBM are more about how it is applied than its intrinsic value (Simister, 2017). It is however more difficult to apply where change is difficult to define, long term or contested. RBM focuses mainly on one part of management, namely the identification of predicted, measurable change. It is nevertheless also important to identify unexpected or negative change, the monitoring of external environment and the alternative usage of the resources (Murphy et al., 2019) A recent study reviewing the effects of 20 years with RBM in OECD finds that the providers are better equipped to report and monitor short term outcome data and use it for communication and accountability purposes, it is less used for direction and learning. Mayne would argue that the problem is that "*learning is not institutionalized as a necessary part of managing in the same way planning is"* (Rieper et al., 2010, p. 145) Overall there is challenges to the strategic, organizational and management decisions. Some unforeseen consequences are also the distortion effects to priorities what can be easily measured, the pursuit of accountability at the expense of learning and policy direction. RBM might becoming overly bureaucratic and rigid, and thereby increasing the transaction costs and hampering innovation (counter-productive implementation) (Vähämäki & Verger, 2019)

2.3 New technologies in development cooperation

This subchapter gives a brief overview of digitalization and technology in development cooperation. Secondly it explores mobile technologies, followed by cloud technologies. The second last sections introduce the effects technology can have on corruption, before the final section explore future possibilities.

Technological development is one of the key aspects of economic development the past decades. New technological development allows countries to perform tasks more efficiently than what could previously have been achieved. More informed choices should also lead to better actions and efficient use of resources.

Developing countries have significant benefits to implement new technologies like cloud computing, but the present level of implementation is low and in its early stages compared to more developed countries. (Mrhaouarh et al., 2018) On the other hand there are great progress in minimizing the digital competence and availability of technology in the developing world. According to a world bank report the digital divide between the developed and developing world

are shrinking. New digital trends are allowing the developing world to join in on the latest technological stages at a higher pace than the developed world previously went thorough. Nearly 7 out of 10 people in the bottom fifth of the population in the developing world own a mobile phone, and they can even benefit whether they do own a technological device themselves or not. (World Bank, 2016) To put this in perspective, there are more people in the developing world having access to mobile phones than secondary schooling, clean water or sanitation. Internet adaptation has tripled between 2015 and 2016, and mobile phones are one of the key drivers to interconnectedness. (World Bank, 2016, p. 101)

2.3.1 Digitalization and technology in development cooperation

Specifically looking at digitalization and implementation of information and communication technologies in development projects, we see that these have been characterized by high failure rates. Between 60% and 85% of the project implementation failing amongst government services offered in development work. (Silva & Fernandez, 2016) Together with the fact that low-income countries have invested heavily in e-government compared to other areas of digitalization (World Bank, 2016, p. 153), this emphasizes the need of a structured and well researched look at key elements of success and failures.

One central challenge of the implementation of such systems is in the sustainability aspect of the system implemented. Within the monitoring and evaluation projects there are seldom sustainable benefits after the project is finished, and the system shuts down when the donor funding ceases. This has been an recurring problem for many years, and earlier (Alibhai et al., 2018, p. 4) goes as far as stating that "this seems to be a misuse of resources that would not be tolerated in other project components".

2.3.2 Mobile technologies in development cooperation

A large study of data from 160 countries in the period 2004 to 2014 suggests that mobile data technology may promote well-being in development countries, and therefore suggests a policy implication of investing in these technologies. (Ganju et al., 2016; Majchrzak et al., 2016) Given the benefits of the mobile technologies in recent years, this allows information and communication technologies to go even further at a lower cost to developing countries. Recent development within mobile technologies are one of the key drivers of interconnectedness. (World Bank, 2016, p. 101) Utilizing these benefits in development cooperation has the potential of both

let the finances go further and be distributed more effectively with a higher degree of portability and control.

2.3.3 Cloud technologies in development cooperation

Running and maintaining information and communication technologies infrastructure on premise is often costly and compared to the resources in power consumption and obtaining hardware and software. In the recent years new models of service based on pay-as-you use models have been steadily growing. Cloud computing in developing regions are still a small market but have characteristics that could provide a significant advantage in the developing world. Both for governments, businesses and end users. (Mrhaouarh et al., 2018)

The three main categories of cloud computing are Software as a Software as a Service (Saas), Platform as a Service (PaaS) and Infrastructure as a Service (Iaas). (Mrhaouarh et al., 2018) The main differences of these three service models are how much infrastructure the user are responsible for implementing. In a SaaS the customer only has responsibility for the users in login, registration and administration of the service, in PaaS this expands to application related management, while in IaaS the application stack is in the management of the customer. The factor common of the three service models are that the vendor always provides the necessary infrastructure in computer hardware and networking. (Kavis, 2014, pp. 104–108)

Cloud computing in total are expected to grow from $182.4 billion in 2018 to $331.2 billion in 2022. The largest growth by service is expected with IaaS from $30.5 billion in 2018 to $76.6 billion in 2022. (Gartner, 2019) That is a compound annual growth rate[1] of 12.67% in the total market and 20.22% in the IaaS market alone. While there are many benefits of cloud computing, the two main concern in cloud computing is the challenge of security and cost of communication.

2.3.4 Corruption and technology in development cooperation

Development work has had a large emphasis on corruption and reducing corruptive behavior. Especially with implementation of information and communication technologies, there has been an increased focus on dealing with corruptive behavior. One large study of e-government in 63

[1] $CAGR = (\frac{EB}{BB})^{\frac{1}{n}} - 1$

EB is ending balance, BB is beginning balance and n denotes the number of years

countries over a four year period, concluded with that the level of e-government development having a negative correlation with corruption. Especially within areas of political, legal and media institutions. (Srivastava et al., 2016)

2.3.5 Future possibilities of digital technology

Technological and digital innovations are developing fast (Theis & Wong, 2017). And the few cross-academical studies combining development cooperation, technology and management tools quickly gets outdated. In other words, there is unused potential. Considering the questionable sustainability in M&E systems, we want to investigate how development cooperation organizations understands technology and digitalization in management of its projects.

3. Chapter 3 - Methodology

In this chapter, we will explain our research approach, methodological choices and design of this thesis. We will also explain the process of data collection and analysis. The reseach design and methodological choices are based on Research methods for business students (Saunders et al., 2015) The development of our research has been a reflective process driven by a desire to better understand and help development cooperation organizations to do better in terms of technology and management. In this process, we have reviewed our beliefs and assumptions, research philosophy and research design. We have approached this research as an external researcher but want to keep our findings practical and inform future practices having a positive view on technology, development cooperation.

3.1 Design and method

The research design is the general plan of how we will be answering our research question. For this project, our overall research philosophy is pragmatic, improving existent theory while our main goal is to contribute to inform future researchers and implementers within this field.

Since we investigated the utilization of technology that is relatively new, complex, and unstructured, we chose to apply an explorative, abductive mixed methods approach with a collection of non-numerical data combined with qualitative analysis. This allowed us to move back and forth between data and theory when exploring our research questions (Suddaby, 2006). We identify themes and explain patterns, to generate a new or modify an existing theory which we subsequently test through additional data collection (Saunders et al., 2015). By reviewing the contemporary literature, conducting in-depth semi structured interviews with different stakeholders, and using qualitative case study examples our ambition is to acquire new insight into a sector that are under constant evaluation. We will rely on primary data done true interview, but also secondary data from annual reports, evaluations and taxation data.

Several different methods can apply to a pragmatic research philosophy. For this master thesis, we initially wanted to use a use a mixed methods research. This meant that our research would consist of both a qualitative and a quantitative study. It was however difficult to retrieve reliable data that we could use for a quantitative study due to the uncertainty of the reliability of the data given from the implemented partners in development countries. We therefore had to produce and collect our own data and write a qualitative master thesis. (Saunders et al., 2015, p. 168)

We have chosen an explorative study since we want to ask open questions to discover what is happening and gain insight about a topic of interest. This is useful since we want to understand how the Norwegian aid- and development relates to management systems, innovation and technology. Our research question aims to understand how innovation and technology can have a positive impact on the management of aid. Given the nature of the research question, our research is primarily explorative, with elements of evaluative. This is also evident through our chosen method. The outcome of our research is partly an evaluation on how well the implementation of new technology and innovations are in aid projects, which is typical for evaluative research. Our research will give a theoretical contribution where the emphasis is placed on understanding "to what degree" and explain "why" in the context of our conceptual framework. Finally, there is a time constraint to our master thesis. This makes it difficult to create data from different time series. Since our interviews will be conducted over a period of one year it will be a cross-sectional time horizon.

3.2 Data collection and interviews

In a qualitative research design the data-collection is non-standardized so that questions and procedures may alter and emerge during a research process that is both naturalistic and interactive. We want to use a multi-method qualitative study where we both use in-depth semi structured interviews and case studies of companies working on developing such programs. We rely on getting access to Aid organization and relevant employees with the relevant insights, position knowledge. To help this we have chosen to use one of our contacts in the Norwegian ministry of foreign affairs, visiting conferences and make our initial contact with people in as high positions as possible. Believing that they will forward us to the relevant person.

3.2.1 Semi- structured in depth interviews

Due to our exploratory approach our research question and interview questions starts whit a what or how. In this way, we can explore the issue of technology and innovation in development cooperation organizations and projects. This particularly important since we are unsure of the precise nature of the problem within Norwegian and Organizations. Because of this we have been able to adjust and be flexible to direction and approach when analyzing.

The validity and reliability of the research are dependent on both gaining access to participants, but also building report and demonstrating sensitivity to gain cognitive access to the participant's data. We therefore needed to be smart on how to approach and invite participants as well of the

design of our interview guide. We need to be aware of interview bias when conducting and analyzing the interviews. To limit this we took great measures in developing an interview guide so we could reduce the tendency of asking unplanned, non-neutral probes. (Lillis, 1999) See Appendix E – Interview guide Norwegian or Appendix F – Interview guide English.

We had our key questions organized around three themes which made us flexible to omit some questions if not applicable in each organization or with an object. We had on beforehand made a list of possible prompts and follow up questions to better understand and probe each answer. Allowing to elaborate topics and responses relevant to answering our research questions, but also allowing the discussion to go into areas we had not anticipated on beforehand. We built our interview guide on the latest research, literary review and evaluation of development cooperation, but also wanted to allow for emerging concepts from current interviews themselves.

By using open questions and reformulate some of the main questions throughout the interview we could triangle some of the main themes. But also to some degree improve the validity of the answers and reducing some of the interview biases of reading too much meaning into specific words and answers. We therefore asked job specific and general questions in the beginning to better understand the context and background. This allowed us to build report and make the object more relaxed. We also, to the extent possible we tried to conduct the interviews in a familiar environment to the objects, at their office and in person. Allowing us to observe their natural work context and giving potential material for our study. In our exploratory study, in-depth interviews would also be used to understand the context and background. We therefore asked job specific and general questions in the beginning. This allowed us to build report and make the object more relaxed. We also, to the extent possible we tried to conduct the interviews in a familiar environment to the objects, at their office and in person. Allowing us to observe their natural work context and giving potential material for our study.

By conducting the interviews in pairs, we could take notes and transcribe simultaneously. One person focusing on asking the questions, and the other person to focus on the answers given. We also would write short first impressions and mirror impressions and emerging themes together.

3.2.2 Sample size and participants

When determining our sample, we wanted it to represent the full set of cases in a way that is meaningful, namely answering our research questions, but also justifiable given our limitations and time constraints (Becker, 1998). This is affected by our the limitations of our physical access

to participants and organizations, but also our sensitivity in order to gain trust, so that we can acquire cognitive access when the interviews are in place (Saunders et al., 2015). We decided that we wanted to focus on NGOs with administrative staffs in Norway. The only criteria was that they had gained government support from NORAD within the last eight years.

The sample size is somewhat context driven, especially when we are intending to collect data using semi structured interviews (Patton & Schwandt, 2015). It has traditionally been a question of data saturation. Guest argues that when the aim is to understand commonalities within a homogenous group, 12 in-depth interviews should suffice (Guest et al., 2006) Saunders argues that when doing a non-probability sample for semi- structured/ in-dept interview 5 -25 is the minimum (Saunders et al., 2015, p. 259) We interviewed 15 people in total from 10 different NGOs. They all had responsibilities and worked with different aspects of management, reporting and evaluation. All interviews were recorded and coded with organization O=1-10 and number of interviews in that organization I=1-2

Interview participants and their roles

Identifier	*Size of organization*	*Role*	*Word count*
O1I1	Small	Manager/CEO	4590
O1I2	Small	Office manger	4627
O4I1	Small	Project Coordinator	5890
O5I1	Small	Advisor M&E and learning	3693
O7I1	Small	CEO	7702
O8I1	Small	International programs manager	5948
O2I1	Large	Professional advisor	5553
O2I2	Large	Assistant to Secretary General	5075
O3I1	Large	Manager	7462
O3I2	Large	Team leader; M&E	8867
O6I1	Large	Senior advisor	3802
O6I2	Large	Senior advisor	3054
O9I1	Large	Program Manager	3550
O9I2	Large	International programs manager	3561
O10I1	Large	Enterprise architect	7300
Total		15	80674

Table 3 Interviewed participants and their roles

We did purposive sampling, since there is an element of judgement when selecting the cases, this method is also known as judgmental sampling. This fits our design with a relative small sample (Neuman, 2014). Heterogeneous or maximum variation sampling uses your judgement to choose participants with sufficiently diverse characteristics to provide the maximum variation possible in the data collected. (Saunders et al., 2015) To ensure maximum variation within a sample, (Patton & Schwandt, 2015) suggests that we identify our diverse characteristics prior to selecting your

sample. We therefore divided the sample between small and large organizations. The division was based on large being the top ten NGOs in grants from Norad in the period 2008 to 2018 (Appendix G – Norad grants 2008-2018), or large multinational organizations involved in development cooperation initiatives that also received grants from Norad. The small organizations were those who were below in the top ten NGOs in grants from Norad in the period 2010 to 2018 and not a large multinational organization involved in development cooperation initiatives. We then started at the top of the list and contacted leaders in the organization and asked if they were willing to do an interview. We did this until a sense of data saturation was acquired. Saunders in (Symon & Cassell, 2012) argues that samples chosen for convenience often meet purposive sample selection criteria that are relevant to the research aim. He further finds that managers are more likely to agree to be interviewed, rather than complete a questionnaire, especially where the interview topic is seen to be interesting and relevant to their current work. We therefore tried to reach out to the highest-ranking leader in the NGO we had chosen.

3.3 Research ethics

To make sure that the master thesis is following ethical standard, we will be taking some considerations in the planning process. As a researcher, it will be essential to make sure that the interviews and the thesis do not cause harm to any individual or organizations. We will encrypt the data that provided through the research that connects the personal and organizational information while working on the thesis and limit the data access involved researchers. After the research is finished, the data involving personal information will be deleted, so that none can trace back the answer given by the participant. This is essential, since we will be using a lot of sensitive data related to systems and projects.

In the interest of keeping the organizations anonymous, we will assign an identification number to each organization. Only the identification number will be included in the dataset. The names of the organizations will only be available to a select few researchers. To ensure data protection and privacy we will be following the Norwegian guidelines from the Norwegian Centre for Research Data. This included storing the keys and transcripts on different locations. The interview is voluntary, and participants will be informed that they can withdraw from the survey at any time. See Appendix D – Data collection approval and information letter for more details on the privacy of respondents and organizations.

