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Data driven decision making at non-profit social impact organizations

A case study of Amnesty International

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Preface

This thesis concludes my studies at the Faculty of Engineering, Lund University (LTH), from where I will obtain a M.Sc. in Industrial Engineering and Management with specialization in Financial Engineering and Risk Management. During my studies I have had the opportunity to discover many different industries and corporations, all though not a single charitable non-profit organization. Therefore, I am extremely thankful for the opportunity given by Amnesty International to write this master thesis. It has been engaging and interesting to deepen my knowledge in the non-profit sector and get a deeper understanding of Amnesty. For that, I am truly thankful.

Joanna Backman has acted as my point of contact at Amnesty and supported me with the assistance needed to perform this case study. I would like direct a great thank you to her for assisting me with booking interviews, getting access to material, and many other tasks. Furthermore, I have had the possibility to talk with many other employees at Amnesty whom all been extremely helpful, supportive, and shown interest in my work. Thank you!

Lastly, I would like to thank my supervisor Ola Alexanderson at the Department of Production Management at Lund University. He has been on great value for keeping me on track and for guiding me in the right direction. Thank you, Ola.

Lund, December 2021

Abstract

Decision making is deemed one of the most influential and impactful activities in an organization. Yet, it is often based solemnly on the decision makers knowledge, experience, and instinct, disregarding the quantitative evidence which can be obtained from data generated in the organizations processes. This thesis aimed to investigate how data and data analysis may support decision making in non-profit social impact organizations. It does so by studying the Swedish Section of Amnesty International. Through interviews with employees and reviews of data, the study explores what data is generated in the organizations processes, what tasks and decisions need additional information as decision basis, what analysis can be made to obtain such information, and lastly what technical and organizational process that must be in place for implementing continuous data analysis measures.

The study found that Amnesty mainly collect data of two categories, namely member- and donor related data, and data related to communication efforts. Identified information needs concern member- and donor behavior, as well as the performance of communication efforts. Categorizing communication material and segmentations of people that engage with Amnesty has been identified as valuable measures for aiding decision making. Furthermore, major changes in supporting infrastructure and activities are considered necessary for enabling data driven decision making. Lastly, the thesis discusses the degree to which findings are general. Many of the projects' conclusions stem from that Amnesty is member-based and have a large focus on communication with the public, just as many other non-profit social impact organizations. The thesis is thus considered valuable and applicable also for other organizations in the same space.

Keywords: Data driven decision making, Business intelligence, Analytics, Performance measurement, Non-profit organizations, Social impact organizations

Contents

Figures

Tables

1. Introduction

1.1. Background

Decision making is one of the most influential and impactful activities in organizations (Sharma, Mithas, Kankanhalli, 2014). It is therefore of highest importance to make decisions that are in line with reality and results in the best possible outcomes. Many decision makers rely solely on their own knowledge, experience and instinct when making decisions. All though, these perspectives should not be neglected, many researchers consider data and data analysis to be instrumental for supporting effective decision making. Data that is created in organizations' internal process further entails first-hand information about the performance of such processes. On a high level, this thesis therefore tries to investigate in what ways data can support decision making and performance measurement processes. It does so by studying a value driven organization with complex goals and targets. In such organizations, decisions are often multifaceted and not only concerns the maximization of financial present value. Such organizational attributes merely complicate decision making and performance measurement, increasing the need and difficulty to incorporate data and data analysis in the organizational processes.

1.1.1. Data driven decision making and performance measurement

Data has proved valuable when packaged and analyzed correctly and there are several ways in which data can support business and management processes. Organizations are considered data driven, when data systematically are used to provide basis for decisions (Berntsson Svensson & Taghavianfar, 2020). A survey found that data driven decision making has been one of the major technology trends for supporting efficient decision making in organizations (Chen, Chiang & Storey, 2012). Additionally, several studies have confirmed the positive impact of leveraging data for decision making (Mabaso & Sagandira, 2021: p. 13). As mentioned, performance measurement too may benefit from extracting information from data. Performance measurement is also beneficial as a supporting process for decision making since it aids in following up and evaluating decisions, as well as to gather insight in how decision patterns have had an impact over time (Adair, 2019).

1.1.2. Business Intelligence and Analytics in the non-profit sector

Business Intelligence have been discussed in literature since the 1970's (Olszak, 2020, ch. 2). At that time basic statistical methods were used for analyzing structured data stored in basic databases. The aim was to visualize a variety of performance metrics. Since then, more advanced methods of data science and statistics have been introduced in some organizations to uncover new insights from data. Unfortunately, the non-profit sector seems to have been left behind in the development. In a 2018 survey, 460 non-profit professionals answered to whether they collect and use data to increase the efficiency and result of their work. While 90 percent claim that data is collected and stored, barely half indicate that they are aware of how data can impact their work (everyaction, 2018).

With an ever-increasing number of social impact and non-profit organizations donors are faced with a more complex decision on how to best place their funds (Byman et al., 2000). Since non-profits often are completely reliable on its donors for the financing of its operations, this development has led to many non-profits improving their efforts to both measure and report effectiveness, and to increase effectiveness of operations (Flynn & Hodgkins, 2001).

Guberek and Romesh (2014) writes about the present-day connection between human rights movements and technology. They claim that technology can play a vital role in the work of human rights organizations – all from uncovering human rights violations to communicating efficiently with donors and the public. Data analytics and visualization of internal as well as external data is

considered having the potential to provide valuable insights and increase the work efficiency of human rights workers. However, just as the 2018 survey (everyaction) suggest, there seem to be a lack of technical expertise in many human rights organizations since human rights workers often come from a background within social studies.

1.1.3. Amnesty International

Amnesty International is an international not for profit, non-governmental human rights organization (Amnesty International, 2021). By uncovering violations against the Universal Declaration of Human Rights and lobbying governments and others in power, the organization aims to protect the human rights of people across the world. The organization is present in over 150 nations with its ~10 million members. Organizationally, Amnesty is arranged in separate national sections that are somewhat coordinated but largely operate independently. From here on, when simply using "Amnesty" the author is referring to the Swedish Section of Amnesty International. The secretary of the Swedish Section of Amnesty consists of three departments: Fundraising and Engagement, Opinion and Impact, and Resources and Steering. Additionally, the Swedish section has around 100 000 members and 200 workgroups across the nation (Swedish Section of Amnesty International, 2021).

Much like in many other non-profit organizations, data analytics and methods of data science are yet to be implemented in the operations of Amnesty. The organization collects and stores tremendous amounts of data, for instance information about donors and the reach of marketing campaigns. In an effort to make use of this data, and external data, many national sections are employing analysts with a background in computer science. The Swedish section is not an exception. In august 2021 Amnesty Sweden employed an analyst within the department of Fundraising and Engagement. All though the work is still in its cradle, the purpose is to implement ways of working and processes to systematically use data to support organizational objectives, starting with Fundraising and Engagement, and then moving forward towards the remaining departments.

1.2. Purpose

The purpose of this thesis was to investigate how data and data analysis may support decision making and performance measurement in non-profit social impact organizations. This includes understanding what kind of data is generated in the processes of such organizations, exploring what decisions need information as decision basis, finding what methods of analysis that can be exploited to transform the data to insightful information and examining what supporting process (technical and organizational) that must be in place for data driven decision making to work properly and smoothly.

1.3. Research questions

Based on the stated purpose, the thesis answers 3 research questions (RQs):

RQ1: What data is generated within a non-profit social impact organization's processes and how is it stored and handled?

RQ2: What analyses of the generated data can be made to attain value-creating insights?

RQ3: What key recommendations should be considered in the implementation of continuous data analysis?

1.4. Delimitations

To keep the scope of the study narrow and focused on value creating activities for Amnesty International, some delimitations have been made:

I. The thesis sought to answer the research questions and fulfill its purpose by mainly studying the organization Amnesty International. Thus, recommendations for Amnesty were developed and handed over to the organization during the work of the thesis.

II. Only the Swedish Section for Amnesty International was considered. This is due to the independent manner in which the national sections operate.

III. While data generated across the departments have been discussed, only decisions and organizational processes within the department Opinion and Impact have been considered. Since a newly employed analyst are working with similar topics within Fundraising and Engagement it suited Amnesty well that this project focuses on Opinion and Impact. The findings have been shared with said employee who will continue the work moving forward.

IV. Only internally generated data in the processes of Amnesty have been considered. There might be massive amounts of external data publicly available that could benefit decision making at Amnesty. While it would be value-adding and interesting to also consider this data, a first start is to use the data at the hand of the organization. A further research subject would thus be to investigate how Amnesty could identify relevant external data for supporting their decision making processes and incorporate identified data in their data management processes.

V. Due to time limitations and a request from Amnesty, a large focus of the proposed analysis of their data have concerned basic statistical methods looking at changes over time. More advanced methods, including forward-looking methods, have been proposed to be investigated going forward.

VI. Considerations related to data security, as well as ethical aspects of data management have not been the focus of this project. While the topics have been brought up during several occasions, the thesis did not seek to develop deep recommendations concerning both topics. This too, could be the topic of future research, as well as future projects at the research subject.

2. Research methodology

Different research methodologies exist as guidelines and principles, supposed to support the researcher in reaching generalizable conclusions that are relevant beyond the unit of analysis. In this case the unit of analysis was the Swedish Section of Amnesty International and the academic purpose of the study was to investigate how value can be created from data in organizations like Amnesty.

2.1. Research approach

The research methodology is not a detailed roadmap, but rather a framework of principles. Yin (2014, p. 238) and Höst et al. (2006, p. 29) describe the four different purposes of a study:

I. *Descriptive* studies aim to investigate how a certain phenomenon function or is performed in its real-world setting.
II. *Exploratory* studies are a more thorough deep dive to understand how a phenomenon functions or is performed. It goes further than the descriptive study and could serve the purpose of identifying problems within the studied phenomenon and topics for further research.
III. *Explanatory* studies aim to uncover casualties and provide explanations to why something functions or is carried out the way it is.
IV. *Problem solving* studies are centered around an identified problem and seeks to find a solution to the identified problem.

As this study aimed to improve the process of data analysis at Amnesty International, the study was in its essence a problem-solving study. All though, with elements of an exploratory study as an initial investigation of the organization had to be made to understand the current state. When having chosen research methodology, the research method is yet to be defined. Höst et al. (2006, p. 30) describe the four most common methods used for projects within the field of applied science:

I. *Survey* is a description of how the current state of the object or phenomenon of study functions or is performed. The method might be used to give a concise description of a broad question.
II. *Case study* is a deep analysis of one or multiple cases studied in their real-world setting with as little interference as possible.
III. *Experiment* is a comparison between multiple alternatives, often an experiment group and a reference group, where the researcher tries to isolate a few factors and manipulate one of them.
IV. *Action research* is carried out when the researcher tries to solve an identified problem. Surveillance and documentation of the study is necessary to obtain generalizable results.

Like with the methodology, the research method was chosen as a combination of two. Primarily, action research was conducted since the study aimed to improve activities within Amnesty International. However, as a first step to understand the current state, methods of a case study (for instance interviews with employees) was used. Höst et al. (2006, p. 39) describe the method of action research in four steps. The first consist of planning, where methods of a case study or survey may be used to observe and understand the current state, identify the problem, and causes. Secondly, actions to improve the operations and solve the problem are to be made. The third step starts with an overlap with the second step and aims to control that the implemented actions indeed solve the problem. Lastly, if implemented actions proved successful, they need to be made permanent to provide sought after value going forward.

2.2.Research design

With the research method decided and research questions defined the design of the study could be made. This design relied on the four steps of action research as proposed by Höst et al. (2006, p. 39) but also on preferences from Amnesty surrounding ways of working. In summary, the study consisted of 4 phases where each of the last three was related to one of the three research questions and the first phase consisted of a literature review. The phases also had a clear connection to the steps of action research proposed by Höst et al. (2006, p. 39). Phase 1 consisted of case study methods to understand the current state and the problem. Phase 2 corresponded to the second step in which solutions to the problem were designed. Phase 3 involved recommendations for further activities within Amnesty, i.e. suggestions for them to make the solutions permanent as Höst et al. (2006, p. 39) claims should be done in the last step of action research. The third step of action research: observation and documentation, however, took place along the entire course of the study since the work was documented in this report and internal work material which belongs to Amnesty. The research design is illustrated in below figure.

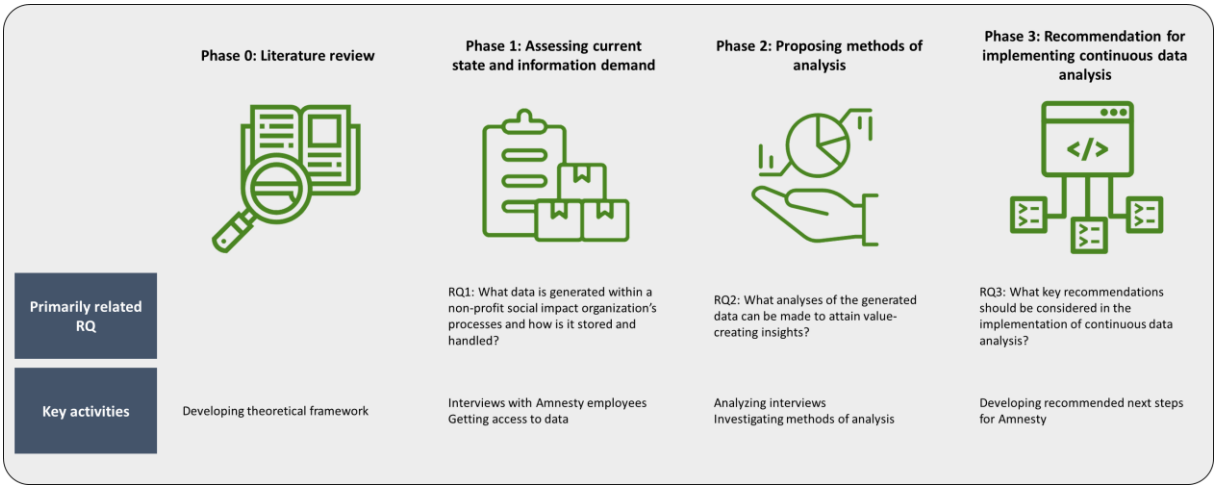

Figure 1: Illustration of the research design including the four phases, how they relate to the research questions (RQs) and what the key activities in each phase were.

While figure 1 gives an overall idea of the research design, the different phases are more thoroughly described in the following subchapters.

2.2.1. Phase 0: Literature review

Literature studies are an instrumental part of any research project since the researcher wants to make sure that his or her research continuous to build on already existing knowledge (Höst et al., 2006, p.59). It mitigates the risk of missing already learned lessons and assures that the research made will indeed contribute to the subject. In the case of this thesis, the literature review was necessary to relate different topics to each other and to develop the methodology. Since the topic of the study lies in the cross section between technology and management it has been necessary to connect the two perspectives which resulted in the framework described in the literature review chapter. The connection between the two topics also had a tremendous impact on the research design and on the final recommendations, as both perspectives and their relation to each other had to be considered. A complicating factor was that many different terms and subjects relates to data analysis, and thus choices had to be made on what terms and subjects should be included and focused on. The literature proved valuable in making these choices and evaluating the relevance of different subjects.

Rowley and Slack (2004) claim there are four strategies for searching information within the context of a literature review:

I. *Citation pearl growing* takes its starting point in one or a few relevant documents and uses the terms used in those as search terms to retrieve additional documents.
II. *Briefsearch* is a handy way to get introduced to a topic. The most obvious search terms are used, and the first relevant documents found are retrieved as first resources.
III. *Building blocks* consists of starting with a statement which is then extended by using synonyms and related terms. This results in a lot of search results and can thus be a lengthy, but relevant procedure if there is little written about the subject.
IV. *Successive fractions* entail searching for additional terms within an already retrieved set of documents. If relevant search terms result in an unmanageable number of documents this method can be effective to narrow down the search.

In addition to the search strategies, one might also take use of *snowball sampling*. A procedure where the references in relevant documents are used for further research and to deepen the understanding within specific subtopics.

Since many of the subjects covered in this thesis are well researched there has been a need to start broad with generally accepted literature that covers the basics and from there narrow the searches down to distinct and focused search words. Because of this, comprehensive course books within *data science* and *management*, used at accredited universities, has largely been used to cover the first, broad, introduction to the subjects. Moving on from there, *citation pearl growing* combined with *snowball sampling*, have both been extensively used for finding relevant literature in the narrower subjects such as *data driven decision making* and *business intelligence and analytics*.

LUB Search and *Google Scholar* have been the primarily used databases when searching for reports and relevant research. While many other databases do exist, the need for additional resources has been small since, as mentioned, the subjects of the thesis are well researched. For finding broad course literature used across the academic sphere, university websites have been used, and to access said literature the subscription service *Perlego* have been used extensively. The primarily used search terms are compiled based on topic below in table 1:

Topic	**Search terms**
Organizational decision making	*Organizational decision making, Data driven decision making, Data based decision making*
Performance measurement	*Performance measurement, Performance management, Key performance indicators, Results indicators, Performance indicators*
Data and big data	*Data, Big data*
Data management	*Data management, Business intelligence, Analytics, Big data analytics, Data warehousing*
Methods for data analysis	*Statistical analysis methods, Statistical predictive analysis, Statistical forecasting, Pattern analysis, Data analysis methods*

Table 1: Most used search terms in literature review by topic.

2.2.2. Phase 1: Assessing current state and information demand

Phase 1 uses exploratory methods often used in case studies to build an understanding of the current state within the organization. The overall objectives and activities within phase 1 are illustrated below in figure 2.

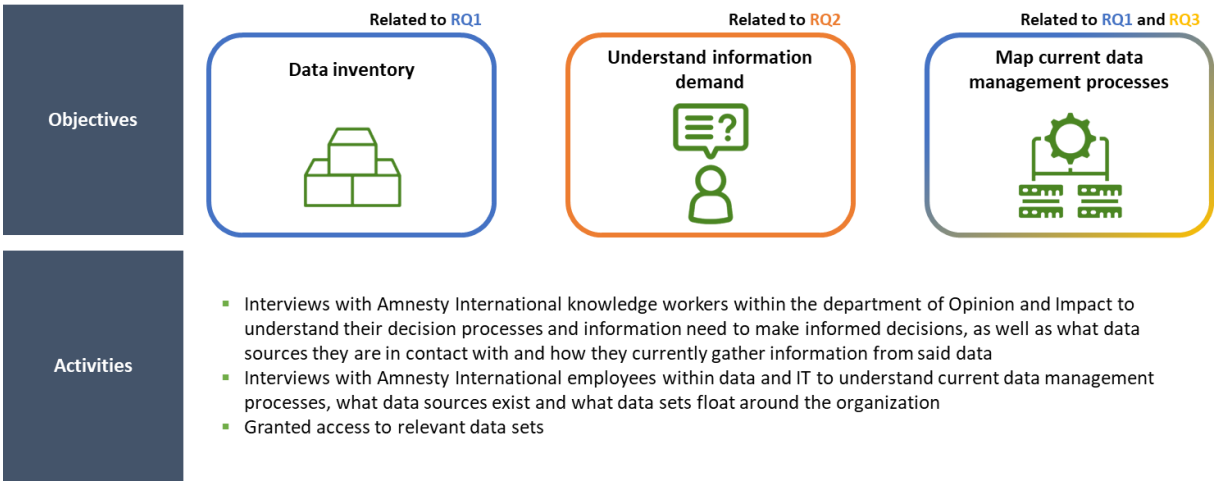

Figure 2: Overall objectives and activities within phase 1.