3.4 Reliability and Validity

Reliability refers to replication and consistency. One key aspect is to ensure that all elements of our research process are carefully considered, evaluated and does not contain logic leaps and false assumptions. Internal reliability refers to ensuring consistency during a research project and external reliability refers to whether our data collection techniques and analytic procedures would produce consistent findings, if replicated by a different researcher (Saunders et al., 2015)

The question of reliability is essential when conducting our interviews. We need to make sure that our sample is representative and has sufficient response rate. The implementation should reduce participant error and biases. A practical implication of this is to be consistent in choosing when and where the interviews are conducted as described in the sampling section. The combination of interviews and literary review also helps us identify participant bias. Being value driven, we also need to be aware of potential researcher bias. This is also potential risks of interviewer bias. Overcoming these forms of biases is related to the ways in which these types of interview are prepared. See section Data collection and interviews for further explanation.

Validity refers to the appropriateness of the measures used, the accuracy in the analysis of the results and generalizability of the findings. Internal validity is established when the research accurately demonstrates a causal relationship between two variables. External validity exists if the research findings can be generalized to other relevant settings or groups. The lack of standardization in semi-structured and in-depth interviews can lead to concerns about reliability/dependability. In relation to qualitative research, this is concerned with whether alternative researchers would reveal similar information, (Saunders et al., 2015)

Our research looks how digital technology impacts management in Norwegian aid organizations. It is outside of the scope of this research to prove the causal relationship between usage of specific systems and its effect. The internal validity will therefore to some degree be limited in exploratory research. The internal validity will however have consequences to whether this research should be examined further, and influence future practices. The accuracy and explanation power of our model should also therefore be reviewed.

3.5 Data analysis strategies

Due to our methodological choices the analysis has to be guided by the quality of the contribution gained. Our exploratory design being flexible and adaptable to change. It could be important to

state that due to the qualitative nature of this research, our findings may not prove a causal relationship. Still, our findings can discover possible connections, which is still valuable input.

3.5.1 Preparation and first impressions.

Before we started the process of analyzing our data collections we needed to prepare and understand the nature of our qualitative approach, to familiarize our self with our data. Our interviews consist of non- standardized data, where meaning is based on expressed words. This makes it a bit more difficult to synthesize and quantify, but the diversity of the organizations and people interviewed gives a richness and fullness to explore our research question properly.

Starting our research from a RBM perspective we loosely build our interview guide on the six enabling factors of the RBM. This is a great help as it supports us in the interviews to know what to look for. By writing summary of each interview, self-memos and research notebook we will already have condensed, and categorized the initial findings. The next step would be to put the interviews together and start to code and group topics together according to themes so that we could make sense of the data.

3.5.2 Thematic analysis and inductive tools

We have chosen to use thematic analysis on our data, this provides a systematic and flexible way to analyze qualitative data (Braun & Clarke, 2006). This allows us to integrate related data from different transcripts. The interactive nature of data collection and analysis allows us to recognize important themes, patterns and relationships as we collect data: in other words, to allow these to emerge from the process of data collection and analysis. As part of this we will need to re-categorize and recode our existing data to see emergent themes, patterns and relationships as we collect the data and do the transcription. (Saunders et al., 2015)

Our abductive approach also allows us to categorize some of the findings to excising concepts, but also to allow topics to emerge and refine our research questions to merge with the edge of research. In our matrix, the emerging themes are horizontal together with the six enabling factors. And together with our research questions forms an analytical framework. After this thematic analysis, findings were conceptualized based on the trends and discoveries we found in the research. By linking these categories and themes we provided a structure we could use to answer our research question.

3.5.3 Conceptualization and analysis matrix

We used a matrix, tables and sheets to identify trends, arguments and themes that gave information about our research questions, see Figure 4: Analytical approach. The coding and structuring of data were done to condense and aggregate the data across the literature and emerging themes.

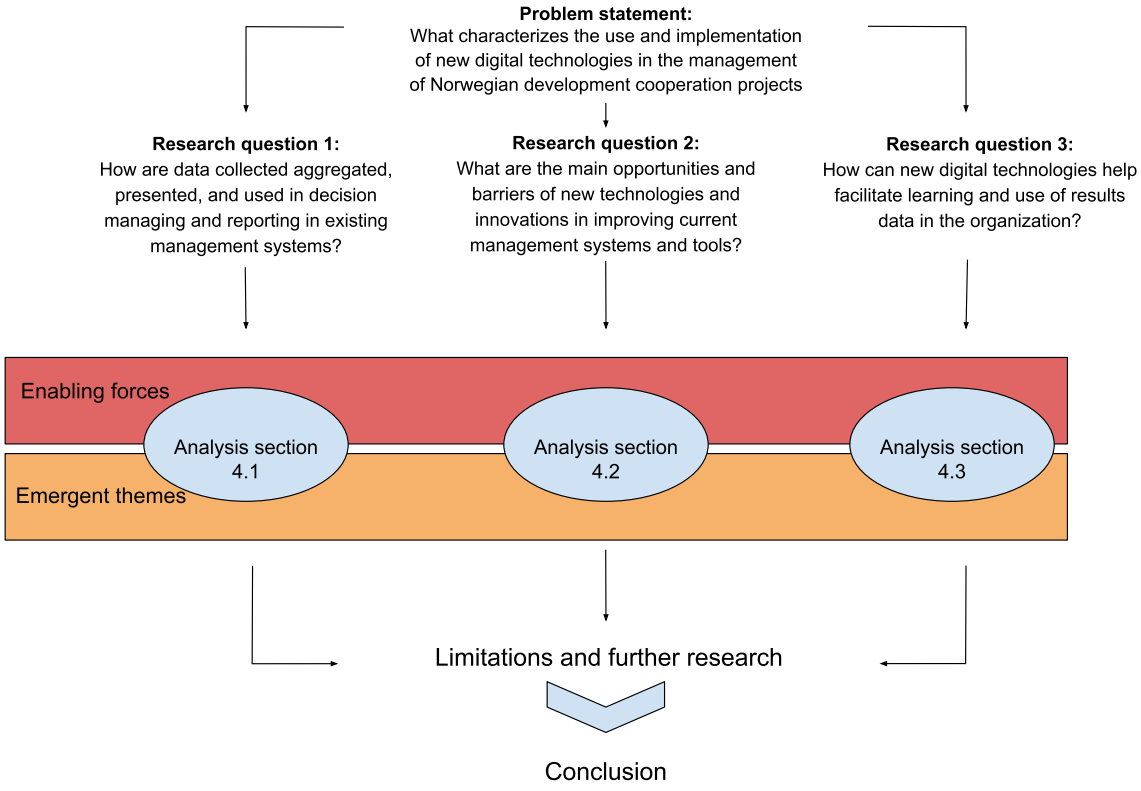

Figure 4: Analytical approach

4. Chapter 4 - Analysis

The results of each research questions are presented through a section on initial results and findings. Following these findings there are a deductive approach where the framework for the six enabling factors of RBM management presented in the 2018 Evaluation of the Norwegian Aid Administration's Practice of Results-Based Management (Balogun et al., 2018). Thirdly there is an inductive section on emergent themes where findings that are covered by the deductive framework is discussed. This section consists of both emergent themes that are shared by all research questions and themes unique to the specific research question in focus. In the end of each research questions there is a summary of the sections presented through the analysis.

4.1 First research question

RQ1: How are data collected, aggregated, presented, and used in decision making and reporting in existing management systems?

To address this question, the interviewees were asked a wide range of questions on how they collected data and what the information was used for. This comprises question one to seven in the interview guide. Common for all organizations are the requirements in terms of reporting and framework as described in the section on literature and background. This research could therefore isolate what management tools and systems was available and how they were applied in decision making and day to day operation across various organizations. By examining the current tools used we would begin to understand what characterized and drove the use and implementation of certain tools and technologies. We were especially interested in the relationship effects the digital management tools had on project management.

The perspective given from respondents in the development cooperation organizations gave valuable insight and evidence on what tools that were used and available. It showed to what degree data and digital information currently affected the organization and management. Furthermore, it raised some concerns weather the current tools and frameworks could provide the structure to successfully enable a result based management in the NGOs.

4.1.1 Initial results and findings

A recent report suggests that Results-Based Management RBM systems among the partners of the Norwegian aid administration have shown that partners do not have tools and systems available that allows the collection and aggregation of results evidence (Balogun et al., 2018). The report furthermore shows that the right results information is not made available and presented in a form that is suitable to use in decision making. Throughout this research, the organizations were examined to see whether this was the case at the NGOs level as well.

Existing management systems

The tools mentioned were grouped and displayed in a graph based on their attributes. The interviews confirmed the variances and understanding of the tools and systems as several of the digital management tools and systems emerged at later sections in the interview. Even though all the organizations were required to have the logical framework as provided by Norad grants, only seven out of ten organizations mention this framework when asked. The respondents also show some variance within the same organization when asked what tools and systems that was available.

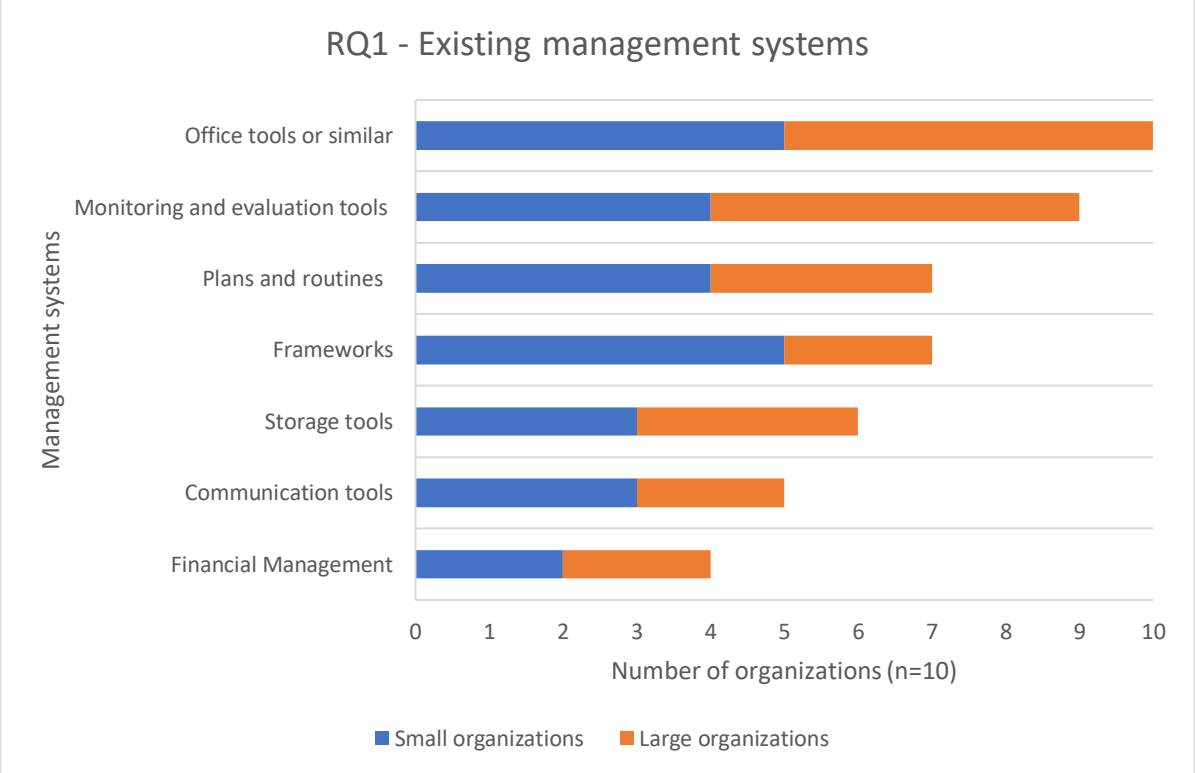

Figure 5: Categories of tools, see appendix for detailed categorization
See Appendix A – Classification of software and tools for detailed categorization

Office tools or similar digital software solutions were used by all the organizations to contain and share information from field projects and various parts of their developed framework and indicators as reported to Norad. The category includes Excel, Word, PowerPoint and other text processing tools. These tools could be considered basic software to arrange and display data collection from projects. More specifically all the organizations answered "Excel", and relied on narrative reports often written in Word.

Half of the organizations gave examples of communication tools as part of their management. Some stating that the need for communication was the most important parts of the management of the organization. Five of the organizations answered email, and four out of them also mentioned other messages or video conference tools. Seven out of five named organizational planning tools and routines. This was administrative routines and plans aided by software. Notably nine out of ten had specialized project management tools in forms of systems for monitoring and evaluation. This category was divided this into three categories: Data collection, analytics and integrated systems. The last category combining multiple aspects of project management. It was only one organization that mentioned statistical tools like STATA or SPSS, although three organizations mentioned cloud solutions such as Power Bi that could be used in analytical purposes. Six organizations mentioned file sharing systems, and these were mostly digital solutions to store documents and sheets in the cloud or on a shared location. Out of these one large organization also mentions ring binders as frequently used file sharing and storage solutions.

When confronted with the question: "*How do you collect the result data and information?",* all the organizations gave the answer partner based. The exceptions were if they did not have a sister subsidiary in the implementing country. Usually the results data and information were collected at quarterly or half year intervals. However many stated that it was the day to day exchange of information with partners that was the most important in terms of management.

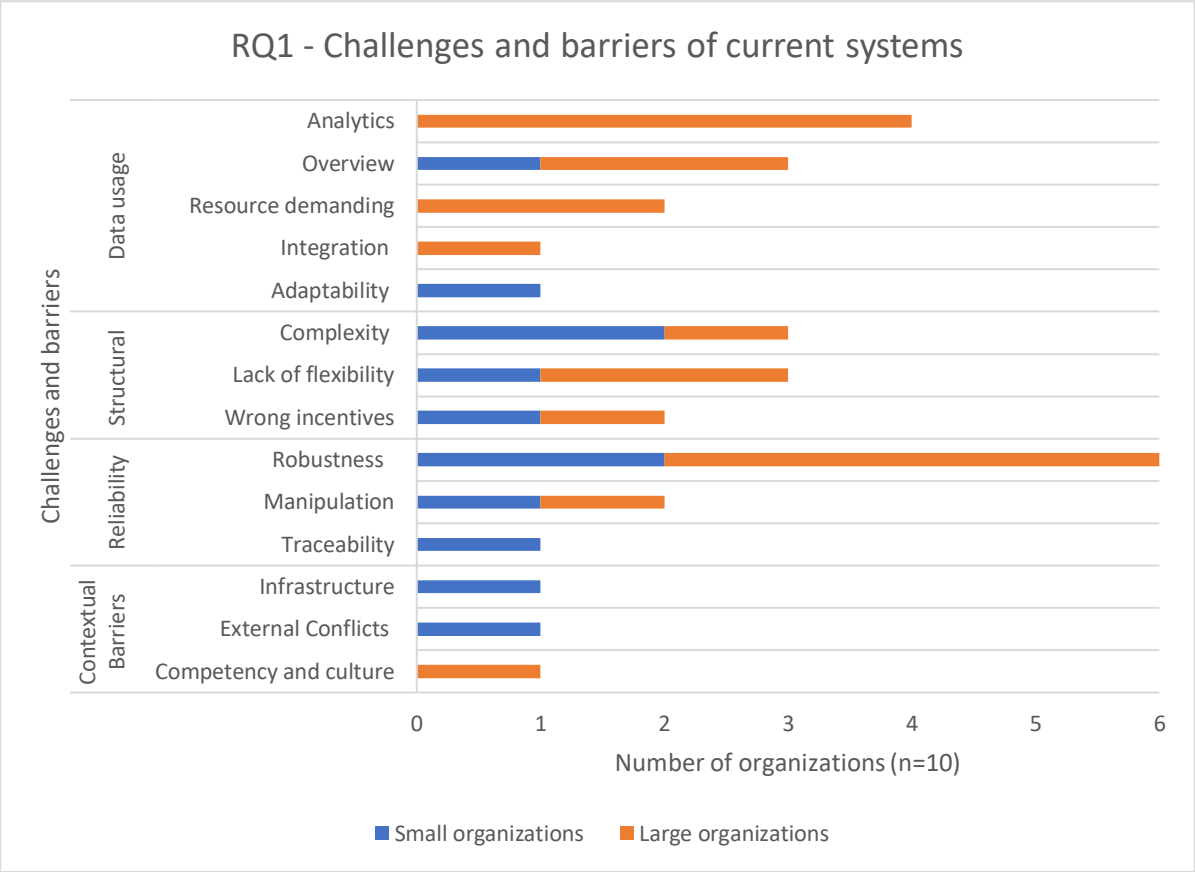

Figure 6: Challenges and barriers with current systems

Four groups of barriers were identified when asked about challenges with the current system. These were divided up in barriers related to the usage of data, structural barriers, barriers of reliability and contextual barriers.