The objectives of phase 1 were:

I. ***Data inventory:*** understand what data is generated and stored in the organizations databases.
II. ***Understand information demand:*** how the decision process within Amnesty's department Opinion and Impact work and what their information need is.
III. ***Map current data management processes:*** understand how the organization currently is handling its data, e.g. where it is stored and what analyzes are made.

To reach these objectives, three activities have been carried out. These are described more thoroughly below:

Interviews with Amnesty International knowledge workers within Opinion and Impact

The reason for interviewing knowledge workers within the department Opinion and Impact were twofold. First, they are the ones that could ultimately benefit from the analyses proposed in phase 2. Thus, the information needs for supporting their decisions determines what analyzes should be recommended. Secondly, interviews were used to assess how they currently work with data and what data they are currently in contact with. It further served as a measure to understand if there were any gap between the views of data- and IT- employees and knowledge workers on what data they have access to.

All interviews within the scope of the study were conducted in a *semi-structured* manner meaning the interviews were made using a predefined set of questions, but still left room for the interviewees to elaborate ideas and discuss related questions (Höst et al., 2006). The reason for this approach was to capture related ideas beyond the theoretical framework of the study, but at the same time keep the focus on the relevant topics.

Interview objects were identified together with the supervisor from Amnesty International. To bring different opinions and perspectives to the table, employees with different roles were chosen as subjects. The common denominator was that all are involved in decision making and could benefit from additional information via data analysis. The roles of interview objects are listed below:

- Head of department Opinion and Impact
- Head of subdepartment Communication and Opinion
- Head of subdepartment Impact
- Web Editor

Based on the literature review, the interviews were structured according to the following topics:

- Organizational decision making
    - Decision processes and types of decisions
    - Information demand
- Performance measurement
- Knowledge and access to data

A full interview guide is attached in the appendix.

Interviews with Amnesty International data- and IT- employees

This set of interviews meant to give an understanding of the current data- and IT-landscape within the organization. Most important was to investigate what data sources exist, what data sets are created and how they are stored.

For these interviews, key employees within the field of data and IT were interviewed. See list of interview objects below:

1 Web Developer and temporary IT group lead
2 Developer
3 Analyst

The structure of these interviews was determined mostly by the data management chapter in the literature review, which resulted in the following topics:

- Data architecture
    - Systems and data sources
    - Warehousing
    - data
- Data requests and analysis
- Supporting infrastructure
    - Data governance
    - Data quality
    - Data security
    - Data structure
    - Documentation

Once again, a full interview guide is attached in the appendix.

Granted access to data sets

After having identified relevant data sets through the interviews. Employees at Amnesty International isolated these data sets, which were then sent over for review. The purpose of the review is further outlined in the description of phase 2.

2.2.3. Phase 2: Proposing methods of analysis

Phase 2 was focused on analyzing interviews and the data sets provided in phase 1. The overall objectives and activities within phase 2 are illustrated below in figure 3.

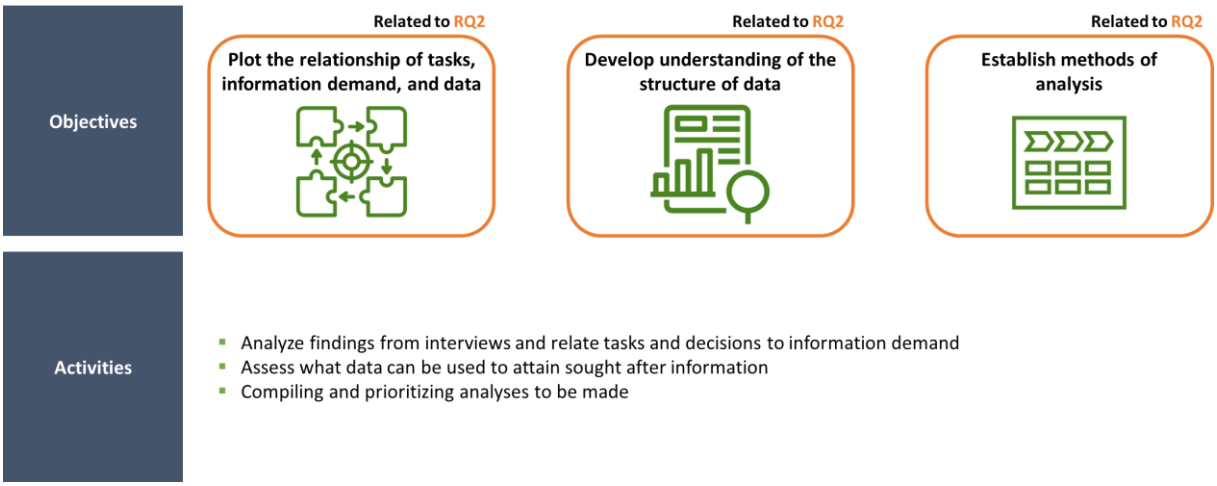

Figure 3: Overall objectives and activities within phase 2.

Based on the identified information demand, sought after analyses were compiled in a long list. Depending on the data available, its structure and classifications, the list was organized according to what analyses could possibly be made and what could not. Recommended analyzes to be made could then be proposed.

During phase 2, the data provided by Amnesty was also reviewed. The purpose of which was to understand how data is structured and classified, which has implications on what analyses can be made and the amount of preparatory work necessary to conduct identified methods of analysis.

2.2.4. Phase 3: Recommendation for implementing continuous data analysis

Phase 3 focused on wrapping all work together to formulate recommendations regarding how Amnesty continuously should focus their data analysis efforts going forward and handing the work over to Amnesty. The overall objectives and activities within phase 3 are illustrated below in figure 4.

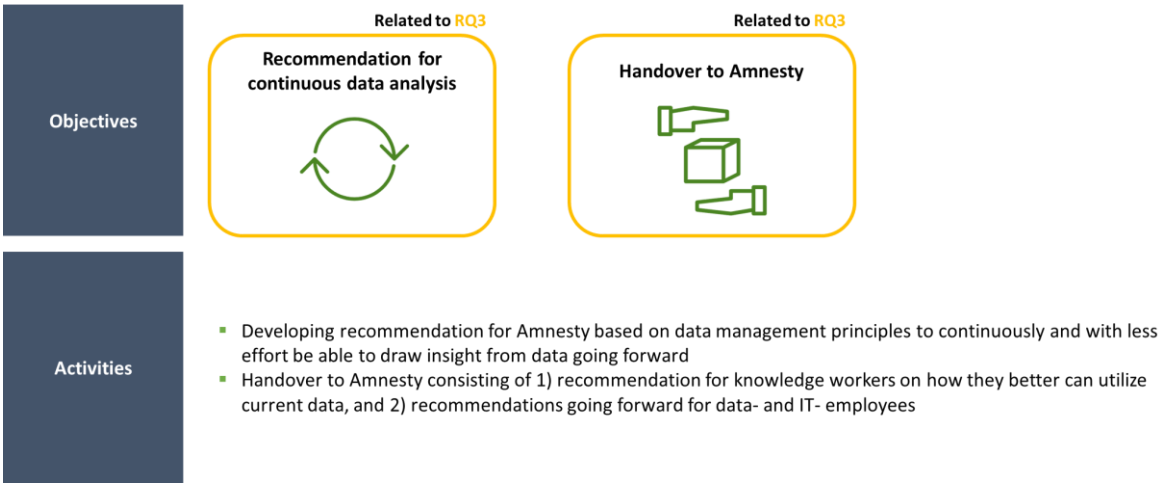

Figure 4: Overall objectives and activities within phase 3.

It should also be mentioned that after phase 3, a thorough discussion on the degree to which findings are general and applicable for a broader range of organizations was made. This discussion is presented in chapter *7. Discussion.*

2.3. Rigor and relevance

Höst et al. (2006, p. 41) claim that three categories should be assessed when determining the credibility and quality of a study. These are:

- *Reliability:* creditability of data collection and analysis. Being clear in how the data collection and analysis have been conducted, e.g. by providing interview guides, supports the reader in understanding how the study has reached its conclusions.
- *Validity:* connection between the object of study and what is measured. Validity focuses on systematic errors and can thus be increased by triangulating between different methods of measurement and analysis.
- *Representativity:* generality of conclusions. Depends largely on the selection of studied objects. Action research is in principle not generalizable, all though with a detailed description of the examined context, some learnings might be true also in other contexts.

Within the setting of this study, reliability is largely assured by the transparency of data collection and analysis. Semi-structured interviews have been conducted following attached interview guides and the remaining data collection has been methodologically documented and described. As for validity, a close collaboration with Amnesty helped ensuring that conclusions are in line with reality. Since multiple people in the organization have been involved, they serve as means of triangulation and controls for discovering systematic errors.

Lastly, as described, action research is not primarily meant to be generalizable. However, to contribute to the research field and to industry, an effort to generalize learnings was done after the completion of the case study at Amnesty. As theory suggest, some insights that have been gathered could benefit other organization in similar contexts.

2.4. Ethics

Ethical aspects have been considered during several occasions throughout this thesis. Especially three aspects of research ethics have been relevant to consider. These being to avoid biases, protect the integrity of parties involved (e.g. interview objects), and to carefully handle the data provided by Amnesty.

When working with a case study or action research, a relationship is formed towards the entity of study (Yin, 2014, p. 76-77). Additionally, action research means to influence the situation, which is studied, resulting in an involuntary bias that could influence the discussion and evaluation of implemented solutions. To avoid these forms of biases, external parties have reviewed the thesis. These include the supervisor from Lund University and the review which is conducted to determine the credibility of the study upon completion.

Yin (2014, p. 78) further details considerations related to protecting the integrity of involved parties. These considerations include gaining informed consent from all parties, protecting their privacy and confidentiality, and avoiding deception when collecting data. These concerns have been managed especially within the context of interviews of employees at Amnesty.

Lastly, data containing for instance personal information about supporters has been provided by Amnesty with the purpose of being analyzed within the scope of the study. Data containing personal information was therefore anonymized before access to data sets was granted. Upon completion of the thesis, all data provided by Amnesty has been deleted and the working files has been handed over to the organization.

3. Theory

This chapter aims to give an overview of relevant former research into the subjects of the thesis, as well as to some adjacent subjects that are contextually necessary. The main subjects described are *Organizational decision making*, *Performance measurement*, *Data and big data*, and *Data management*. Lastly, the chapter presents an illustrative theoretical model based on the outlined theory. This model aims to provide a framework for the empirical study and analysis presented in the following chapters. It should be mentioned that much of the theory described are left out of the illustrative model since it is not considered core. Theory that is left out of the model is however still considered and used as foundation for the following parts of the thesis.

3.1. Organizational decision making

Different opinions on the definition of decision making in organizations exist. What is consistent in most definition is that the process consists of using information to evaluate different options to pick the option leading to the best expected outcome (Mabaso & Sagandira, 2021, p. 9). For instance, Simon and Thompson (1998) see decision making as the process of seeking and interpreting information with the aim to arrive at conclusions based on the information and perception of the decision maker. Another definition put emphasis on the use of knowledge, structure, and data to predict what choice will have the most positive outcome (Kulkarni et al., 2015; Shollo & Galliers, 2016). Apparently, most researchers deem some sort of decision basis, be it knowledge or information, necessary to make decisions in an organizational context.

Adair (2019) presents a model that captures a general approach to decision making, which has been discussed thoroughly in literature. He means that even if the framework is not actively followed, we intuitively often fall back on this approach. However, the different steps might be overlapping and mixed. The model is presented in figure 5 and described below.

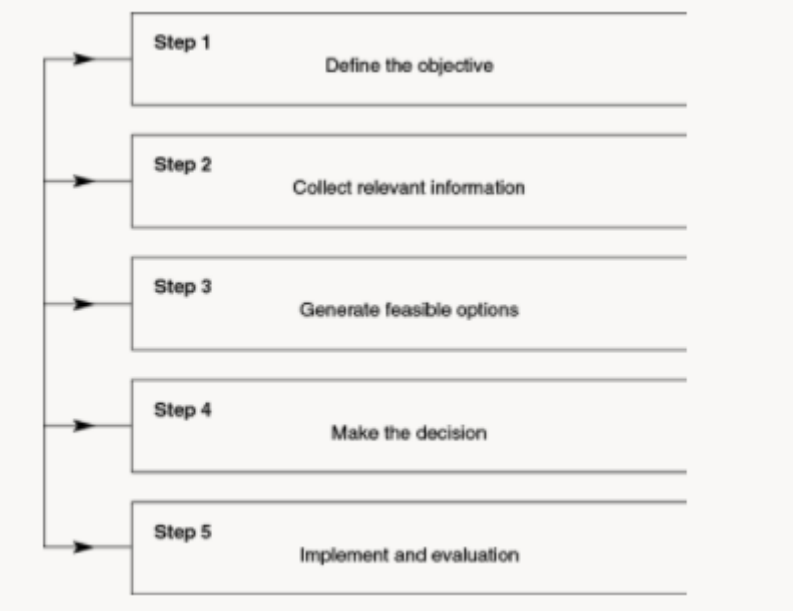

Figure 5: The classic approach to decision making (Adair, 2019).

Define the objective

The first step is about defining the problem or question at hand. Having a clear picture on the objective is vital to set the direction of the rest of the process (Adair, 2019). As discussed already in the introduction, non-profit organization generally have more complex stakeholder relations as they

are dependent upon members and donors. As the objective of such organizations are not primarily financial gain, defining objectives are a complicated matter that to a large extent depend on the stakeholders of the organizations (Flynn & Hodgkins, 2001). In the context of defining objectives, the relation to stakeholders can be analyzed using the two-dimensional power/interest matrix presented in figure 6 (Eden & Ackermann, 1998).

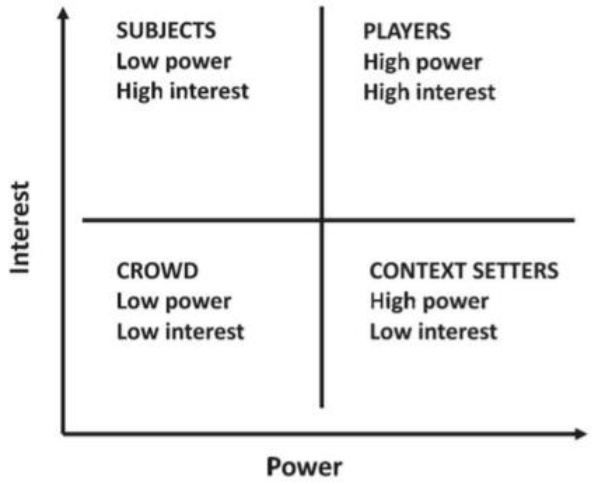

Figure 6: Power/interest matrix (Eden & Ackermann, 1998).

Depending on the interest of the question at hand and the power to influence the decisions, each stakeholder can be assigned one of the four groups (Eden & Ackermann, 1998) listed in the matrix. Players are generally the decision makers that should be closely engaged. Since context setters have a high degree of power, they are important to keep satisfied and listened to. Subjects on the other hand are important to keep informed and should be involved in cases where it is possible, but where the outcome does not contradict the will of players and context setters. Minimum effort should go into keeping the crowd satisfied (Eden & Ackermann, 1998).

Collect relevant information

As discussed, to make an informed decision it is necessary to have relevant information at disposal. Adair (2019) makes a distinction between *available* and *relevant* data, where huge masses of data might be available, but only a portion be relevant. One task of the decision maker therefore is to assess what information is required to make a well-informed decision and investigate what of this information is available (Adair, 2019). Additionally, available data could potentially be transformed using means of analysis to increase the amount of information that is both available and relevant. This is illustrated in figure 7 where, in an ideal situation, the information available covers all the required information:

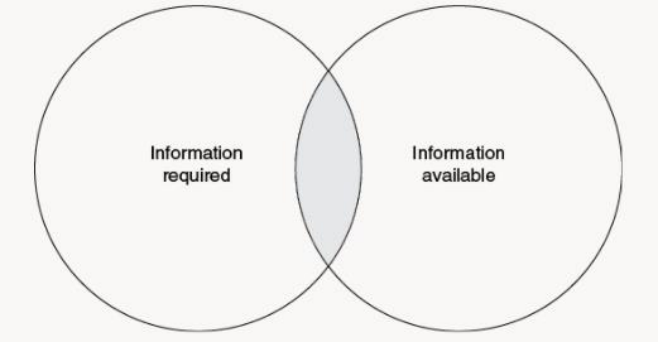

Figure 7: Information categories (Adair, 2019).

Generate feasible options

Adair (2019) argues that many decision makers fail in generating enough options and thus simply stick with one of the first acceptable solutions, even though it might not be the best solution possible. To avoid such a situation, one should consider all possible solution to generate a large number of options. From there, options should be evaluated to a smaller number of alternatives.

Make the decision

Based on the identified relevant and available data, and chosen selection criteria's, the alternatives should be evaluated, and a decision be made (Adair, 2019).

Implement and evaluate

As soon as one moves into the implementation phase of a decision it is vital to iteratively evaluate the results of said decision (Adair, 2019). The reasons for evaluation are twofold. (1) Evaluation is essential to discover whether the decisions lead to positive or negative results. In case of a negative trajectory it is desirable to put in mitigating actions as soon as possible. (2) Most decisions in an organization are in some way recurring which makes it important to learn from evaluating previous decisions to make better decision in the future.

3.1.1. Classification of decisions

Different types of decisions require different types of information and procedures. Laudon and Laudon (2002, p. 486) classify organizational decision making according to two splits. The first into structured and unstructured decisions. Structured decisions are repetitive and the handling of which follows a predefined procedure. Unstructured decisions, however, are decisions that are not generally recurring and that might require additional information and judgement (Laudon, 2002, p. 486).

The second split is by four categories: *strategic decision making*, *management control*, *operational control*, and *knowledge level decision making* (Laudon, 2002, p. 486). Strategic decisions are considered those resulting in general guidelines regarding resources and objectives on a long-term basis, such as policies. Management control is centered around the efficiency and use of resources and performance of teams and units. Operational control goes one step more in detail and focuses on how specific tasks should be carried out. Knowledge level decision making instead focuses on the evaluation of new ideas, products, and services, and not on operational activities.

Generally speaking, strategic decisions are the most unstructured and operational control the most structured. Management control usually falls somewhere in between, whereas knowledge control decision might vary.

3.1.2. Challenges in decision making

Sharma, Mithas & Kankanhalli (2014) considers decision making to be the most important and influential activity within organizations, with far reaching negative impact on performance if poor, ill-informed, decisions are made (McKenzie, van Winkelen & Grewal, 2011). Thus, increasing the quality of decisions by providing better decision basis is deemed highly valuable and has for that reason been a subject of research both in an academic context and within organizations (Mabaso & Sagandira, 2021, p. 9).