In the first group of data usage, organizations mentioned categories such as data analytics, overview of data, the resource demand of data analytics, data integration and adaptability of data. Four large organizations mentioned barriers of data analytics, while none of the small organizations were concerned with the same. Three organizations described issues of data overview to be a barrier in their current system. Structural barriers such as complexity of the framework, lack of flexibility and what respondents viewed as wrong incentives were also considered amongst some of the interviewees.

Barriers of reliability with the current systems were the most mentioned by respondents. Especially in terms of robustness of systems used, but also aspects of manipulation and traceability of data. In the answers to robustness there were mentioned aspects such as unintentional human errors, challenges of data validation and collecting clean data in the first stages of the reporting

process. Lastly the issues of contextual barriers in relation to partners were mentioned, but only by three organizations in total. Categories mentioned here are areas such as partner infrastructure, external conflicts and the competency and culture within the partner organization.

Collection of results data

The next area of findings explores the process and nature of the current tools and how they enable or impede results-based management. To do this we need to review the process of how the information is transferred through the organization, and see how this affect the process of collecting, analyzing and presenting data. We also need to understand the attributes of the current tools frameworks and systems. All of the organizations are dependent on partners collecting the data and expressed a willingness to assist and help those organizations: *"We mainly assemble data through partners who reports to us." (O3I1)* This means that the monitoring and communication are done using the tools presented in the first section. This could either be in by designated systems, or by sending one or more documents back and forth. Some mention tools like SMS or WhatsApp, while others use designated collection apps. Yet there are still some organizations that use forms in paper format that are later punched in to digital forms at the office: *"People in the field are not putting it directly into the system yet, that is mostly time constraints, and data entry interfaces for SharePoint and Excel. It not great." (O10I1).* This automatic, digitally enhanced or manual laborious way of collecting data have effect on the management process on several areas. In the next sections six of these will be highlighted; storage, aggregation, presentation, usage, credibility, and timing.

Storage of results data

Much of the results data are stored in Microsoft Excel or Word files and stored in various ways. Five of the organizations had online cloud storage tools like OneDrive, SharePoint and Drobox. But it was also found that many of the organization struggled to have overview of what was the latest information and version of a document. This means that there is a lack of standardizations and information are moved back and forth without a system that automatically sorts and aggregate the information. Time must be spent to enter, punch or validate the same information over and over again. *"We had to send individual Excel files back and forth, which is a laborious task." (O8I1) "email attachments and several rounds of copy & paste, as we share data from one source to another". (O3I1)* This might negatively affect the robustness of systems as listed in

Figure 6: Challenges and barriers with current system.

> *It is a high probability that someone will make a mistake, which is why the implementation of a proper system would make our lives easier, as it would ensure a durability in the system of links. It would give us control of who is able to change specific data, and potential mistakes can easily be traced and rectified. (O8I1)*

Even though there are inbuilt tools to track changes and lock cells, this method is not intuitive and has to be adjusted for all new projects and to every new evaluation iteration; *"Excel's solution on this is a bit laborious, as it requires a whole lot of "clicking" to get it right" (O8I1)* By using Excel the organization use resources to do the same kind of work many times. In some cases from paper to digital data and in and other cases from digital data to other systems.

Aggregation of results data

The spreadsheet format of Excel gives some overview and easy calculation of numbers. It is however more complicated to automatically connect and merge similar projects and indicators across projects, countries and organizations to allow in-depth analysis, time series, comparative analysis and predictions. Most of the aggregation and disaggregation was used to summarize and benchmark the overall framework. "*The results-framework handles timelines and progress so that we can follow up on deviations when they occur. That gives us the intention of how the indicators should develop." (O8I1)* The limitations of Excel are also apparent as there is no pre-defined setup to automatically find trends and analyze data. Which are currently done manually and relay on extensive knowledge of thresholds:

> *"There is virtually no intelligence built into these reporting and monitoring systems. It is completely passive so in order to interpret them, make decisions made on the data the person that's reading them has to understand that thirty percent here is good and thirty-five precent there is bad. Whereas if the system was better constructed could automatically display, thresholds or pre-programed thresholds." O10I1*

Presentation of results data

The aggregation of results data was mainly done according to the framework and indicators. Providing simple accumulations of results and allowing the disaggregation based on geography and demographics. The presentation of data was mainly manual extraction of tables combined with a narrative report. And then presented to donors at deadlines given by Norad or in combination with the newsletter to private donors.

Usage of results data in decision making

The interviews uncovered that there was little further use of sharing of project results across the organization. These findings also suggest that most of the results available was primary to report to donors and not for management of the organizations.

Credibility of results data

Another problem is the lack of traceability. Organizations 3 and 10 says that they unable to ensure that the results data are trustworthy. Organization 4 replies that the lack of robustness creates a need to constantly ask the partner to explain its numbers.

> *We must constantly remind our partners to specify how they have calculated their numbers and what they have included in each indicator, because we are completely depending on the calculations and use of indicators to be measured the exact same way in each process (O4I1)*

Additionally, this allows for user mistakes and manipulation by entering incoherent numbers or entering the datapoints in incorrect cells. *"There is a lot of time spent on this obvious incorrect data and actually working out and error checking." (O10I1)*

On time reports

As mentioned in the initial findings, it is the day to day communication and information flow often was mentioned as the most important in management. As pointed out earlier, there are evident weaknesses in the collection, storage and aggregation of data of the current process. This affects the time it takes to get information to the decision makers. O4I1 and O3I1 informs the process of three to four data entries and formats before reaching the NGOs in Norway, and sees the potential for more raw data, traceability and real time data. O10I1 also comments on this aspect:

> *Once you worked out what kind of data you want, then you trained all the people to get it, and they collect it on paper, and come back and filled it out on an excel sheet, and that is error corrected, and sent it, it was not the right format, you send it back. That process can take months, actual months, sometimes years, and sometimes even that level of analysis data collection can only be done at an end of a project. (O10I1)*

4.1.2 RQ1 Six enabling factors

The initial findings tells the overarching aspects of how are data collected, aggregated, presented, and used in decision making and reporting in existing management systems. In this deductive section we will see how these findings correlates and effects management in the RBM framework by using the framework for the six enabling factors for results based management presented in the 2018 evaluation report of the Norwegian aid administration (Balogun et al., 2018). A brief overview of this analysis are given in the following subchapters

Enabling factor #1

The interviews show that the purpose of most of the data and evidence collection was to report on the chosen indicators in their logical framework. Furthermore, it was generally answered that data was used in decision making in terms of allocation money and determining the success of a project based on the indicators of the framework. The challenges were that the data points were seldom used for future projects or analytical purposes. "*We don't use data dynamically enough to govern our own resource allocation when it comes to people and resources, so somewhere during fall we start slightly frantically looking for an overview, which results in a convulsive reallocation of money." (O3I1)*

Enabling factor #2

There are routines and systems in place to report on the required indicators to donors. The systems and tools used for day to day management are however not integrated with those routines and managerial needs of the organization. Aggregation of data are mainly done within a project of age, country and primary done in office tools often with multiple data entry processes.

> *Handling data digitally has been a challenge in itself, and we are struggling to transition from ring binders, email attachments, and endless rounds of copy & paste as we share data from one source to another, to just using databases specifically to handle key data. (O3I1)*

Enabling factor #3

Few or little tools were available for presentation of the results data outside of the required frameworks. Findings suggests that the visualizations and presentations are primarily prepared for donors. The large organizations had communication departments to aid in the visualization process, while the smaller organizations did not necessarily visualize their logical frameworks. There were however several mentions of presentation tools in relation to communication with non-government and private donors.

> *It is presented in LogFrames in Excel. It is sort of the visual presentation. When we produce our yearly report to Norad, we also apply the competence of our department of communication to improve the visual appearance. However, that is pretty much it, to be honest. (O3I2)*

Enabling factor #4

The organizations mainly relied on the data collection and evidence as done by the partners. The interviewees seemed to trust their partner organizations and relied on routines for data credibility. Few or no tools used for data validation.

> *It really depends on how well all the data is put in, and what kind of routine the country partner has for both encoding data as well as reviewing the data that has come in. (O9I2)*

Enabling factor #5

Many organizations stated they did not have the time to analyze the information. This is elaborated more in the second research question but are also relevant in describing the limitations of current tools.

> *Actually doing the analysis to find out: what is this significant part, (..) that takes more time than you got, so then by the time you get to the, you know, the team gets to actually analyze and figure out what is actually important, and what the relationships are. (O10I1)*

Enabling factor #6

There seem to be little integration with the culture and management needs of the organization as a whole and several respondents mentioned a limiting way of thinking that affects the organizational culture.

> *Our practice has been to assemble data on behalf of others then ourselves, and we have not been curious enough of what the data can reveal to us, as we were too busy conveying the data to the people who paid us. However, we are now starting to realize the potential that lies in learning from the results data ourselves. (O3I1)*

4.1.3 RQ1 Emergent themes

The following section will outline the overarching emergent themes in light of the research question and some unique findings.

Small vs large organizations

We found that in terms of tools and systems most organizations relied on narrative reports and excel framework. It was the large organizations that had developed their own monitoring and evaluation system. The findings also suggest that the large organizations to a greater extent identified weaknesses with the user characteristics of the current system compared to the small ones. The small organizations did however express a greater frustration to the reporting requirements given by Norad. *It is an increasing requirement from Norad (…) which is beyond logic. From the past eight years I have been here, the demands have just kept on growing in numbers." (O4I1)* The smaller organizations also had to some degree less understanding of technology due to a limited staff with relevant competence.

Reporting vs management

The answers of the respondents suggests that most of the data collection is primarily motivated by the need for reporting and progress evaluation, and not initially collected with a purpose to be used in management decisions. Because the data points and the tools and systems that they are collected with lack the flexibility, standardization and trustworthiness that the framework for results-based management require to support decisions. The data points are collected and aggregated by partners, and donors require scheduled reports that encourages evaluation at set points of time. However, the evaluation between these set intervals are not taken into account in the management needs and decision making of the organization.

> *"If I can be brutally honest, I would say that the data accumulated is only to a really small extent used for making decisions. Ideally, my answer should have been that we gather the data for our own benefit and produce reports additionally. However, the reality is that donors are leading the demand for accumulated and comparable data in a meaningful way, not the management." (O3I1)*

Relative understanding of management systems and technologies

As described in the findings there was a great variance in terms of what was understood as monitoring and evaluation systems in terms of management. There was also large variations in the understanding of technologies that could enable management and the possibilities and practical implementation of such technologies.

> *The fact that you do not have sufficient insight into existing tools and software, because you are not updated on the digital possibilities. I am a part of "generation dinosaur" when it comes to technology, so it is a pretty big challenge for me (…) We normally communicate through Gmail. We tried communicating with a partner via a Cloud service, but that didn't last for long, which was mainly my fault, to be honest. (O1I1)*

At the discretion of donors and partners

By reviewing the answers given in the overarching emergent themes, the evidence suggests that most of the tools used are not necessarily the best tools to use as a manage system. The tools are rather used and chosen based on their adaptability and reporting requirements to the donors in terms of required reporting to the project plan and indicators. The format and tools of the data collection are at the discretion of their partner, although some partners have experimented with various tools that enables surveys and digital collection. Generally, the NGOs was bound by the policies of Norad, and the limitations of the partners. The tools are not used or designed in a way that enhances decisions making and management. But designed to simplify the data collection of the partners and fulfill requirements for project support.

This has unconsciously given away the choice of data collection system to others than the NGOs themselves, and the tools and frameworks are not able to integrate and communicate the data and information needed to present and enhance decision making in day to day use. By not integrating the project indicators together with grant requirements, information flow, budgets and current activity level and output, the organizations are not able to scale and make predictions and adjustments to their management needs.

> *What are the consequences of downscaling the indicator of how many you should reach, and thus the cost of delivery and the economic decisions. The correlation between the activity, the framework of the results and the economic decisions are important to manage well (O7I1)*

These findings suggests that current tools, systems and frameworks are used primarily due to requirement, polices and availability of partners. This however should not theoretically or practically mean that they are not suitable for management and monitoring of projects. On the contrary, the logical framework build on the causal effect of actions and results. The chosen indicators and values are the best indicators of the desired effect and are expected to give the information needed to reach the long-term goals. But as several of the respondents commented: *"It is the daily and continuous contact that is the most important." (O6I1)* To be able to manage the projects, the organizations rely on various platforms of communication with the partners. Furthermore, the effects of the conformity to the logical frameworks, and the underlying assumption of perfect

information and systems creates a need for many of the NGOs to go outside of normal reports to exchange information and communicate. The tools and management systems used for this are often informal, non-standardized and has a low level of security.

> *The field office does not see the point of filling out the report, and the line management has found that they gain more information from informal channels such as WhatsApp-messages. The continual flow of information makes the Skype-meeting superfluous, since they got a WhatsApp-message from them yesterday, and already know what is going on. Moreover, the department of the economy takes care of the financial management, so it is often arbitrary what information we get from the field offices when it comes to 'burn rate', accomplishments and risk management. However, we normally have a good insight into the political situation since that is where people have their attention. What is happening in [partner country]? What happens after the election? Will there be riots when the election results are published tomorrow? Do we expect riots in the coming week? We have a good overview of these kinds of matters, the technical supervision and etc., on the other hand, are sometimes slipping through our fingers. (O3I1)*

Awareness and access to compatible tools

In theory, the right indicators and the right activities will lead to the right results. But there is a breach in its assumptions when the frameworks emphasize the impact results and the assumptions does not take into consideration the practical limitations of the most used management tools. Thus, one and can no longer use the logical chain of results.