Difficulties and challenges in decision making appear on a constant basis and can be derived to the complexity of decision making, partly due to uncertainty and equivocality (Daft, Lengel & Trevino, 1987). Since organizations are dependent on their external environment such as market

developments, suppliers, and other stakeholders, there exist heavy uncertainties that might have an impact on the organization at hand (Choo, 1991). Agarwal and Tanniru (1989) claim that one of the goals of decision makers is to reduce uncertainty to the largest extent possible by gathering the right information. Daft, Lengel and Trevino (1987) agree that the level of uncertainty decrease as the amount of relevant information increases.

Equivocality instead means that there exist multiple, conflicting, interpretations of a specific situation (Daft, Lengel & Trevino, 1987). The result is often confusion and disagreement. This highlights the need of knowledge and experience in decision makers to make the correct interpretations of data and information at hand. However, increasing the amount of data can act to decrease the room for interpretation and provide an increasingly objective answer and guideline for decision makers. In that way, the challenges of uncertainty and equivocality emphasizes the need of sufficient data and information to make informed and correct decisions.

3.1.3. Data driven decision making

As discussed, many has highlighted the importance of decision making in organizations to drive productivity, efficiency, competitiveness, and profitability along with the challenges of uncertainty and equivocality that comes with it (Berntsson Svensson & Taghavianfar, 2020; Lindgren, 2019; Shollo & Galliers, 2016; Daft, Lengel & Trevino, 1987). The need for sufficient data to make good decisions is evident, which has led to the development of the terms “Data based decision making” and “Data driven decision making”, which refer to an organization’s extensive use of data in the decision making process (Mabaso & Sagandira, 2021, p. 13).

The connection between using data to make decisions and the quality of decisions have been thoroughly researched and documented (Mabaso & Sagandira, 2021, p. 13). Kumaresan & Liberona (2018) mean that data can be an important asset to use in decision making alongside knowledge, experience, and instinct. Hilbert and Lopez (2011) go one step further and claims that the starting point of decision making should be the data itself, rather than the knowledge and experience of decision makers.

The question remains, how do and should organizations utilize their influx of data to improve quality of decisions? According to Shollo and Galliers (2015), business intelligence systems can be considered the link between data and information, i.e. the transformative step that give decision makers insight from data and the possibility to make better informed decisions. Big data analytics have also been acknowledged as a creator of valuable information and insights from data, ultimately increasing the competitiveness of organizations (Berntsson Svensson & Taghavianfar, 2020). A data driven organization is by Berntsson Svensson and Taghavianfar (2020) considered to be an organization that collect data from multiple sources and analyze it to inform decisions.

Researchers agree that the main purpose of using data and analytics in the decision making process is to increase the quality of decisions (Mabaso & Sagandira, 2021, p. 13). Fallahchay (2020, p. 176) expands this thought and claims that data and data science can support business decision making in as much as five different ways; opening the perspective of the decision maker, properly evaluating feasible options, justifying decisions, maintaining records of decision rationale, and having less subjectivity and more objectivity in decision making. I have chosen to group them into a total of four categories:

Opening the perspective of the decision maker

A common made mistake by decision makers is to have excessive confidence in their own knowledge and experience (Awang et al., 2013). This may result in not evaluating and considering all information

at hand. With a data driven perspective, the decision maker instead makes sure to assess all relevant information to make an informed decision. Data science can assist the decision maker in changing his/her perspective by providing easy-to-access, relevant, data presented in a suitable manner – since, having the data at hand, makes it more difficult to ignore and instead serves as a mean to expand the perspective of the decision maker to discover more possible options (Fallahchay, 2020, p. 176).

Properly evaluating feasible options

After having generated as many feasible options as possible, they should all be evaluated in a proper way (Awang et al., 2013). However, many decision makers make decisions that are not supported by the evidence in a rush to make quick decisions (Evans, 2009; Gilks, 2016). One of the major benefits of data and data science is to shed light on the evidence and use the information to find what alternatives are most likely to solve the identified problem (Jibril and Abdullah, 2013; Miller, 2014).

Justification of decisions and maintaining records of decision rationale

Business executives might be of the belief that their decisions do not have to be justified since they are not accountable to anyone (Fallahchay, 2020, p. 180). Especially within small- to medium-sized companies, executives might also be owners of the organizations, providing them with additional affirmation that they do not need to justify decisions (Miller, 2014; Little, 2002). However, providing justification (most preferably documented) is of value for numerous reasons and can be done with the support of data science (Fallahchay, 2020, p. 180). First, it can inform those who inherit roles within the organization with explanations on why certain decisions were made (Bansal, 2013). Secondly, it increases the legitimacy and credibility of the decision maker within the organization. Lastly, investors and stakeholders are attracted to businesses that are clear with how they make decisions and why they take certain courses of actions (Fallahchay, 2020, p. 181).

Having less subjectivity and more objectivity in decision making

One of the core roles of data science in decision making is that it reduces subjectivity and promotes the level of objectivity (Hilbert and Lopez, 2011; McFarlane, 2010). Fallahchay (2020, p. 185) argues that data science help decision makers triangulate between different human biases and objective data. Whether or not objectivity is better than subjectivity in decision making can be argued. However, the correlation is evident since data-driven organizations have been shown to better survive many business environments (Fallahchay, 2020, p. 185).

3.2. Performance measurement

Along with other tools, performance measurement serves an important pilar in a data and facts driven organization. Systematically measuring performance give aid in evaluating results of decisions over time and with that serves as decision basis for future decisions. Within organizational research, performance measurement has been heavily discussed for over three decades, yet researchers have not yet agreed on a definition of the concept. Melnyk et al. (2014) provided the definition that will be relied on through this paper.

They defined performance measurement as *"[…] the instrument used to quantify the efficiency and/or effectiveness of action"* (Melnyk et al., 2014, p. 175).

Due to the conflicting usages of the term, Franco-Santos et al. (2007) compiled the 17 most used definitions in literature, and from there outlined the most mentioned features of performance measurement systems along with the percentage of definitions that included said term:

- *Performance measures* – 53%
- *Objectives/goals* – 35%
- *Supporting infrastructure* – 29%
- *Targets* – 24%
- *Casual models* – 12%
- *Hierarchy/cascade* – 12%
- *Performance contract* – 12%
- *Rewards* – 12%

Performance measurement systems might serve one or more purposes including *measuring performance, strategy management, communication, influence behavior* and *learning and improvement* (Franco-Santos et al., 2007). In the context of this thesis, the term will mostly focus on *measuring performance* with the purpose of serving as a tool for decision making and evaluation of decisions.

3.2.1. Key performance indicators

Key performance indicators (KPIs) posses a central role in performance measurement systems as they mean to reflect factors of success within an organization (Kang, Zhao, Li & Horst, 2016). KPIs are set of detailed measures that should be simple to interpret, measurable, accessible, realistic, and temporal (SMART) (Ravelomanantsoa et al., 2019). Vial and Prior (2013) argue that KPIs can be categorized in several different ways and present one way to do so:

Category	**Description**
Quantitative	The amount of a product or service.
Qualitative	Structured perception of structured feedback.
Cost efficiency	The unit cost of achieving a specified amount of service.
Cost effectiveness	The unit cost of achieving a specified amount of service to a designated level of quality.
Timeliness/Responsiveness	The time taken to perform a service, or the number of transactions or products within a time cycle.
Work team productivity	The amount of output of a workforce unit or group.

Table 2: Categorization of performance indicators (Vial and Prior, 2013).

As mentioned, other categorizations may be made. Parmenter (2015) for instance, makes a distinction between *result indicators* and *performance indicators*. Result indicators mean to express the performance on an organizational or firm wide level. It summarizes the performance of multiple teams. In that sense, financial indicators would generally be a subset of result indicators. While result indicators give an easy to grasp view of the overall performance in different dimensions, they fail to provide insight in the drivers behind the metrics.

Performance indicators are instead non-financial indicators that can be traced to a team or subprocess within an organization (Parmenter, 2015, p. 7). These aim to align parts of an organization with the overall strategy and objective, as well as give insight in the performance of specific processes and teams.

Along with the description of result- and performance indicators, Parmenter (2015) exemplifies what said indicators could be, both in the private sector, and for government and nonprofit agencies. These are listed below in table 3:

Type of indicator	Sector	Examples
Result indicators	Private	▪ Sales made yesterday. ▪ Number of initiatives implemented from the recent customer satisfaction survey. ▪ Number of initiatives implemented from the staff survey. ▪ Number of employees' suggestions implemented in the past 30 days. ▪ In-house courses scheduled to be held within three weeks where attendee numbers are below target. ▪ Number of managers who have not attended leadership training (reported quarterly, by manager level). ▪ Number of staff trained to use specified systems.
	Government and nonprofit	▪ Weekly hospital bed utilization. ▪ Percent coverage of supported services. ▪ Number of people on treatment/tested for [disease name]. ▪ Grants achieving their public health targets as per grant agreements. ▪ Percentage of investments covering low income, high disease-burdened countries.
Performance indicators	Private	▪ Abandonment rate at call center. ▪ Late deliveries to customers. ▪ Planned abandonments of reports, meetings, processes that are no longer functioning. ▪ Number of innovations implemented by each team/division. ▪ Sales calls organized for the next week, two weeks, and so forth. ▪ Number of training hours booked for next month.
	Government and nonprofit	▪ Number of media coverage events planned for next month. ▪ Date of next customer focus group. ▪ Date of next research project into customer needs and ideas.

Table 3: Examples of result- and performance indicators (Parmenter, 2015: p.6-7).

Above examples should only give an idea of what type of measures could be used within an organization. The level of depth and specificity on some of the metrics shed light on the possibility and need to find measures relevant to the specific organization under consideration. Another concern brought up by Parmenter (2015) is the need of alignment between indicators and the overall objective of the organization. Thus, each potential measure must be evaluated with this in consideration.

Translating the high-level organizational objectives into indicators might not always be straight forward. Additionally, all measures must be linked to a specific purpose derived from the organizational vision and strategies (Mouchamps, 2014; Parmenter, 2015). Barr (2014, p. 146-158) present five different ways of identifying KPIs, which all have positive and negative aspects:

Brainstorming consists of taking a starting point in objectives and goals and asking the question of how those objectives and goals could be measured (Barr, 2014, p. 146-158). The method generates a lot of ideas for measures in a rapid and easy manner, does not require any specific skills and can serve as a mean to engage employees in setting up the performance measurement system.

Regardless the positive attributes of brainstorming, unfortunately one cannot be sure that the greatest measures are brought forward using the method. Additionally, the measures might be biased and dependent on the people who proposed them.

Benchmarking against other similar organization and adopting best practices of the industry is a method that reduces the risk of identifying completely wrong measures (Barr, 2014, p. 146-158). This method is relatively easy to use and widely accepted. However, data on competitors or industry peers might be difficult to get a hand on. Additionally, specific characteristics of the organization might make it ill comparable with others, introducing the risk of adopting ill-fitting measures.

Looking at currently available data is a pragmatic approach that puts data at focus (Barr, 2014, p. 146-158). The approach takes a starting point in available data and from there the designer identifies possible measures. With this approach one might end up with a long list of measures that are not relevant to the organization, which highlights the need of evaluating all measures to find indices that are aligned with overall strategy and objectives.

Looking at stakeholders' interests is especially important within nonprofit organizations (Hansson & Palmgren, 2020). Requirements of stakeholders might have a heavy influence on what is measured. The benefit of listening to stakeholders is that they get the reporting they which for and thus might put more faith in the organization (Barr, 2014, p. 146-158). On the negative side, stakeholders are not always knowledgeable when it comes to the organizations internal processes and might miss several important measures that are important to assess the performance of specific activities and processes.

The use of experts is a convenient way to utilize industry learnings and best practices that the experts have seen in previous work (Barr, 2014, p. 146-158). However, if they are given too much trust and ability to influence, there exist a risk of implementing ill-fitting measures. Therefore, one should take use of several experts and make sure to anchor the measures with employees before implementing any suggestions.

3.3. Data and Big Data

3.3.1. Definition and categorization of Data

Data can be looked at as units of information and thus, differs from information itself in the sense that data only becomes information when it is contextualized and supplied with meaning (Kidwell et al., 2000). Only then can data provide insights usable in decision making and other organizational activities (Scholz, 2017). It is through a process of distillation where data complexity is reduced, information organized and finally interpret that data can be leveraged for decision making (McCandless, 2010).

Kitchin categorized different types of data according to the attributes presented in table 4 (Kitchin, 2014).

Dimension	Categories
Form	*Qualitative* – non-numerical characteristics. *Quantitative* – numerical characteristics.
Structure	*Structured* – adheres to a predefined data model and can be analyzed without any processing. *Semi-structured* – does not adhere to a predefined model but contains tags or other markers which facilitate classification and processing of data. *Unstructured* – lack of arrangement and tags increasing the need for processing of data.
Source	*Captured* – capturing data when an event (e.g. economic transaction) occurs. Derived – data derived from existing data element using any form of transformation (e.g. mathematical or logical). *Exhaust* – the trail of data left after an activity on the internet or any computer system. *Transient* – data that is created during an application session and which is discarded or reset to its original values at the end of the session.
Producer	*Primary* – collected at first-hand by the user. *Secondary* – collected by someone else than by the primary user. *Tertiary* – based on collections of primary and secondary sources.
Type	*Indexical* – sign that is pointing toward (indexing) some object. *Attribute* – numerical value to some qualitative characteristics (e.g. indication on a logical scale). *Metadata* – provides information about other data.

Table 4: Categorization of data.

3.3.2. Definition and categorization of Big Data

Interest for big data grew larger in the beginning of the 21st century much because of the exponential increase in data amounts across the globe (Morris & Truskowski, 2003), which in turn can be accredited to the passing of the threshold at which storing data digitally became more cost-effective and convenient than keeping it on paper.

Various definitions of big data exist, researchers however agree that big data is characterized by large *volume* of data, with high *velocity* and *variety* (Laney, 2001). Austin and Kusumoto (2016) define big data as information assets which require specific technology and analytical methods for its transformation into value because of its high volume, velocity, and variety. Definitions of said dimensions follow in table 5:

Dimension	Definition
Volume	Large amounts or magnitude of data received (Austin & Kusumoto, 2016). Since data is produced rapidly the result is large amounts of generated and processed data.
Velocity	Data is received at a high rate. Data is often streamed in real-time or near real-time through internet resulting in a high-rate incoming stream of data that might require immediate action (De Mauro, Greco & Grimaldi 2016).
Variety	Various types of data such as videos, text or photos are being generated from the same or different sources (De Mauro, Greco & Grimaldi 2016).

Table 5: Dimensions of big data.

To conclude, “big data comprises of huge amounts of data from various data sources which is generated at a rapid rate” (Mabaso & Sagandira, 2021).

In addition to said original and crucial dimensions, additional dimensions that characterizes big data have been discussed and added over the years (Scholz, 2017). These include the following:

Dimension	Definition
Veracity	Level of reliability in certain types of data. As one seeks to gather insight from data, the need to understand and account for uncertainty is increasingly important (Schroeck et al., 2012, p. 5).
Variability	Data flows might be variable and have time- or seasonal dependent patterns that need to be managed (Troester, 2012, p. 3).
Complexity	When data sets of different origins are merged or handled together there is a need to link, match and transform data to understand relationships and data linkages (Troester, 2012, p. 3). The complexity of data hierarchies and classifications play a vital role in determining how the data should be handled.
Value	Data might have very different economical value and potential. Highly valuable data can be hidden in large bodies of data with lower value. Thus, there exist a challenge in identifying what data is of value and what is not (Dijcks, 2012, p. 4).
Viability	Before conducting any analysis, the viability of data needs to be considered. For the analysis to be of relevance the data too need to be of relevance for a sufficient period of time (Biehn, 2013).

Table 6: Additional dimensions of big data to be considered.

Mentioned dimensions are only the most well-known and leading in this context. Scholz (2017, p. 15) however, mention multiple additional dimensions that have been discussed to a varying extent in literature. At first there are the additional Vs, including visualization, valorization, validity, venue, vocabulary, vagueness, versatility, volatility, virtuosity, vitality, visionary, vigor, viability, vibrancy, and virility. Since 2015 researchers have also proposed dimensions expanding to the letter P, such as privacy, portentous, perverse, personal, productive, partial, practices, predictive, political, provocative, polyvalent, polymorphous, and playful.

All though many researchers are focused on the challenges of handling big data and widespread discussions on how to avoid pitfalls, other researchers are utterly optimistic of the potential to make the world a better place using big data (Scholz, 2017, p. 15).

3.4. Data management

All processes and procedures across the lifecycle of data, from capturing the data up until disposal is called data management (Strengholt, 2020, p. 2-4). The Data Management Association (DAMA) is an international industry organization that have published a great deal on the topic of data management. In its book *Data Management Body of Knowledge (DMBOK)* they present the DMBOK wheel which contain 11 subareas within data management. The model is cited in multiple books and papers (with some minor alterations and focus areas), including in *Data Management: a gentle introduction* (Gils, 2020, figure 7.1). According to the model, all necessary activities within data management can be placed under one or multiple of the subareas presented in figure 8 and more thoroughly described in table 7.

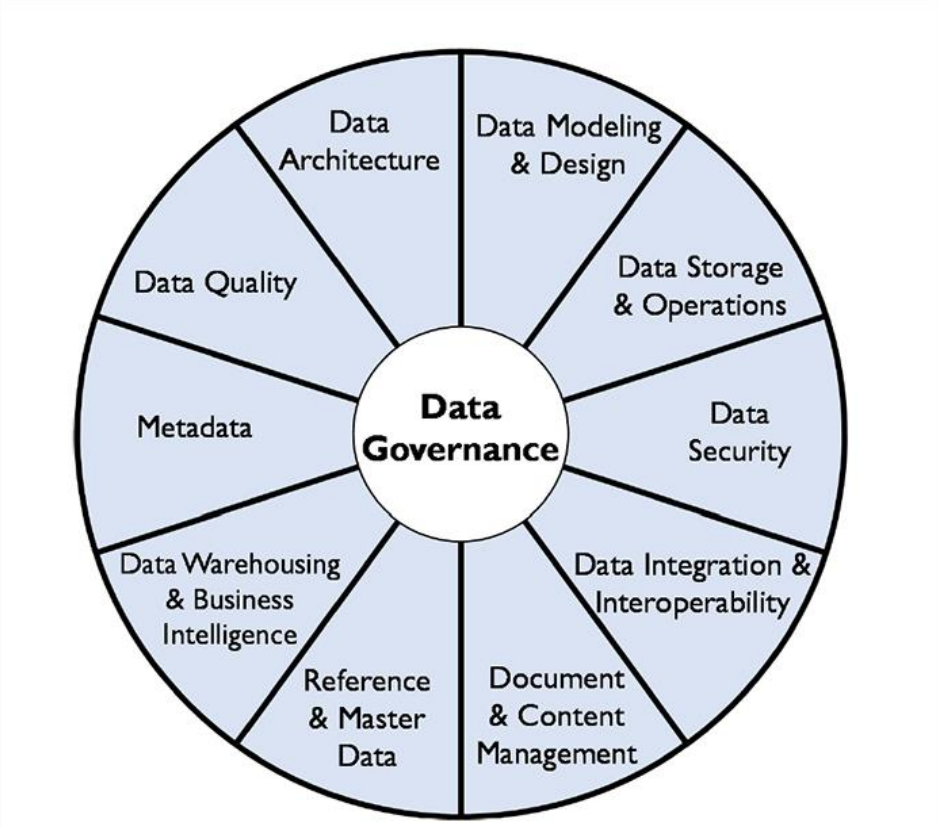

Figure 8: The DMBOK wheel.