The findings suggest that the tools that are supposed to capture the information and data required to establish RBM management framework are not present. Nor are they used to a degree that can provide the assumptions needed to manage within a RBM framework. The tools in used in the organizations does not utilize or convey the relevant information that is available and needed for decisions making and management. This is due to the limitations of its ability to timely present and aggregate trustworthy information. The tools used needs to better integrate the relationship with the partners. "*I believe that the most important benefit is the relation between us and the partners and projects there. That is where we gain most information. Because the information going up to Norad is just excerpts of excerpts." (O8I1)*

The theoretical framework and practical application in use today do not calculate the current limitations of tools and systems when planning and doing a development project. And organizations need to incorporate the management systems in their theory of change and enabling factors. In this way the organizations can provide and collect the information that the six enabling factors attempts to capture and mange. Without a plan and tools to collect and capture the data and information with partners there is a fundamental breach in how organizations can actively

manage project and activities. As the organizations experience a danger of overemphasizing the framework or system in management. It is the actual information, not the tool itself that should be in focus to balance the outcome and activity focus.

> *Is it the system or is it actually the data and the information, so you know we get an Excel spreadsheet with a certain information in it, that helps us understand what is going on, it is not excel that is helping us, it is information that is held within it" (O10I1)*

By being aware of the weaknesses of the framework in relation to the technologies used, the development cooperation organizations, donors and partners can better capture and relay the information in the context.

4.1.4 RQ1 Summary

This section has looked at how the data are collected, aggregated, presented, and used in decision making and reporting in existing management systems of Norwegian NGOs involved in development cooperation projects. The findings uncovered that there were large variations in both what kind of digital technologies the NGOs used in current management, and large variations in the aptness off these tools to solve the management issues at hand in the organization. There were challenges of the trustworthiness of data, ability to aggregate data and considerable amounts of time spent on data collection and transferring files back and forth between partners and the NGOs. The digital management systems were primarily designed to solve demands in reporting to donors rather than enabling the results data to be used in management of the organization. Many organizations described the logical frameworks as essential in reaching their long-term goals. However they were not able to adequately use the results data collected, aggregated and presented in a way that enabled decision making in the management of the organization.

4.2 Second research question

RQ2: What are the main barriers and opportunities of new technologies and innovations in improving current management systems and tools?

The second research question uncovers the interviewees understanding of essential factors to adopt and use new digital technologies and innovations in managing their organization. Their awareness of current used technologies and future opportunities are mapped, as well as their understanding of both barriers and opportunities of implementing and using new technologies. By this structure we get information about both their current state and perceived future opportunities and their main barriers of implementation.

As pointed out in the theory sections, studies shows that the vast majority of information and communication technologies in development projects fail (Silva & Fernandez, 2016). There has also been a recurring problem over several years where researchers find that there are seldom sustainable benefits after a project ends (Alibhai et al., 2018). With these findings as backdrop we have implemented the main points from the six enabling factors for results based management (Balogun et al., 2018) as a framework for the analysis of the main opportunities and barriers of new technologies and innovations in improving current management system and tools. Alongside this we will also introduce some emerging themes from the interviews.

4.2.1 RQ2 Initial results and findings

To address the second research question, we asked the interviewees to elaborate on relevant new possibilities and technologies related to their organization, ongoing projects where new technologies and solutions are used in gathering and using results data and the main barrier of implementing new technologies. This is mainly covered in question 8, 9, 10, 13 and 14 in the interview guide, but in some cases the interviewee begins the discussion of opportunities and barriers also in the previous section on current management tools and processes in gathering and processing results data. Relevant data from these discussions are therefore also included in the analysis of the second research question.

These findings are divided into three sections in order to answer the second research question. The main barriers of technology in improving current management systems are presented first to uncover the interviewees understanding of which factors that hold them back in adopting new

technologies. Secondly the opportunities of technology in improving current management systems are presented to uncover the interviewees understanding of which possibilities that lies ahead of them to potentially implement. Lastly the mentions specific technologies and tools aiding in improving current management systems are presented to uncover more specifics of technologies the respondents see feasible to implement and use.

Barriers of technology in improving current management systems

Since the respondents were free to answer the questions based on their own understanding, there is a large variation as to how the respondents chose to present the main barriers of technology in improving current management systems and to what their main focus or words used were in answering the questions. After several steps of coding and categorizing the data there remained 17 key categories that covered the answers of the respondents. The results are presented in

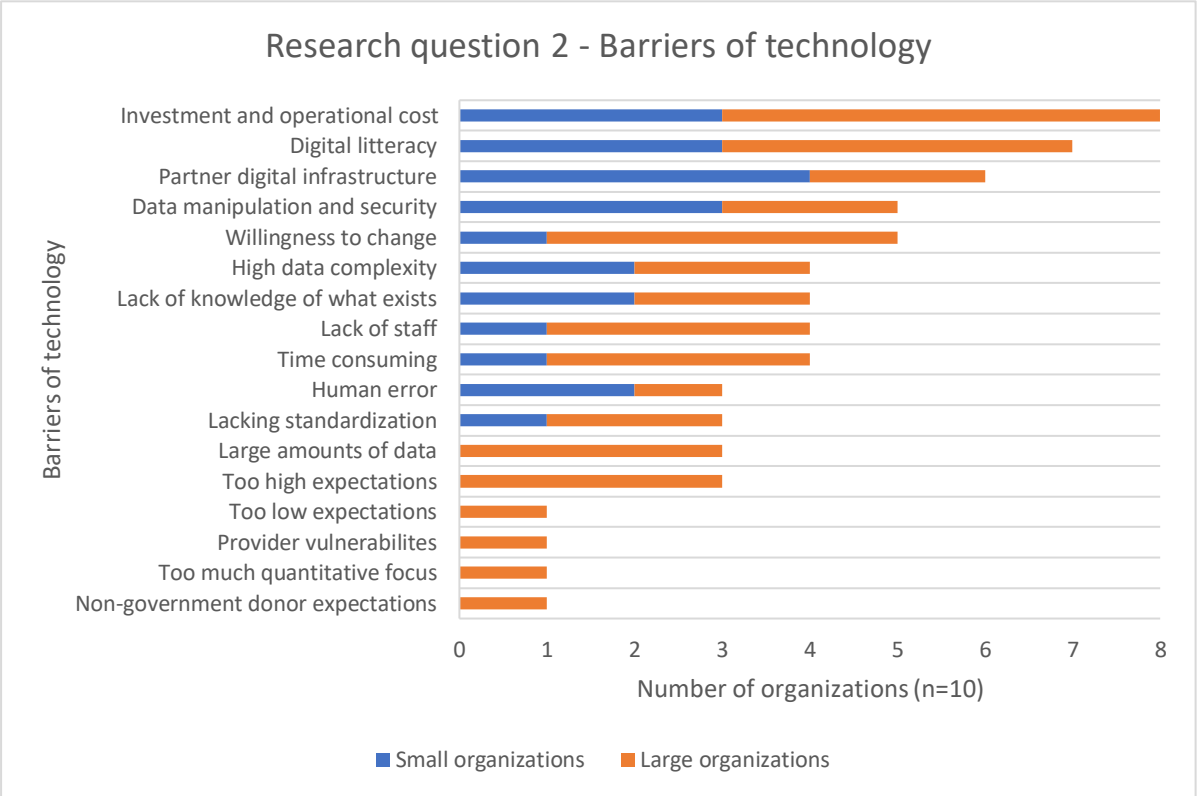

Figure 7 below where the number of organizations that mentions each category are listed. The results are also color coded to separate small and large organizations.

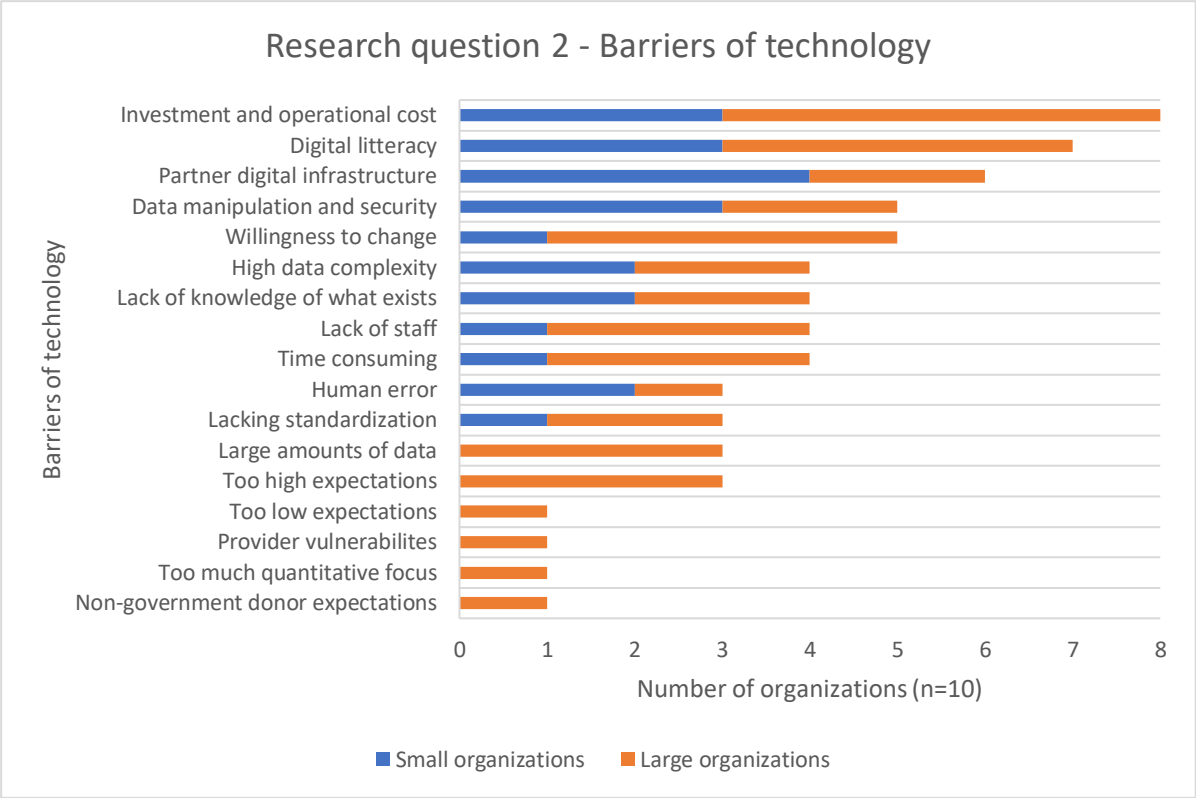

Figure 7: Research question 2 – Barriers of technology

The respondents three main barriers of technology in improving current management systems were investment and operational costs, digital literacy and partner digital infrastructure. These three were the only categories mentioned by more than half of the organizations (n>5).

Not only were investment and operational costs most mentioned, but it was often the first barrier the respondents replied when asked. Especially the initial investment cost to buy the technologies as well as initial staff training costs were the main focus, while some also included operational costs in the discussion. Digital literacy was also frequently discussed where the technological competence of the organization as a whole was evaluated to be low in most cases. In many interviews the discussion of digital literacy were also complemented by a discussion of a lack of knowledge to what technologies exists on the market as well as mentioning a lack of staff in general to do the tasks already present in the operations of the organization. Lastly the digital infrastructure of partners were also frequently mentioned as barrier with unstable internet access and unstable power grids typically being provided as examples, although some interviewees mentioned partners being more active or even more advanced users compared to themselves when it came to mobile technologies and creative use of open source software.

Most categories fall between the middle section (n=3-5) where the highest mentioned categories were data manipulation and security and willingness to change. Many organizations were concerned of either deliberate data tampering or leakage of personal information relating to their clients. In one specific case there were recipients of aid that were not registered in the population register, but then there were internal discussions as to whether providing such a solution and helping the government register these inhabitants could prove to have an negative impact if the government used the data as leverage to accomplish non-desirable surveillance and actions (O9I1). Interestingly enough the respondents were also self-aware towards their own organizational culture in mentioning willingness to change within the organization. The aspect of culture and learning will be further unpacked in research question three but in this context there is a link to willingness to implement both the technology and new procedures that follows this implementation.

High data complexity was mentioned by just under half of the organizations, but those who mentioned it often had a succeeding discussion of data complexity and measuring indicators they viewed more qualitative than quantitative. Lack of knowledge as to what technologies exists were also prevalent in the discussions where many respondents requested both an overview of what is available and cooperation in acquiring relevant digital management systems and tools. At the same time the respondents often mentioned both a lack of staff both in terms of availability and competence, as well as pointing out the time consuming effort in both acquiring and operating relevant digital systems.

Mistyping and human errors were mentioned as frequent ways the data got unintentionally corrupted or provided a misinformed picture of reality. One category especially were situations not having standard data labels. Leading up to the next point of the data gathering and database systems not providing standardized data labels and common procedures. Having multiple ways of writing grandmother in the form made the data hard to standardize and aggregate at a later stage of the process to allow for comparative analysis and presentation of aggregated datasets. Furthermore some interviewees elaborated on a discussion as to whether the expectations of technology were too high, especially relating to a discussion of the perceived attitude towards technology being a solution that untangles all the issues presented to the organization.

Lastly there were four categories only mentioned by one organization, and where only the large organizations partook in the discussion. This encompassed too low expectation towards technology, provider vulnerabilities in potential delivery failures or bankruptcies, an discussion of too much quantitative focus in digital technology providers and the challenge of communicating

the need of investment in technological solutions to non-government donors that expected the percentage of funds sent to partners to be as high as possible.

Opportunities of technology in improving current management systems

The interview data on opportunities of technology in improving current management systems also went through several steps of coding and categorizing which resulted in 17 key categories that covered the answers of the respondents. The results are presented in Figure 8 below where the number of organizations that mentions each category are listed. The results are also color coded to separate small and large organizations.

Figure 8: Research question 2 – Opportunities of technology (*specific technologies presented in a separate graph)

The clearly most mentioned opportunity of technology in improving current management systems were data availability (n=7). Many respondents mentioned aspects such as customizable dashboards and graphs making it easier to get a quick overview of relevant data. In general respondents also mentioned tools to present both data and results in a more suitable way than the current tools and processes of the organization.

Half of the organizations (n=5) mentioned a need for data validation. This was more specified in areas such as preventing human errors, making sure the data were trustworthy and not tampered with on purpose, eliminating security breaches that could leak or change data, making sure the data were of an desired quality and ensuring data verifiability in audits. Half of the organizations also mentioned specific technologies which is presented more detailed in "Figure X".

Respondents also frequently mentioned the process of data gathering and opportunities of technology both in terms of effectiveness and using offline tools to meet the challenges of internet access and infrastructure availability issues. Respondents mentioning improved collaboration listed areas such as collaboration and communication tools both internally in the organization and in regards to partners, and saw this as an opportunity to also reduce frictions between groups conceived by improper communication tools. In terms of increased effectiveness respondents listed aspects such as reducing manual work, removing the middleman, increasing the capacity of the organization, more effective resource allocations, being able to reduce data entries and saving time in aspects such as gathering, extracting and presenting the data.

Synergies across systems in general were also an opportunity of technology the respondents viewed as an improvement over their current situation. Some organizations saw data standardization as an opportunity to improve data analysis capabilities with less cluttered data and ensure the aggregation and comparativeness of the data in later stages of the process. The aspect of data analysis were also sometimes discussed in more detail where the opportunities of technology could provide better and more advanced analysis as well as possibly include some predictive elements into the analysis. Several of the organizations also identified opportunities of technology in measuring data that were usable in managing the organization to a greater extent than the current focus on gathering and reporting results data in the current frameworks.

Lastly there were discussions of opportunities of technology in simplifying complex data, creating a data oriented culture within the organization, presenting the results in marketing, automating tasks presently done by manual labor, improving the feedback loop of the data in shortening the time of when the datapoint occurs, are gathered and are presented in a suitable form allowing

feedback to the partner and lastly both respondents in one organization talked extensively about the opportunities of combining results and finance data for a much closer parallel handling of these two aspects.

Opportunities of specific technologies and tools aiding in improving current management systems

Although some organizations mentioned specific technologies in their current tools and management systems uncovered in the first research question, not many organizations mentioned specific technologies when asked about opportunities for their organization. No one mentioned specific software or programs, and most only mentioned the type of technology they foresaw as an opportunity. Even though the categories mobile technologies, cloud solutions, machine learning, natural language processing were explicitly mentioned in the interview as examples, most responded in terms of what the technology could help the organization achieve in terms of opportunities rather than specific technologies when asked about relevant technologies and opportunities in question 8, 9 and 13 of the interview guide. The specific technologies mentioned are listed in Figure 9 below.

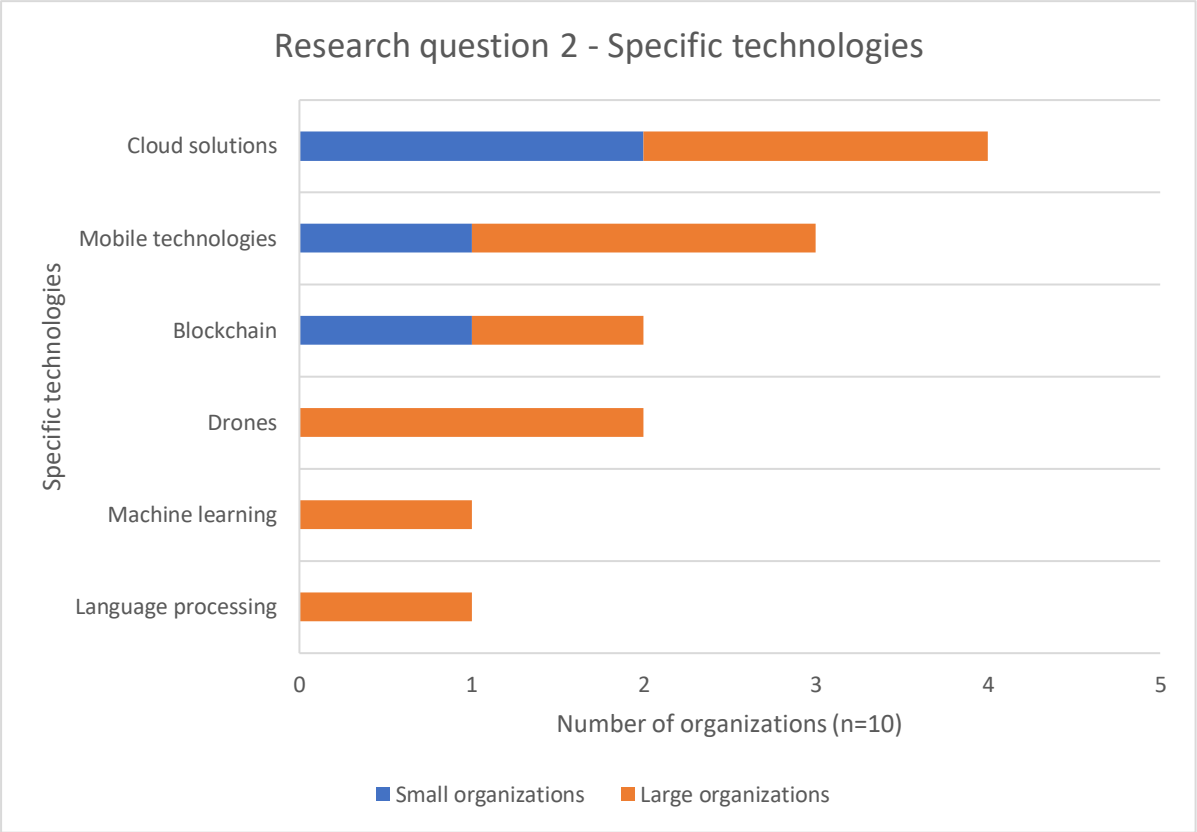

Figure 9: Research question 2 – Specific technologies

Four respondents listed cloud solutions as opportunities of specific technologies and three respondents answered mobile technologies. Amongst the interviewees that answered cloud solutions the two large organizations already had extensive cloud based implementations, and the two small organizations were amongst the organizations with the highest degree of manual processes.

Blockchain was mentioned twice in the context of data verification and making sure the data were not tampered with. The category of drones were used in one example to aid in data collection and information gathering, while the other example mentioned drones as a tool to get political attention and showcasing single projects while the effects in total were negative since the drone replaced potential local jobs.

Lastly machine learning and the sub category natural language processing were mentioned only by one interviewee as technologies the organization were not expecting to use in the near future, but interesting technologies further down the road that had relevant use cases as the technology becomes more familiar.

4.2.2 RQ2 Six enabling factors

To analyze the data the findings will first deductively be analyzed using the framework for the six enabling factors for results based management presented in the 2018 evaluation report of the Norwegian aid administration (Balogun et al., 2018). Each point will be commented on based on barriers and opportunities of new technologies and innovations in improving current management systems and tools. And overall findings commented subsequently.

Enabling factor #1

Respondents are identifying barriers in partner infrastructure, high data complexity and reports often being updated one to two times a year which proves challenging to provide data in time to make informed decisions. On the other hand respondents perceived data availability, improved data gathering, improved measurement of management data and improving the feedback loop from partner to the organization as opportunities of technologies to shorten the time from the datapoint occurs, are gathered and presented in a suitable form for decision making.

Enabling factor #2

Respondents identifies barriers in high investment and operational costs for digital management systems, partner digital infrastructure, data manipulation and security, high data complexity, lack of knowledge of providers, lack of standardization, large amounts of data, provider vulnerabilities and non-government donor expectations as barriers to provide tools and systems that allow the collection and aggregation of results evidence available. On the contrary, respondents saw opportunities to ease the barriers through using new technologies and ways of utilizing existing technologies in new ways. Systems that allowed data availability, data validation, data gathering, improved collaboration, data standardization, data analysis, ways of simplifying complex data, ways to automate tasks and combining results and financial data were identified opportunities to allow collection and aggregation of results evidence. Specifically, tools such as cloud solutions and mobile technologies were mentioned as feasible technologies to implement in the not too distant future.

Enabling factor #3

Respondents identifies high data complexity, lacking standardization, large amounts of data and a high quantitative focus to be barriers in enabling technology to provide the right results information and present it in a form that is suitable for use in decision making. On the contrary data availability was the most mentioned opportunity of technology which countering some of the barriers. Also improved collaboration, systems synergies, measuring management data,

simplifying complex data, presenting results in marketing, automated tasks and improved feedback loop were opportunities of technologies that could aid in making sure the right results information is made available and presented in a form that is suitable for use in decision making.

Enabling factor #4

In regard to user believing the results information presented to be reliable and credible, respondents identified data manipulation and security as well as human errors to be barriers of technology. On the other hand, data validation and data standardization were opportunities of technology identified that could aid in countering the barriers. Specific technologies such as blockchain were also mentioned in relation to verify and making sure the data gathered was not tampered with.

Enabling factor #5

In regard to the organization having enough staff to carry out the work and the relevant staff having the capacity and skills to analyze and communicate the results data to facilitate its use, respondents saw barriers of technology in digital literacy amongst staff and partners, willingness to change and lack of staff. On the contrary respondents saw improved collaboration, increased effectiveness of staff and improvement in data analysis as opportunities of technology aiding in countering the barriers.

Enabling factor #6

In regard to the organization having a culture of seeking and using evidence the respondents identified barriers of willingness to change and adapt to new methods and digital systems and the lack of staff to designate analytical tasks necessary to seek and use the evidence. There were also discussions of too high and too low expectations in relation to how much or how little new technologies could provide benefits to the organization. On the contrary respondents identified opportunities of technology in improved collaboration, data analysis and enabling a data oriented culture as opportunities of technology aiding in countering the barriers.

4.2.3 RQ2 Emergent themes

Secondly the analysis consists of an inductive analysis of emergent themes not previously encompassed by the deductive approach. The section consists of three emergent themes that occurs throughout all research questions, and one theme that are occurs in only two research questions or are unique to the second research question of the main barriers and opportunities of

new technologies and innovations in improving current management systems and tools analyzed below.

Small vs large

Perhaps the most prominent emerging theme is the concept of differences in answers by the smaller organizations compared to the larger organizations as defined in the chapter on research methods. Many of the categories of barriers and opportunities of new technologies and innovations in improving current management systems and tools remains the same between smaller and larger organizations. Especially those categories that there are an unified agreement as to being important barriers or opportunities amongst the organizations. The exceptions here would be the main opportunity of data availability where all the large organizations identified opportunities of technology, while only two of the smaller ones mentioned the same aspect. On the category of barriers the smaller organizations seemed to be more attentive to partner infrastructure needs as four small organizations mentioned these barriers, while only two of the large organizations identified the same issue.

The most interesting findings on this theme are however where small or large organizations mentions categories that the other ones does not identify. This is especially prevalent with categories that the large organizations are concerned with, while the smaller ones left out in their replies. In terms of barriers of new technologies and innovations in improving current management systems and tools large organizations were the solely mentioning categories such as large amounts of data to process, too high expectations towards technology, too low expectations towards technology, too much focus on quantitative data and the challenge of communicating the need of investment in technological solutions to non-government donors that expected the percentage of funds sent to partners to be as high as possible.

Looking at opportunities of new technologies and innovations in improving current management systems and tools the large organizations were the only ones to mention categories such as measuring management data, presenting results in marketing, automating tasks and combining results and financial data. The small organizations were on the other hand the only ones to mention the need of simplifying complex data.

There seem to be a much broader discussion around both the barrier and opportunities of new technologies and innovations in improving current management systems and tools amongst the large organizations. The respondents in these interviews related to the first research question unveiled that small organizations often used less advanced tools and databases and had challenges

in meeting the demands of donors in reporting on results frameworks, while larger organizations could have several dedicated people to use their time on the reports. Perhaps this is also connected with the barriers and opportunities of new technologies being implemented. On the other hand the data on research question two points to three of the large organizations mentioning barriers such as lack of staff and time consumption of the technologies, while only one organization amongst the smaller ones mentioned the same. While it is tempting to suggest definitive causalities, there need to be further research on the subject to explore the question as to why these divergences between large and small organizations exists.

Reporting vs management

The emergent theme of reporting vs management will be further unpacked in the other two research questions, but there are also relevant aspects of the second research question related to this theme. Especially regarding what the interviewees were focusing on when replying to the questions about barriers and opportunities of technology. Three large organizations mentioned opportunities of technology in measuring management data, while the vast remainder of the discussions around barriers and opportunities of new technologies and innovations in improving current management systems and tools consisted of primarily ways of making the report framework more effective in various ways.

Lacking a standardized solution

The lack of a standardized solution is also an emerging theme that comes back throughout the research questions. In relation to barriers and opportunities of new technologies and innovations in improving current management systems and tools respondents in four organizations replied specifically that one of the main barrier in their understanding was that they did not have an overview of providers and solutions that fit the needs of their organization and sector. Three organizations also mentioned the lack of standardization in what kind of solutions that are provided. Several of the large organizations were either in the middle of or just completed market awareness projects to find suitable solutions to use in their organization. This was especially prevalent in one organization where both respondents talked extensively about the process they had been in the two years prior and the solution they had chosen just days before the interview. Through this process the organization went from thinking their current solution were adequate, looking for available solutions with not knowing any existed, process of invitation to tender, talking to ten providers about possibilities to adapt their system to the needs of this organization, and lastly choosing their preferred solution. Even after all these steps the interviewee viewed the overview of available solutions to be bewildering. The respondent concludes:

> *Yes, for us, I guess you can draw a line back to 2017 when we still did not have a clear perspective of the market. To be honest, I still find it a bit unclear today. Although we have been in this round with 9-10 suppliers, it is still a challenge to get in touch with them (...) We understand that it is a lot there, but it is hard to access. Maybe it is about market orientation, combined with our own competence. (O2I1)*

Relative understanding of technology

In relation to the second research question some interviewees discussed the concept of technology and digitalization with great details and showing competence through commenting on the use of advanced data analytics tools and understanding of shortcomings of recent technologies such as machine learning in the organizations current setting and situation. One interviewee sums up the discussion in a following way:

> *I wish it was more conversations about: What data do we get? What data do we need? How do we go around developing? Who looks at what when? And then gives analysis on it. So digital transformation is something that people tend to just use when they replace pen and paper, without really thinking through: What am I trying to do? (…) Some companies do it because they realize the power of data. Once you get to the point where data gathered allows you to change the nature of your business, I think that is transformation. There are companies that do it, so why are other people trying to replace pen and paper with tablets when so much more is potentially possible? (O9I2)*

On the other hand, another interviewee when asked about barriers to adopt new technologies defined their own competence as holding back the organization:

> *The fact that you do not have sufficient insight into existing tools and software, because you are not updated on the digital possibilities. I am a part of "generation dinosaur" when it comes to technology, so it is a pretty big challenge for me (…) We normally communicate through Gmail. We tried communicating with a partner via a Cloud service, but that didn't last for long, which was mainly my fault, to be honest. (O1I1)*

While these two interviewees show the most extreme differences, there are other examples that points to both a relative understanding of technology in the organization and the individual interviewee differing between the various organization. In general, the largest organizations were the ones that had the most elaborate discussions. The results could suggest that the smaller organizations either did not have staff with a high degree of competence on technology, or that the interviewees provided to an interview did not adequately represent the existing knowledge of technology in the organization. There need to be further research on the subject to explore the question as to why these divergences exists.

4.2.4 RQ2 Summary

The second research question have explored the main barriers and opportunities of new technologies and innovations in improving current management systems and tools. This has been done through presenting findings in the interviews, analyzing them through the deductive framework of the six enabling factors of results-based management and inductively analyzing several emerging themes from the interviews not previously encompassed by the deductive approach. The interviewees identify seventeen barriers and sixteen opportunities of new technologies and innovations in improving current management systems and tools. Main barriers identified were investment and operational costs, digital literacy and partner digital infrastructure. On the other hand, the main opportunities identified were data availability and data gathering alongside the mention of specific technologies. These findings have been discussed in the framework of the six enabling factors of results-based management and found there were both barriers and opportunities of new technologies in enabling results-based management. In the last section emerging themes such as small vs large, reporting vs management, the lack of a standardized solution, cost being both a barrier and opportunity and relative understanding of technology were discussed. These discussions revealed that the small and large organizations had differentiated perceived needs and discussions in their response on barriers and opportunities of new technologies. The response mostly encompassing technology as a barrier or opportunity in improving reporting rather than providing data suitable for management. Several organizations requesting a standardized technological solution. Initial investments seen as a barrier while potential savings and effectiveness perceived as an opportunity. Lastly there were large differences of relative understanding of technology between the organizations, with the largest organizations having the most elaborate discussions.