Subarea	Description
Data architecture	Mapping of all relevant data systems including models, policies, and standards that guide storage, arrangement, and integration of otherwise distinct systems.
Data governance	Controls and guidelines to ensure the right authority, availability, and accountability of data.
Data modeling and design	Structuring and representing the data within relevant context and systems.
Data storage, and operations	Management, support, and ongoing operations of databases.
Data security	Activities meaning to protect data from unwanted actions and users, via e.g. secure authentication, authorization, and access to the data.
Data integration and interoperability	Activities for moving data from one context to another, including collection, consolidation, combining and transforming data.
Documents and content	Activities that deal with unstructured data, with the purpose to make it more structured and usable.
Reference and master data	Management of critical data to ensure it is accurate, secure, accessible, and trustworthy.
Data warehousing and business intelligence	Activities which provide business insight and means to support executives in decision making.
Metadata	Management of all data which describes other data. Structured metadata is vital to understand and make use of data.
Data quality	Activities for ensuring the quality and accuracy of data.

Table 7: Description of subareas of data management from the DMBOK Wheel framework.

All though all subareas will be handled with during the course of this thesis, emphasis will be on *Data warehousing and business intelligence* and especially on *business intelligence and analytics.*

3.4.1. Data warehousing, business intelligence, and analytics

Most other subareas of data management aim to protect and keep the data environment clean and functionable, whereas the purpose of business intelligence and analytics (BI&A) activities intend to create and uncover business value from data (Gils, 2020, ch. 18). Data warehousing on the other hand can be considered an enabler of BI&A. The DMBOK defines the field of data warehousing and business intelligence as:

"Planning, implementation, and control processes to provide decision support data and support knowledge workers[1] engaged in reporting, query and analysis."

Furthermore the DMBOK claims the following goals of the field:

"(1) To build and maintain the technical environment and technical and business processes needed to deliver integrated data in support of operational functions, compliance requirements, and business intelligence activities; and (2) To support and enable effective business analysis and decision making by knowledge workers."

Similarly, Gordon (2013) defines business intelligence as:

"…the set of techniques that is used to transform raw data into information that can be used to inform high-level decision making."

3.4.1.1. Distinction between business intelligence and analytics

There is clearly a consensus across literature on the purpose of business intelligence. However, the distinction between business intelligence and analytics is not as obvious. Both approaches work with heavy data sets and use different kinds of software to uncover insight and information from data (Ghavami, 2020, ch. 1). The difference however lies in the depth of analysis and representation of data. With BI we seek to create static dashboards which showcase normalized and structured data in a manner that is easy to interpret and gather information from. Analytics instead work with structured as well as unstructured data and uses advanced statistical methods to discover patterns and provide learning from data. Ghavami (2020, ch. 1) presents the differences between business intelligence and advanced data analytics in the following way:

Business intelligence	**Advanced data analytics**
Information from processing raw data	Discovery, insight, patterns, learning from data
Structured data	Unstructured & structured data
Simple descriptive statistics	NLP, classifiers, machine learning, pattern recognition, predictive modeling, optimization, model-based
Tabular, cleansed & complete data	Dirty data, missing & noisy data, non-normalized data
Normalized data	Non-normalized data, many types of data elements
Data snapshots, static queries	Streaming data, continuous updates of data & models, feedback & auto-learning
Dashboard snapshots & reports	Visualization, knowledge discovery

Table 8: Business intelligence vs. Advanced data analytics (Ghavami, 2020, ch. 1).

[1] Knowledge workers are defined as persons whose job involves handling or using information.

All though the distinction between BI and analytics is acknowledged, the terms will mostly be mentioned together as BI&A throughout this thesis since the approaches are closely related and work towards the same purpose, and since analytics can be considered merely an extension of business intelligence.

3.4.1.2. Data warehousing and typical system architecture of BI systems

BI&A require specific technical solutions and structures to work well, I will mainly focus on the principles and purpose behind the systems rather on the technical details. A typical BI&A architecture consist of source systems, operational data storages, a data warehouse, data marts and finally querying, reporting, and analysis tools at the hand of the end-user (Gils, 2020, ch. 18). The same principal structure is proposed by Gordon (2013, ch. 14), and is illustrated below in figure 9:

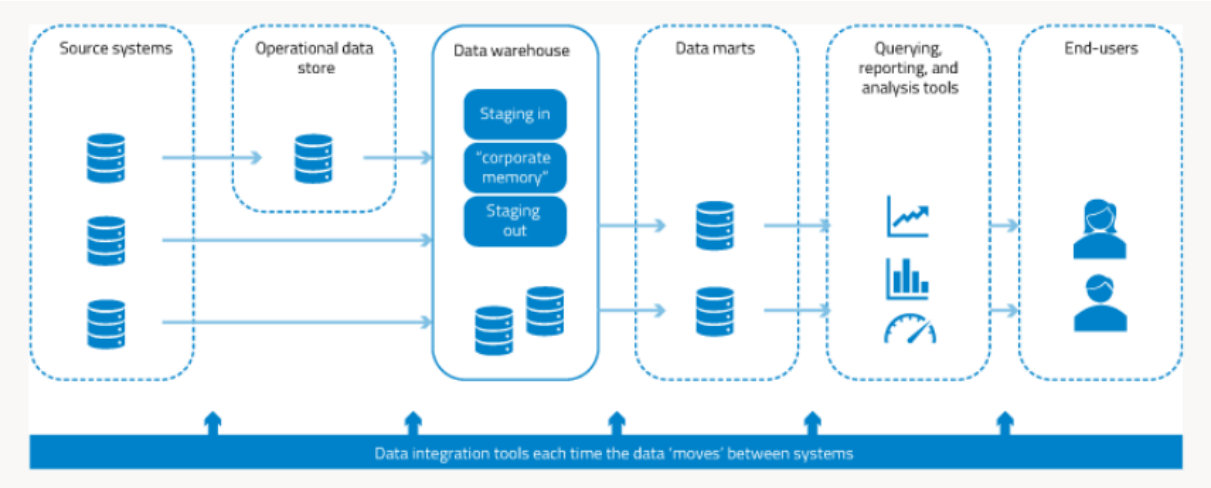

Figure 9: Typical BI&A architecture, from source systems to end-users (Gils 2020: ch. 18).

Source systems are the systems in which the data is initially created.

Operational data store are the storage units first in line from where the transactional data is created. It is mostly accepted that these storage units should only store raw data from the source of creation and should not be the foundation for BI&A, since it is first and foremost important that the operations themselves run smoothly (Gils, 2020, ch. 18).

Data warehouse provides a single point of integration for all the organizations data (Earley & Henderson, 2017). This is where historical data is stored for archiving purposes and future use. The data warehouse might in contrary to operational data stores keep aggregated data instead of atomic data.

Data marts are used to provide stakeholders with relevant information (Gils, 2020, ch. 18). Departments are interested in different types of data. Additionally, multiple departments might be interested in the same data but structured and represented in different formats and packaging. For these reasons, the data is often repacked into data marts to fit the purpose and wish of stakeholders. For instance the finance department of an organization might have one data mart containing data relevant to them, and the sales department another data mart containing their relevant data.

Querying, reporting, and analysis tools at the hands of end-users such as analysts are used for analyzing and presenting the data in a suitable manner for knowledge workers and decision makers to make use of the gathered insight (Gils, 2020, ch. 18).

3.4.1.3. Concepts in business intelligence and analytics

Depending on the need of the organization BI&A can focus on three temporal dimensions, namely the past, the present, and the future (Ghavami, 2020, ch. 1). Retrospective analysis uses historical data to explain and provide insight in past events. Real-time analysis mainly uses present data to give insight in present operations but might of course have to be related to historical values and relations to provide a deeper understanding. Prospective analysis aims to forecast future events and values of certain variables by exploiting present and historical data.

To conduct the analysis and uncover insight from the data, various statistical and technical methods might be used. Ghavami (2020, ch. 1) presents a couple of usable groups of tools for data analysis:

Statistical analysis includes descriptive functions and tests such as min, max, median, t-test, percentile calculations and outlier identification.

Forecasting and predictive analytics aim to predict future developments via tools such as linear- and logistical regression, interpolation, extrapolation, multi-variable analysis, mean square error and residual calculations.

Pattern analysis takes use of machine learning algorithms and neural network methods to mention a few, with the purpose to discover patterns in data.

3.5. Theoretical framework used in study

Based on the literature review, a theoretical framework tailored for the purpose of this study has been developed. The model is used for describing the relationship between the decision making process and information. In which means of analysis plays a vital role. All though, not included in the framework, one should remember that supporting infrastructure and process (e.g. in data management) are necessary for the process to function smoothly, as discussed in the literature review. The framework is illustrated in figure 10 and described more thoroughly below.