4.3 Third research question

RQ3: How can new digital technologies help facilitate learning and use of results data in the organization?

(Villanger et al., 2016) concludes that there has been few or no incentives to prioritize the planning and result measurement in development aid administration. Furthermore, there was a lack in the use of existing rules and routines. We wanted to investigate how the NGOs relate to the concepts of learning and extended use of results data, to explore whether systems, tools and technologies affected this. Through our analysis, we found that the accumulation of knowledge and learning was primarily associated to the human resources and accumulated experiences in the organization. We found that technology and management systems could enable learning and implementation in a better way. We also had many discussions with the participants concerning the regulatory bodies and policies. Although the NGOs or project managers had their procedures often issues are only identified as a result of a more in-depth study.

4.3.1 RQ3 Initial results and findings

Barriers of learning

As previous studies have shown we found that learning was not prioritized and only done in a partial way (Balogun et al., 2018). The respondents gave five categories of reasons for this: Capacity constraints, data management, externalities, organizational culture and organizational structure.

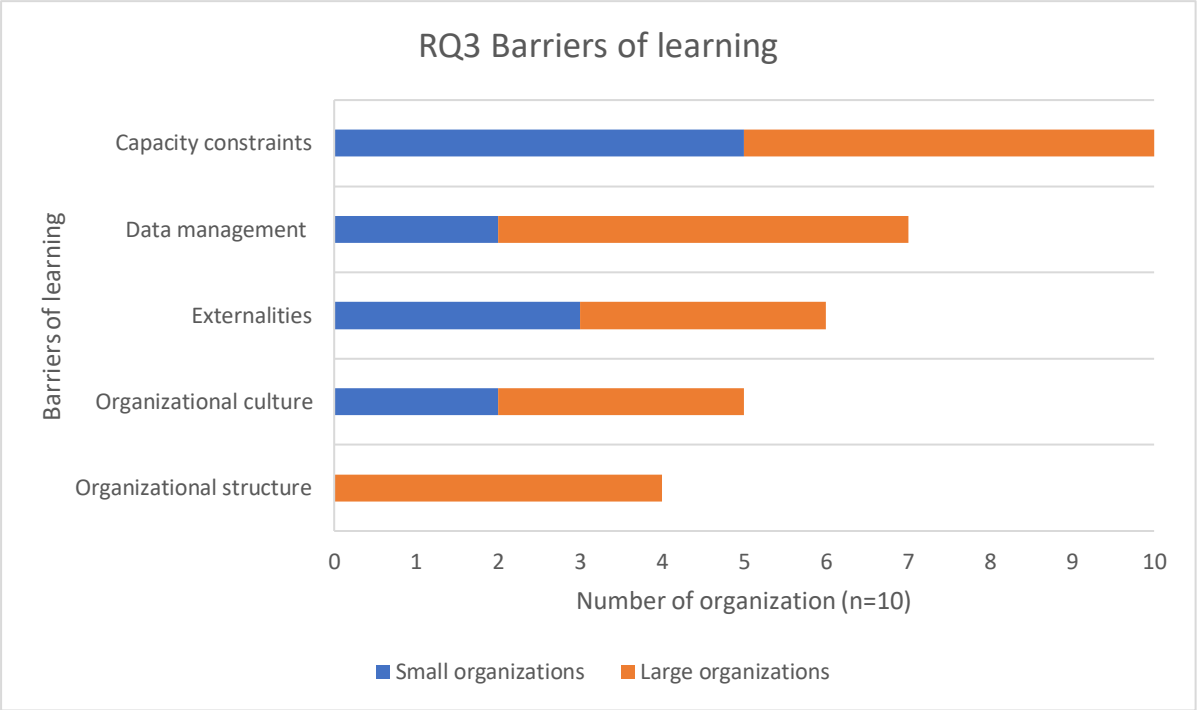

Figure 10: Barriers of learning
See also Appendix C – Complete list of barriers of learning.

All organizations mention capacity constraints as barriers of learning. Although two small organizations mention personnel specifically, the most common feedback is that there is too little time specifically dedicated to learning. All the large organizations also mentions barriers of learning in relation to data management. This could be areas such as data availability, digital literacy, data presentation, data quality and data quantity.

Externalities such as framework complexities, framework design, donor expectations, organizational secrecy, and the fear that donors will cut funding if results are not achieved are also mentioned as barriers of learning by more than half of the organizations (n=6).

Organizational culture such as habitual ways of performing the tasks, number-oriented culture and culture of communication are mentioned by half the organizations (n=5). Lastly organizational structure barriers of learning such as consistency in tools used, internal silos of knowledge and routines were mentioned solely by large organizations (n=4).

Current process of learning and use of results data

Respondents varied in their answers to current process of learning. Most common were the aspect of dedicated time to learn and the discussion between the organization and partners. One respondent summarizes the key aspects covered by the other respondents:

> *It is both formal and informal. It is not just from result data. A lot of the things we learn does not come from numbers in a result framework, that is just a small part of the learning. (...) Having a section for reflection enables us to identify and justify our most important results, decide what we want to report, and discern what we need to learn in order to improve our results for next year or next round. This is our motivation behind the implementation of Friday-seminars, where we spend an hour each Friday reflecting over different subjects based on acquired experiences. (…) Learning happens all the time, program managers learn when they interact with partners and discuss projects, they review results and discuss problems and so on. But I do believe we have areas of improvement regarding this (O6I1)*

Most respondents mention evaluation days and partner contact, but few elaborates on the learning and use of results data using technologies and data analysis. In asking to how the organization train the staff to analyze and communicate the results data one interviewee replied:

> *This is unfortunately not structured. Since 2014, when we first began the digital data collection, there has been a huge demand for data analysis. The classic scenario is that a field office request support, or that someone wishes to learn a bit about data analysis and then ask; "[name], could you do some data analysis?". It is not necessarily based on demand, or an aspiration to learn about something they can test. (...) Most of it is not even in the category of regression analysis, rather, it is more about presenting data with different types of graphic representations in order to detect irregularities and trends. (...) However, this is mainly performed in order to follow the development of the program, and not to use the data for reports to the management. (O3I2)*

The interviewee identifies that even though the organization have been gathering data digitally the past six years, the organization have not been able to systemize analysis and learning in a standardized way. The other interviewee in the same organization also identifies a challenge in systemizing and using the results data when asked the same question:

> *You probably want examples, but my first answer is that we might not carry this out to a sufficient extent. Our practice has been to assemble data on behalf of others than ourselves, and we have not been curious enough of what the data can reveal to us, as we were too busy conveying the data to the people who paid us. However, we are now starting to realize the potential that lies in learning from the result data ourselves. The transition from performance reporting to performance management has been my mantra since I took up in the role I have now. (...) As mentioned, a lot is depending on culture on one hand, and systematics on the other. To remind yourself that this is something you ought to do. (O3I1)*

The respondent points out that the organization primarily gathers results data on behalf of others rather than their own needs but have recognized a potential in moving from results reports to results management. In the following discussion the respondent identifies organizational culture and organizational structure as barriers possible to change into opportunities for learning. Earlier on in the interview the same respondent explains the organizations report and feedback structure to partners, but comments that the information is not identified as information relevant in management of the program by either partner or the organization. The end conclusion is that there is a good overview whether the partner has fulfilled the project indicators within the agreed timeframe or not, but that the information is not available in on aspects such as money burn rate, risk handling and other decision making factors. When it then comes to either reallocation of funds or helping the partner it is either not done or done at a late stage where it is less effective.

4.3.2 RQ3 Six enabling factors

To analyze the data the findings will first deductively be analyzed using the framework for the six enabling factors for results-based management presented in the 2018 evaluation report of the Norwegian aid administration (Balogun et al., 2018). Each point will be commented on based on how new technologies help facilitate how the organization seek to use and adopt learning and results data in its operation.

Enabling factor #1

While no organizations claimed that key issues were identified beforehand, some organizations pointed out the need to retrieve such relevant information. One organization mentioned automatic aggregation of results as an alternative:

> *One of the "cravings" we got is to get automatic checks of delivery on the data submitted. We receive loads of emails every day and a lot of it in our [results framework software]. However, our challenge is that we must look at it, remember it, maybe even write it down, and then manually operate it. We know there exist solutions which could have automated this process and reduced mistakes in procedural matters. (O2I1)*

Enabling factor #2

The current shortcomings of tools and systems that allow the collection and aggregation of results evidence have already been discussed in the first research question, and in relation to learning respondents also often mention access to clean data that is possible to aggregate. One respondent puts this into the context of challenges in using modern technologies to analyze the data:

> *We can't use AI [Artificial Intelligence] and ML [Machine Learning] stuff at the moment, because we don't have clean data standardized in a central place to utilize it. Generally, when we do start getting these databases up and running and actually get some data in it, I can see that AI will be able to recognize relationships we cannot recognize. We don't currently cross reference with public datasets that are available, systematically. (O10I1)*

Enabling factor #3

Having the right results information available and presented in a form that suitable for use in decision making is a challenge that is repeatedly mentioned by interviewees across the organizations. Organizations that have developed a data warehouse solution mentions aspects such as dashboards and key indicators made available through the cloud computing platforms. The second research question unveiled data availability as one of the main opportunities of technology, and this aspect is also discussed in the context of learning by one respondent.

> *Data from the portfolio can give us opportunities for learning that we would not have accessed if we were not able to do so. (..) I believe that the things we learned from the quantitative material will be more relevant for us when we analyze our data by comparing "fact to fact". This enables us to identify a larger extent both the things that work well and those who don't, which helps us prioritize our aims, measures and strategies in the right direction. (O2I1)*

Enabling factor #4

Related to users believing that the results information presented is reliable and credible most respondents mentioned data quality issues. Especially the aspect of trust between the organization and partners in how the data were gathered. One organization added on to the vulnerability of poor data quality in the process of learning from the results data:

> *En annen ting vi ikke har snakket om, det er selvfølgelig datakvalitet. Jeg har snakket litt om det, men der er vi veldig sårbare. At vi nå plutselig kan presentere ting i dashboards, så virker det jo veldig mye mer proft. Men så er det jo hvis metodene vi bruker i felt er de samme. Hvis vi utformer dårlige eller ikke-relevante servicespørsmål, eller gjør dårlig sampling. Eller ikke spør spørsmålene på samme måte og så videre. Så vil jo datakvaliteten være lav, og da plutselig får du masse styringsinformasjon, og hvis datakvaliteten er fortsatt er lav eller dårlig, så. Ja, da er det jo en risiko for at du kommer til å gjøre gale ting, rett og slett. Så datakvalitet endres jo ikke bare ved å introdusere ny teknologi. Det kan gjør at du kan standardisere en del ting og formatere ting på en måte som gjør at datakvaliteten går litt opp, men selve innsamlingen er jo fortsatt like sårbar for. (O3I2)*

Enabling factor #5

The fifth enabling factor of the organization having enough staff to carry out the work and the relevant staff have the capacity and skills to analyze and communicate results data to facilitate its use are the most mentioned barrier of learning. All organizations mentioned some form of capacity constraints, and then especially the subject of available time to dedicate towards learning.

One respondent had a lengthy discussion on capacity and competence constraints in relation to learning and digital transformation:

> *There is always accessibility. Do you know where to find results in the data? Do you know how to pull it out? Do you have any routines around how learning should be guided? Do you make specific opportunities for that? So I think it really comes down to: Do you have any plans to think, basically. And have you though about how you will do your thinking and when you will do your thinking? And who should be involved? I don't think there is any description on that, so it tends to be: Hey, this is interesting, what do we think of this? Lets have a meeting and talk about it. But again if someone does not bring up that point, it does not necessarily [happen if] you don't make time for thinking. (…) I think you basically have to create a point in the calendar. On this time, this is what we are going to do, and it has to naturally feed into a home. (…) That's what I wish it was more conversations about: What data do we get? What data do we need? And how do we go around and developing? And who looks at what when? And then gives analysis on it. So digital transformation is something that people tend to just use, they replace pen and paper, without really thinking through: What am I trying to do? So I think it was a much more concerted effort or discussion around data generation and use within the organization." (O9I2)*

Enabling factor #6

The last enabling factor of results-based management asks if the organization has a culture of seeking and using evidence. While culture could be a hard aspect to identify by someone on the inside, interviewees in half of the organizations commented on the organizational culture when it comes to barriers of learning. Areas such as habitual ways of performing the tasks, number-oriented culture and culture of communication were common mentions related to cultural issues. None of the organizations mentioned use of academic research when asked about how the organization seek and use results data. Most longer discussions identified that there was significant potential in improving the area of learning in their organization, and that the interviewee were not content with the current situation of the organization. One interviewee identifies the potential in creating a culture of results management:

> *You probably want examples, but my first answer is that we might not carry this out to a sufficient extent. Our practice has been to assemble data on behalf of others than ourselves, and we have not been curious enough of what the data can reveal to us, as we were too busy conveying the data to the people who paid us. However, we are now starting to realize the potential that lies in learning from the result data ourselves. The transition from performance reporting to performance management has been my mantra since I took up in the role I have now. (...) As mentioned, a lot is depending on culture on one hand, and systematics on the other, To remind yourself that this is something you ought to do. (O3I1)*

4.3.3 RQ3 Emerging themes

Small vs large organizations

All organizations mentioned capacity constraints in relation to barriers of learning, and there were similarities between the small and large organizations dealing with externalities and learning. Although only two small organizations mentioned barriers related to data management, while all large organizations identified this category to be a barrier for learning. The largest divergence between small and large organizations were organizational structure. All large organizations except one mentioned organizational structure as a barrier in learning, while none of the smaller organizations were concerned with the same issues.

Large organizations also in many cases had longer elaborations on the subject of learning, and the discussions bore the mark of being discussed more frequently in the organization.

Reporting vs management

The reporting framework were viewed by respondents both as a tool that could enable learning if the available data were used in the organization and a rigid framework that did not identify key information necessary for learning.

Several respondents identifies that the culture of data gathering in the organization is focused on collecting the data on behalf of donors rather than used in learning. One interviewee elaborates on this aspect of results data being used in decision making:

> *I wish I could have answered differently, but if I can be brutally honest, I would say that the data accumulated is only to a small extent used for making decisions. Ideally, my answer should have been that we gather the data for our own benefit and produce reports additionally. However, the reality is that the demands to accumulate and assemble data in a meaningful way come mainly from donors and not the top management. That being the overview of what our partners do and don't, to what extent they are following their given timeline and what we can do to help them if they are not able to complete their tasks. We must have an overview of whether there is a financial surplus, a need for reallocation of money, and whether we in some way can help them utilize their performance. We already got flexible funds/means, but we don't have enough of this kind of overview. We don't use data dynamically enough to govern our own resource allocation when it comes to people and resources throughout the year. (O3I1)*

Lacking a standardized solution

Also on the aspect of learning the respondents were identifying a lack of a standardized solution. Especially in the area of data gathering and the processing of those data gathered that makes the analysis and aggregation harder at a later stage. Because there are difficulties in establishing comparable baseline data across different projects and nations the organization is operating in, it is hard to know whether the result is good or bad. One respondent identifies both the issue of

baseline data and a possible solution with software that allows the data gathered to be linked to expected values:

> *I believe the biggest challenge is to not start with empty cells, but rather start with pre-programmed tools, where you not only go in to fill numbers into an empty data cell, but you go in with some pre-programmed context stuff. (...) Many organisations operate in the blind because we do not have sufficient data for referencing. Flatt over befolkning? We do not have these on the same level where you can compare your data with trends, which is a challenge to us. To make both the mindset and, of course, the digital solutions accessible to increase the breadth of the application. We do not want a decreasing space where only those with an exclusive capacity and the right tools can access, while everyone else becomes disconnected. Instead, we want democratisation in this so the capacity to operate with digital tools is spread rather than being exclusive to only the professionals. (O7I1)*

Learning is attached to the human resources rather than being systemized

Respondents pointed out that the learning were often attached to human resources rather than being systemized. Experiences that are not accessible or communicated are hard for the organization to learn from. By improving the access to evidence, the organization can better systematize knowledge. This would raise the level of competence and innovation and improve the systems for monitoring and evaluation. One interviewee points out the need to implement a system that reminds of previous experiences to avoid doing the same mistakes several times:

> *I believe my most important answer on that will we the system. There are very much results data and very much learning that you can appreciate very much in the moment that it is very easy to forget anyway. So having systems in place that reminds you that there is learning, that there is experience, that there exits people that have done this before. People have engaged such a problem maybe ten-fifteen times only the last three years internally in the organization. It is not necessary to do the same mistake over again. (O3I1)*

Another interviewee pointed out that in their organization there exists systems built with attention to learning but points out that the problem could be related to the use of the systems and routines rather than not being available at all.

> *Part of the guide that we have in our RBMs [result-based management] includes this section on using results for learning and informing further decisions. We have a few exercises around that, but I don't think it is very widely used, or not systematically. So, I think most of it tends to be ad-hoc right now. Although, we have identified routines as well as points in the program cycle, where it is good to do review and results learning. But I would say: How often it is used? It depends. So I would say: Like most organizations we want to learn. We have actually gone to the extend of identifying suggestions on how to incorporate learning in. But there is no mechanism to ensure that it is used, nor to identify learnings that were gained through, activities. So, it exists, it is on paper, it is there, it is available, but to what extent it is used, I can't tell you. (O9I2)*

4.3.4 RQ3 Summary

The research suggests that one of the constraints on learning in the NGOs might be that the organization primarily gathers results data on behalf of others rather than enabling their own management needs. The complex nature of the data, lack of comparable baseline and lack of standardization made learning challenging to implement, and in many cases learning was attached to the human resources rather than being systemized.

It is also questionable if the technology will release the capacity constraint recognized in all the organizations as a barrier of learning. However, the research suggests that that technology can help organizations establish and comply to routines which can lead to learning, and therefore create a culture of learning and usage of results data. In that way, previous experiences can be systemized to help the organization in managing their current projects or projects in similar contexts.

5. Limitations

While our thesis gives highly interesting insights into the performance management of Norwegian NGOs, there are multiple limitations to our study with regards to our findings. These limitations relate to our sample size, the background of our respondents, and the timing of our thesis. The digitalization and implementation of integrated resource planning and project management systems are at best in its preliminary phase in some of the organizations, providing some difficulties to our research design. In addition to the limitations identified here, there are some additional methodological limitations outlined in chapter 3, data collection and reliability and validity.

In terms of sample size, we had fifteen respondents and could find consistent trends and themes. However, to further determine causality to trends and internal variations it would be beneficial to have multiple respondents in the bigger organizations.

The other limitation is the generalizability to other international development cooperation organizations. One of the strengths of our design is that we have the Norad framework as a common denominator, and only NGOs who manage the projects from Norway. This allowed us to better see the variables and differences between organizations. However, this also reduces the transferability to projects managed by another donor.

Another limitation of our study is our sampling method. We chose to only focus on the organizations that allowed or responded to our interview request, however, by allowing this to be randomized, this in turn balanced the use of small and large organizations which likely created a representative sample.

When conducting qualitative interviews, we have also encounter potential biased answers. Our respondents are all in some capacity involved in management in the development cooperation in each respective firm, implicating that our thesis lacks the perspective of those implementing the projects locally at the project location. As a result, our analysis might provide a biased impression in contrast to that which would have been discovered had we interviewed a broader sample of donors and partners. However, given the time frame, the thesis was scoped to a Norwegian context covering the viewpoint from respondents with the most experience from specific development cooperation organizations. We also had to make some idiomatic choices when translating the Norwegian answers to English, and by doing so losing some of the richness of the

answers. However by reviewing the context and discussing the translation, we believe that our translated quotes convey the intended meaning in a satisfactory way.

In addition there are limitations to the theory, evaluations and reports used in this thesis. Particularly in regards to two areas, the first being the limited papers on the cross-academical discipline of development cooperation and digital technology used in management. Furthermore, much of the reports and evaluations are often produced by independent organizations and researchers. Some of these organizations gain research and funding by reviewing development cooperation projects and organizations.

Finally, unlike our early beliefs, we experienced that the level of system understandings and tools available in the organization was more limited than first assumed. Many of the organizations first step would be to establish accessible storage places and digital entry points of information. As a result, the implementation of technological systems, its barriers and benefits discussed was more of a future concern than a current problem. The data sample is too weak to form a generalization concerning the common understanding of systems and tools used, and the unique roles in which the people interviewed may have effected the answers obtained.

6. Further research

Several issues that would need further investigation were developed through this research of the use and implementation of new digital technologies in the management of Norwegian development cooperation projects.

The research shows noticeable differences between the small and large organizations across all three research questions. It relate to the aptness of the digital tools used to solve the tasks at hand. Various functionality and limitation of the technologies currently in use and if new digital technologies could help the small organizations in developing a organizational structure suitable both in using and learning from the results data. There is a need to further explore suitable new digital technologies in management systems and unveil the strengths and weaknesses of currently implemented digital RBM systems across the various organizations in the Norwegian development cooperation projects.

While there is extensive writing on the lack of learning in the Norwegian development cooperation projects, this research shows that there might possibly be that new digital technologies which can be a tool to help facilitate the learning process. Especially as a facilitator in making the six enabling factors for results-based management manageable to implement. Further research in the area of new digital technology and learning in Norwegian development cooperation projects need to be conducted in order to unveil the possibilities of using new digital technologies in order to learn from the results data.

Another interesting area for further research is how a standardization or more cross organizational cooperation in the availability and use of technologies and methods of using digital tools, could improve both the reports and results management of Norwegian NGOs involved in development cooperation projects. Especially regards to the areas such as digital data gathering, data storage, data analytics and presentation of reports and results data.

Lastly, the findings in this research suggest that the Norwegian NGOs managing Norwegian development cooperation projects are preoccupied with reporting the demands of donors to such an extent that it affects the management needs of their own organization. This affect both the terms of organizational management and the improvement of current projects based on results data. There is a need for further studies to be conducted concerning the demand of reports given by donors and how they affect the Norwegian NGOs' use of this data in managing their own organization.

7. Conclusion

This explorative study aims at researching the use and implementation of new digital technologies in the management of Norwegian development cooperation projects. This problem has been divided into three research questions in order to capture important aspects of the concept. The interviews amongst Norwegian NGOs involved in development cooperation projects revealed several issues regarding the use and implementation of new digital technologies in Norwegian development cooperation projects that would need further research and investigation.

The research first examined at how the data was collected, aggregated, presented, and used in decision making and reporting in existing management systems. This uncovered that there were large variations in both the kind of digital technologies the NGOs used in current management, and large variations in the aptness off these tools to solve the management issues at hand within the organization. The digital management systems were primarily designed to solve demands in reporting to donors rather than enabling the results data to be used in the management of the organization.

Secondly the research examined the main barriers and opportunities new technologies and innovations had on improving current management systems and tools. The findings were categorized into seventeen categories of barriers and sixteen categories of opportunities of new technologies. These discussions revealed that the small and large organizations had different perceived needs, as well as, different discussions in their response on barriers and opportunities of new technologies. The responses mostly encompassed technology as a barrier or opportunity in improving reporting rather than providing data suitable for management. Several organizations also requested a standardized technological solution, and there were large differences in relative understanding of technology between the organizations.

Lastly, the research looked at how new digital technologies can help facilitate learning and the use of results data in the organization. The research suggests that one of the constraints on learning in the NGOs might be that the organization primarily gathers results data on behalf of others rather than enabling their own management needs. The complex nature of the data, lack of comparable baseline and lack of standardization made learning challenging to implement, and in many cases learning was attached to the human resources rather than being systemized. While technology in and of itself does not enable learning, the research suggests that technology can help organizations establish and comply to routines which can lead to learning, and therefore create a culture of learning and usage of results data.

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Appendices

Appendix A – Classification of software and tools

Tools and software	Small organization	Large organization	Total
Communication tools	**3**	**2**	**5**
E-mail	3	2	5
Other Communication tools	2	2	4
Financial Management	**2**	**2**	**4**
CRM	2	0	2
ERP and accounting tools	1	2	3
Frameworks	**5**	**2**	**7**
Logical Framework	5	2	7
Other Frameworks	3	1	4
Monitoring and evaluation tools	**4**	**5**	**9**
Collection tools	2	2	4
Presentation and analytic tools	0	3	3
Systems	3	4	7
Office tools or similar	**5**	**5**	**10**
Alternative Office tools	1	0	1
Office tools	5	5	10
Plans and routines	**4**	**3**	**7**
Planning tools	4	2	6
Reports	1	1	2
Storage tools	**3**	**3**	**6**
File sharing	3	3	6
Total	**5**	**5**	**10**

Appendix B – Classification of current barriers

Answers given to current barriers	Large organization	Small organization	Total
Contextual Barriers	**1**	**2**	**3**
External Conflicts	**0**	**1**	**1**
External Conflicts	0	1	1
Infrastructure	**0**	**1**	**1**
Internet	0	1	1
Competency and culture	**1**	**0**	**1**
Proper usage	1	0	1
Reliability	**4**	**2**	**6**
Manipulation	**1**	**1**	**2**
Validity	1	1	2
Robustness	**4**	**2**	**6**
Clean data	1	0	1
Data validation	1	0	1
Human error	0	1	1
Manual processes	1	0	1
One supplier	1	0	1
Typing error	0	2	2
Traceability	**0**	**1**	**1**
Traceability	0	1	1
Structural	**3**	**4**	**7**
Complexity	**1**	**2**	**3**
Complicated	0	2	2
Not streamlined	1	0	1
Too much evidence gathered	0	1	1
Lack of flexibility	**2**	**1**	**3**
Rigid	2	1	3
Wrong incentives	**1**	**1**	**2**
Donor driven	1	0	1
Wrong incentives	0	1	1
User Characteristics	**5**	**2**	**7**
Adaptability	**0**	**1**	**1**
Changing management needs in organizations	0	1	1
Analytics	**4**	**0**	**4**
Aggregation challenges	1	0	1
No intelligence	1	0	1
Passive systems	1	0	1
To quantitative	1	0	1
Unstructured data	1	0	1
Integration	**1**	**0**	**1**
Lack of integration between programs and financial data	1	0	1
Overview	**2**	**1**	**3**
Compliance	1	0	1
General	2	1	3
Risk	1	0	1
Resource demanding	**2**	**0**	**2**
Time consuming	2	0	2
Total	**5**	**5**	**10**

Appendix C – Complete list of barriers of learning

Barriers of learning	Small organization	Large organization	Total
Capacity constraints	**5**	**5**	**10**
Personnel	**2**	**0**	**2**
Ability	1	0	1
Small staff	1	0	1
Turnover of staff	1	0	1
Time	**4**	**5**	**9**
Time before data is available	0	1	1
Time in right setting	1	0	1
Time to think	0	1	1
Too little time	4	3	7
Data management	**2**	**5**	**7**
Digital literacy	**0**	**1**	**1**
Competency	0	1	1
Presentation	**0**	**1**	**1**
Presentation of data	0	1	1
Quality	**2**	**2**	**4**
Quality of data	2	2	4
Quantity	**0**	**2**	**2**
Too much data	0	2	2
Data availability	**0**	**1**	**1**
Data availability	0	1	1
Externalities	**3**	**3**	**6**
Complexity	**1**	**0**	**1**
Complexity	1	0	1
Design	**1**	**2**	**3**
Established relation and hieratical structures	1	0	1
Gap between theory and reality	0	1	1
Not integrated between money and results	0	1	1
Donors	**1**	**3**	**4**
Afraid of making mistakes	0	1	1
Reporting requirements	1	2	3
External	**0**	**2**	**2**
Silos between organizations	0	2	2
Givers	**0**	**1**	**1**
Dependability of givers	0	1	1
Organizational culture	**2**	**3**	**5**
Culture	**2**	**3**	**5**
Cultural	0	1	1
Doing the analysis	0	1	1
Habitual ways	1	0	1
Only sees the number	0	1	1
Culture of communication	1	0	1
Organizational structure	**0**	**4**	**4**
Structural	**0**	**4**	**4**
Consistency in tools used (standardization)	0	1	1
Internal silos of knowledge	0	2	2
Routines	0	1	1
Total	**5**	**5**	**10**

Appendix D – Data collection approval and information letter

Information letter regarding data collection

Dear participant,

We are two students at the Norwegian School of Business, who are writing a master's thesis on digital tools in development and aid. The reason why you were asked to participate in an interview is that we want to explore different aspects of the problem seen from both the sender and the recipient side. Therefore, a selection of organizations from Norwegian aid work has been contacted, and relevant representatives from both the sender side and partners are interviewed.

Given the international nature of the aid- and development sector the thesis will be written in English. However, we still want to conduct the interviews in Norwegian when possible because we believe that this can contribute to a freer dialogue and fewer misunderstandings. Thus, our research question is:

How can new technology and innovation improve Norwegian aid and development?

What does participation entail?
The interview will be unstructured, in the sense that we want to ask open questions. We will ask questions regarding management tools in terms of information collection, learning, reporting, technology and digitalization.

The interviews will take place either by attendance or by using call services over telephone or internet where this is more appropriate for the implementation. Each interview will be audio recorded, which will be transcribed after the interview. Each interview can last up to 60 minutes, with an estimated frame of about 45 minutes.

Why are you getting this invitation?
Our selection is based on an overview of Norwegian NGOs which have received support from Norad during the last eight years. We have sampled a variety of organizations and size.

Participation
If you choose to participate, you can withdraw consent at any time without giving any reason. In the declaration of consent and at the beginning of the interview, we will ask if we can record the interview as audio recording, and then you will be able to opt out. We will not bring up any sensitive information on the audio track and it will not have any negative consequences for you if you do not want to participate or later choose to withdraw.

Your privacy
Your name and contact information will be replaced with a code that is stored on a separate name list separate from other data. Only the student and the supervisor will have access to collected data during the project period. We treat the information confidentially and in accordance with the

privacy policy. Upon publication, all personal information will be anonymized, and audio recordings will be deleted. Declaration of consent is sent as a separate document to all participants.

Your rights
As long as you can be identified in the data material, you are entitled to:

- access your personal data,
- correct your personal data,
- have your personal data deleted,
- receive a copy of your personal data (data portability)
- send a complaint to the Data Protection Officer or the Norwegian Data Protection Authority (Datatilsynet) about the processing of your personal data.

What gives us the right to process your personal data?
We process your data based on your consent.

Where can I find out more?
If you have more questions about the study, or wish to exercise your rights, contact us students at helge.haugland@student.nhh.no and fredrik.sverd@student.nhh.no, or our supervisor at magne.supphellen@nhh.no.

Thank you for contributing to our work on the Master's thesis
Helge Haugland and Fredrik Sverd

Consent form

I have received and understood information about the master thesis of Helge Haugland and Fredrik Fløvik Sverd as described in *"Information letter regarding data collection".* I have been given the opportunity to ask questions and herby give consent:

- to participate in an interview
- to audio record the interview
- to transcribe the interview.
- for my personal data to be anonymized.
- that the audio recording and scrambling key are deleted at the end of the project

I confirm that my participation is voluntarily, and that I have been given information about my opportunity to withdraw without giving a cause. I give consent for my personal data to be processed until the end date of the project, approx. 1th of June 2020

(Signed by participant, date)

NSD Personvern
30.11.2019 11:15

Det innsendte meldeskjemaet med referansekode 522323 er nå vurdert av NSD.

Følgende vurdering er gitt:

Det er vår vurdering at behandlingen av personopplysninger i prosjektet vil være i samsvar med personvernlovgivningen så fremt den gjennomføres i tråd med det som er dokumentert i meldeskjemaet 30.11.2019 med vedlegg, samt i meldingsdialogen mellom innmelder og NSD. Behandlingen kan starte.

MELD VESENTLIGE ENDRINGER
Dersom det skjer vesentlige endringer i behandlingen av personopplysninger, kan det være nødvendig å melde dette til NSD ved å oppdatere meldeskjemaet. Før du melder inn en endring, oppfordrer vi deg til å lese om hvilke type endringer det er nødvendig å melde:
nsd.no/personvernombud/meld_prosjekt/meld_endringer.html

Du må vente på svar fra NSD før endringen gjennomføres.

TYPE OPPLYSNINGER OG VARIGHET
Prosjektet vil behandle alminnelige kategorier av personopplysninger frem til 01.06.2020.

LOVLIG GRUNNLAG
Prosjektet vil innhente samtykke fra de registrerte til behandlingen av personopplysninger. Vår vurdering er at prosjektet legger opp til et samtykke i samsvar med kravene i art. 4 og 7, ved at det er en frivillig, spesifikk, informert og utvetydig bekreftelse som kan dokumenteres, og som den registrerte kan trekke tilbake. Lovlig grunnlag for behandlingen vil dermed være den registrertes samtykke, jf. personvernforordningen art. 6 nr. 1 bokstav a.

PERSONVERNPRINSIPPER
NSD vurderer at den planlagte behandlingen av personopplysninger vil følge prinsippene i personvernforordningen om:

- lovlighet, rettferdighet og åpenhet (art. 5.1 a), ved at de registrerte får tilfredsstillende informasjon om og samtykker til behandlingen
- formålsbegrensning (art. 5.1 b), ved at personopplysninger samles inn for spesifikke, uttrykkelig angitte og berettigede formål, og ikke viderebehandles til nye uforenlige formål
- dataminimering (art. 5.1 c), ved at det kun behandles opplysninger som er adekvate, relevante og nødvendige for formålet med prosjektet
- lagringsbegrensning (art. 5.1 e), ved at personopplysningene ikke lagres lengre enn nødvendig for å oppfylle formålet

DE REGISTRERTES RETTIGHETER
Så lenge de registrerte kan identifiseres i datamaterialet vil de ha følgende rettigheter: åpenhet (art. 12), informasjon (art. 13), innsyn (art. 15), retting (art. 16), sletting (art. 17), begrensning (art. 18), underretning (art. 19), dataportabilitet (art. 20).
NSD vurderer at informasjonen som de registrerte vil motta oppfyller lovens krav til form og innhold, jf. art. 12.1 og art. 13.

Vi minner om at hvis en registrert tar kontakt om sine rettigheter, har behandlingsansvarlig institusjon plikt til å svare innen en måned.

FØLG DIN INSTITUSJONS RETNINGSLINJER
NSD legger til grunn at behandlingen oppfyller kravene i personvernforordningen om riktighet (art. 5.1 d), integritet og konfidensialitet (art. 5.1. f) og sikkerhet (art. 32).

For å forsikre dere om at kravene oppfylles, må dere følge interne retningslinjer og eventuelt rådføre dere med behandlingsansvarlig institusjon.

OPPFØLGING AV PROSJEKTET
NSD vil følge opp ved planlagt avslutning for å avklare om behandlingen av personopplysningene er avsluttet.

Lykke til med prosjektet!

Kontaktperson hos NSD: Kajsa Amundsen
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NHH

Bruk av private enheter til behandling av personopplysninger i masteroppgaver ved NHH

NHH tillater bruk av private enheter under behandling av personopplysninger i masteroppgaver under følgende forutsetninger.

- IKT reglementet ved NHH skal følges og respekteres
- Prosjektet må være meldt til NSD og ha fått rådgivning i forhold til oppstart
- Personopplysninger skal ikke innhentes/behandles før søknad er ferdigbehandlet hos NSD
- Studenten plikter å følge de råd og den veiledning som gis av NSD i forbindelse med håndtering av personopplysninger i masteroppgaven. Dette skal sikre at behandlingen er i henhold til personvernregelverket
- Studenten plikter å ivareta informasjonssikkerheten i perioden hvor personopplysninger behandles. Dvs. at det skal iverksettes tiltak for å ivareta konfidensialitet, dvs. forhindre at personopplysninger kommer på avveie. Videre sikre integritet, dvs. at ikke uvedkommende har tilgang til de personopplysningene som behandles
- Studenten er pliktig til å melde avvik og uønskede hendelser relatert til behandlingen av personopplysningene eller brudd på informasjonssikkerheten. Rutiner for dette ligger beskrevet på NHH sine personvernsider
- Maskinen som benyttes skal oppfylle følgende krav:
    - Operativsystemet skal til enhver tid være av nyere versjon. Den til enhver tid nyeste servicepack (programoppdatering) skal være installert
    - Automatisk oppdatering av operativsystem og programvare komponenter skal være aktivert.
    - Antivirus skal være installert og automatisk oppdatering av programmet skal til enhver tid være aktivert.
- Studenten må sikre at enhetene som benyttes aldri forlates uten å sperre med Lock
- Studenten er samtidig ansvarlige for å ikke lagre personopplysninger i skyløsninger hvor det ikke er mulig å sikre hvem som har tilgang til dataene og ha kontroll over hvor servere befinner seg geografisk, eller på annen måte sprer disse opplysningene uten kontroll
- Studenten er videre ansvarlig for sikkerhet rundt bruk av private lydopptakere
- Studenten er også ansvarlige for at personopplysninger som har blitt samlet inn for behandling i masteroppgaver slettes når oppgaven er levert og funnet godkjent. Dette gjelder også lydopptak, videoer og bilder. Dette gjelder såfremt det ikke foreligger lovlig hjemmel for videre oppbevaring
- Studenten er pliktig til å stille sitt personlige utstyr tilgjengelig for NHH ved eventuelle revisjoner vedrørende behandling av personopplysninger eller informasjonssikkerhet i relasjon til masteroppgaven
- Studenten er ansvarlige for å rapportere tilbake til NSD om at sletting er utført ved avslutning av prosjektet. Dette gjelder alle originaler og eventuelle kopier av personopplysningene
- Dersom studenten har behov for bistand til sikker lagring, skal IT seksjonen ved NHH kontaktes for rådgivning/bistand helpdesk@nhh.no
- For øvrig rådgivning vedrørende personvern, kan personvernombud ved NHH kontaktes personvernombud@nhh.no

Appendix E – Interview guide Norwegian

Bakgrunn.

Innledende spørsmål brukes for å skape et sammenligningsgrunnlag mellom de ulike organisasjonene.

i. **Hva er din stilling?**
ii. **Hvilken kompetanse og utdannelse har du?**
iii. **Hvor lenge har du arbeidet her?**

Introduksjon

Hensikten med introduksjonsspørsmålene er å introdusere intervjuobjektene og la de få beskrive sin forståelse av eksiterende styringsverktøy. Vi ønsker å stille åpne og generelle spørsmål for å styrke vår forståelse av styrings og måleverktøy i organisasjonen. Det er i vår oppgave her forstått som verktøy for overvåkning og evaluering, rapportering og måloppnåelse, prosjektplanlegging og tilhørende rammeverk som resultatkjeden, logiske rammeverk og resultatbasert styring. (Eksempler kan være budsjett og Excel)

1. Hva slags styringsverktøy har dere tilgjengelig i deres organisasjon?

- Hvilke verktøy er viktigst for ditt daglige arbeid?
- Hvordan passer deres nåværende system til deres gjeldene styringsbehov?

2. Hvordan hjelper rapporterings og styringsverktøyene dere med å nå deres kortsiktige og langsiktige mål?

- Hvilke indikatorer og variabler er relevante?
- Hjelper styringsverktøyet deg å identifisere utfordringer på forhånd?

3. Ser du noen utfordringene eller barrierer med dagens system?

Styring, beslutningstaking og rapportering.

Hensikten er å få en bedre forståelse av hvordan data er aggregert, presentert og brukt i beslutningstaking og rapportering.

4. Hvordan innhenter og samler dere inn resultatdata?

- I hvilket format er informasjonen?
- Når samler dere inn?
- Hvor samler dere inn dataen?

5. Hvordan sikrer dere at informasjonen er troverdig?

6. Hvordan bearbeider dere resultatdataene?

- Hvordan aggregerer dere informasjonen?
- Hvordan fremstiller dere informasjonen visuelt?

7. Hvilke innsamlede data er viktige for organisasjonens beslutninger?

- Hva slags type beslutninger?
- Brukes dataen til noe mer en beslutningsstøtte?

Teknologi, innovasjon og digitalisering.

Hensikten er å få en bedre forståelse av hvilke faktorer som intervjuobjektet vurderer som essensielle for å nyttiggjøre seg av ny teknologi og innovasjon i deres styringsverktøy. Eksempler kan være bruk av ny teknologi som mobilteknologi, skyløsninger, maskinlæring, språkprosessering (NLP) eller andre dataanalyseverktøy.

8. Hvilke nye muligheter og teknologier ser du som relevant for det helhetlige arbeidet til deres organisasjon?

9. Har dere noen pågående prosjekt hvor dere anvender nye måter som mobil teknologi og digitale løsninger for å innhente eller bruke resultatdata?

- Har du noen fremtidige planer for å implementere ny teknologi?

10. Hva er de største barrierene ved å ta i bruk ny teknologi?

Læring

Hensikten er å se hvordan organisasjonen lærer og bruker resultatdata i deres prosjekter og organisasjon. Resultatdata kan være empirisk informasjon som evalueringer, måletall og indikatorer fra interne og/eller eksterne kilder.

11. Hvordan søker du og organisasjonen å lære av resultatdata?

- Hvordan bruker dere innsikt om dokumenterte effekter?
- Hvordan trenes organisasjonen til å analysere og kommunisere resultatdata?
- Hvordan er resultatdata gjort tilgjengelig og kommunisert i organisasjonen?

12. Hva er noen av barrierene for å lære av resultatdata?

- Hvordan kan dere i fremtiden oppnå suksessfull læring fra resultatdataene?

Avsluttende del

Hensikten er å gi intervjuobjektet muligheten til å bidra med tanker og refleksjoner som vi ikke har behandlet i intervjuguiden eller intervjuet.

13. Ser du for deg at ny teknologi kan løse noen av utfordringene du møter i styringen av organisasjonen?

14. Vil du legge til noe om bruk av teknologi innen styring som vi ikke har dekket så langt?

15. Noe annet?

Appendix F – Interview guide English

Background

Introduction to create a baseline for comparison between the different organizations

i. **What is your position**
ii. **What kind of background and education do you have?**
iii. **How long have you been working here?**

Introduction

The purpose is to introduce the interviewee and let them describe their perception of existing management tools. We want to ask open and general questions to enhance our knowledge about management and performance systems and tools in the given organization. Management tools are here understood as tools of monitoring and evaluation, reporting and performance, management planning and its connected frameworks. (Excel and budget as well)

1. **What kind of management systems do you have at your organization?**
    - What kind of tools are important in your day to day operation?
    - To what extent does the existing systems suit your needs present management needs?
2. **How does the management and reporting help you reach your long- and short-term goals?**
    - What indicators and variables are relevant?
    - Does it help you to identify key issues on beforehand?
3. **Do you see any challenges or barriers with the current system?**

Management, decision making and reporting

The purpose is to get a better understanding of how data are aggregated, presented and used in decision making and reporting.

4. **How do you collect the result data and information?**
    - In what kind of format?
    - When do you collect?
    - Where do you collect data?
5. **How do you ensure that the information (data) is trustworthy?**
6. **How do you process the data?**
    - How do you aggregate the results data?
    - How do you visually present and read the results data?
7. **What kind of data are important for the decision making of the organization?**
    - What kind of decisions?
    - What variables are important

Technology, innovation, digitalization

The purpose is to get a better understanding of which factors the interviewee considers essential in order to utilize new technology and innovations in their management control tools. Examples can be mobile technology, cloud solutions, machine learning, language processing and other analytic tools.

8. **Which opportunities and technologies do you consider as relevant for your organization?**
9. **Do you have any ongoing projects where you use new ways of collecting data by mobile technology and digital solutions?**
    a. Do you have any plans to implement new technology?
10. **What are some of the barriers to adopt new technology?**

Learning

The purpose is to see how the organization use and adopts learning and evidence in its operations. Evidence can be empirical information like results reporting and evaluations generated from internal or external projects, also understood as results data.

11. **How do you and your organization seek and use results data?**
    - How do you use insights about documented effects?
    - How are your organization training in skills to analyze and communicate results data?
    - How are results data made available and communicated in the organization?
12. **What are some of the barriers of learning from results data?**
    - How can you in the future achieve successful learning from the results data?

Final questions

The purpose is to give the interviewee the opportunity to contribute with thoughts and reflections that we have not treated in the interview guide, nor in the interview.

13. **Do you imagine that new technology can solve some of your challenges you meet in the management of your organization?**
14. **Would you like to add anything about your management systems and how they work?**
15. **Anything else?**

Appendix G – Norad grants 2008-2018

Agreement partner	Sum of Disbursements (1000 NOK)	
Flyktninghjelpen	kr	6 660 873
Norges Røde Kors	kr	6 458 798
Kirkens Nødhjelp	kr	4 573 785
Norsk Folkehjelp	kr	3 475 046
Redd Barna Norge	kr	2 664 705
Digni	kr	1 570 391
Regnskogfondet	kr	1 090 508
CARE Norge	kr	857 571
Utviklingsfondet	kr	763 895
Atlas-alliansen	kr	665 688
Grand Total	**kr**	**28 781 259**