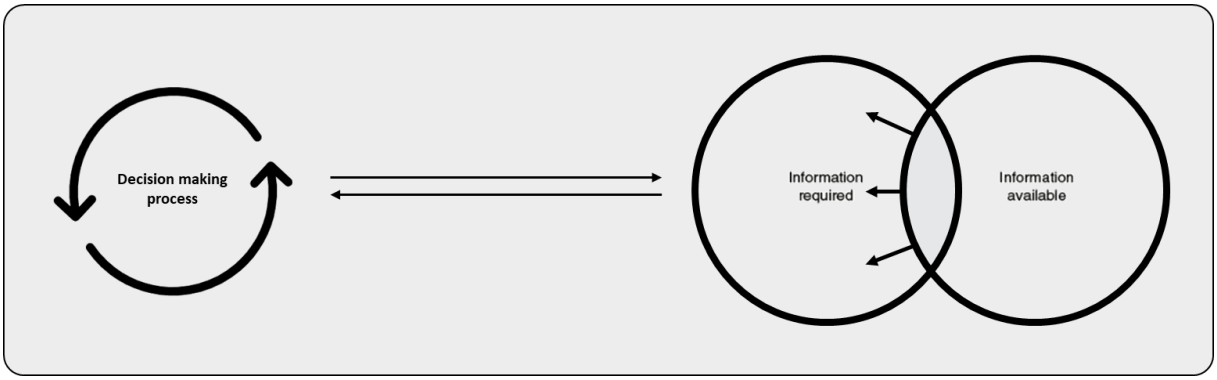

Figure 10: Theoretical framework used in study.

Decision making process

As described, decision making consists of five steps: 1) defining the objective, 2) collecting relevant information, 3) generating feasible options, 4) making the decision, and 5) implementation and evaluation. Performance measurement relates to the last step: evaluation. By measuring performance, outcomes from decisions can be evaluated continuously which provides decision basis for future decisions. The decision making process is described as a continuous process since similar decisions often reoccur and should be monitored and evaluated continuously.

Information

To effectively make decisions and measure performance, different kinds of information will be necessary. What the pieces of required information are can be identified through means of analysis, ultimately resulting in an information demand from the decision maker.

Only when knowing what information is required for making a certain decision, the answer to whether that information is available can be answered. Some information might be directly available, while some data might require analysis to provide relevant information. Data analyses thus act to transform available data to information that is required in the decision making process (illustrated by the arrows in the illustration on the right-hand side in the framework).

4. Empirics

All data gathering within the scope of this project are presented in the *empirics*-chapter. This corresponds to phase 1 as described in the *methodology*-chapter.

4.1. Phase 1: Assessing current state and information demand

Phase 1 entailed interviewing employees within the IT group of Amnesty, as well as employees within the department Opinion and Impact. Additionally, a dataset which was generated in the internal processes of Amnesty was collected during this phase. This phase however only consisted of the information and data gathering, which was later analyzed in phase 2 and presented under *5. Analysis.*

4.1.1. Summary of interviews with Data- and IT employees

The interviews with data- and IT employees at Amnesty focused on mapping the IT landscape in terms of systems/data sources and warehousing of data. Additionally, we discussed current data analysis efforts and surrounding infrastructure related to data management. The main aim was to understand what data is available for analysis. Note that the opinions expressed are those of the employees and not necessarily considered to be entirely true.

4.1.1.1. Data architecture – systems, data sources, warehousing, and data

All though, a clear mapping of the IT landscape does not exist, the IT group claims to have a good view of the most central systems and how they relate to each other. These systems/data sources, as well as the data originating from there are described below based on the interviews. The names of certain services and platforms have been substituted with a descriptive name for confidentiality purposes.

Systems related to the membership database, payments, and personal information

System/data source	Description and associated data
CRM system[2]	Contains personal information about donors. This is the largest data set in the organization. Several systems are integrated with the CRM and delivers data here. Thus, the system functions as a central pillar which collects and stores all membership data. This is also from where the financial department gets such data for accounting purposes. The activism team within Opinion and Impact are also using the CRM system to keep track of activists involved in different groups, educations, etc. Amnesty is currently in the transition from an old, self-developed, platform, to a new externally developed system. The reason for the upgrade being that the old platform relied on old technology making integrations with other systems more complicated. Additionally, new demands from Opinion and Impact surrounding interests in data and information resulted in a need for an easier platform to pull relevant data from. The old system worked well surrounding economic data but was not flexible enough regarding the membership data of interest for Opinion and Impact.

[2] Customer relationship management (CRM) system is a platform used for storing information about customers (in this case members) and other sales related information.

	The goal with the new platform was originally to store all the organizations data. Unfortunately, since many of the older systems are not easy to integrate, the new ambition is to store as much data as possible in the CRM system, but not all.
Signing service	External system used for signing consent related to membership payments. The service is integrated with the CRM system using an API. The service is used regardless of whether a person becomes member online, via telephone or by face-to-face recruiters.
Payment solutions	Swish, Swedbank pay, and Bank-giro are used for membership payments and donations. These applications are integrated with the CRM, where payment information is stored. Swish has become a more frequently used payment solution, all though the others are still extensively used as well.
Tele-marketing system	System built based on SQL technology and contains lists of people for the tele-fundraising group to contact with the purpose of reaching new members/donors or to upgrade/ask for additional donations from already existing members. Also, when someone signs an action[3], their contact information is sent via the tele-marketing system to the tele-fundraising team, who might contact said people to ask for donations or if they wish to become members. The conversion of these people is believed to be very large, however it is not precisely measured.
External database with personal information	Used for accessing up-to-date personal information about members (such as addresses). Integrated with the former CRM system and to be integrated with the new system.
Accounting system	Only handles financial data and not any member- or donor information. Keeps track of the chart of accounts and is used for distributing costs and revenues across different cost centers.
Time reporting system	System used for employees to report work time.

Table 9: Description of systems related to the membership database, payments, and personal information based on interviews.

Legacy systems (former systems that have been largely abandoned but are still up-and-running)

System/data source	Description and associated data
Former tele-marketing system	When the tele-fundraising group moved on to a newer system, they still relied on the old system for time reporting. Thus, the system is today up-and-running solemnly for that purpose.
Former CRM system	Relies on SQL technology. Still running because of a few factors that has not been possible to transfer to the new CRM system and for having access to historic data.

Table 10: Description of legacy systems (former systems that have been largely abandoned but are still up-and-running) based on interviews.

The IT group wish to ultimately abandon legacy systems. However, the rest of the organization generally prioritize new solutions and functionality, making it difficult for the IT group to set aside sufficient time and resources for assuring the old systems can be left behind. For this reason there exist no explicit plan on how the older systems should be shut down.

[3] Amnesty regularly runs campaigns, called “actions”, where they collect signatures from supporters of various causes to use as leverage against decision makers.

On the same topic, requests for new systems or functionality usually comes from outside of the IT group and decisions can be made with little contact with the IT group. This makes it more difficult to keep the IT landscape together and systems integrated with each other. Employees within the IT group however claim that this issue has gotten attention and that the IT group is supposed to be involved at an earlier stage going forward.

External web-based systems for communication purposes

System/data source	Description and associated data
Amnesty.se	External website with associated storage. As a part of Amnesty's mission to impact decision makers, actions are often advertised on the website for the public to sign. Lists with signatures and personal information from signings thus make up extensive data sets originating from amesty.se. Data from actions are not currently integrated with the CRM system. The plan though, is to combine this data with the membership data.
Aktivistportalen	External website used for communicating with activists.
Amnesty web store	Small web store.
Medlemsportalen	Separate website containing meeting protocols and other information relevant to members.
Social media	Especially Facebook and Instagram are used for communicating with the public.
SMS network	The network is used for sending information (e.g. about ongoing actions or for collecting donations for specific causes) to supporters that have signed up for the service. Actions can be signed by the supporter, simply by answering the request with a text message. Similarly, donation requests can be approved in the same manner.
Emailing system	Contains lists of email addresses for newsletters and other content. The system has an API for integration with the CRM system. For instance the API is used to add addresses to the email lists and for pulling statistics regarding mailings.

Table 11: Description of external web-based systems for communication purposes based on interviews.

Platforms and applications for analysis

System/data source	Description and associated data
Google analytics	Used for tracking web-related activity. Data is however not downloaded and stored locally.
Facebook pixel	Used for tracking ads activity from Facebook. Data is however not downloaded and stored locally.
External data analytics provider	Used by the fundraising department for evaluating their operations and measure the efficiency of both face-to-face (F2F) and tele-fundraising (TF) fundraisers.
PowerBI	Tool for visualization of data. So far, this platform has only been used for developing reports for the fundraising department.
PowerQuerry	Used for gathering data to PowerBI.
Azure analytics	To be used in the future for advanced analysis including machine learning algorithms and forecasting.
R	Programming language used for analysis together with PowerBI.

Table 12: Description of analyses-platforms currently used based on interviews.

Several databases for storage exist, as described in above tables. However, due to difficulties in retrieving data from the CRM system the IT group are working to establish an additional central warehouse which will collect some data from the CRM system, but mostly from the surrounding systems directly. PowerQuerry will then be used for gathering data for visualization and analysis in PowerBI and Azure analytics.

4.1.1.2. Data requests and analysis

This subchapter entails the view of the IT group surrounding current data analysis efforts and the information need of employees in Opinion and Impact.

Segmentation of members based on their interest in different human rights issues

Historically, employees within Opinion and Impact have occasionally asked for lists with contact information to certain members. For instance, the selection criteria have been specific age groups or geographical locations. Sometimes Opinion and Impact have even asked for lists with contact information to people that are interested in specific questions. This could be exemplified with requests on the form *"could you compound a list of members who have signed action X but not action Y"* and the purpose have been to target specific people for asking them to sign a specific action.

The IT group has observed a need expressed by Opinion and Impact to segment members and supporters based on what human rights issues they are interested in. So far, what is considered the best approach for doing so is by using the data from signed actions as described above. Currently there is a work in progress to determine a list of what human rights issues Amnesty is working with and how these topics should be titled. Actions are then to be categorized accordingly moving forward, thus it can be understood what human rights issue all actions treat.

Going forward, the IT group is also working on a better integration between the web database and their CRM system. With this done, the hope is to have lists of signed actions merged with the membership- and supporters' data from the CRM system. Ultimately, this would create an easy-to-access platform for segmenting people based on what actions they have signed (and in extension by what human rights issues they are interested in). The plan is for knowledge workers to directly be able to pull such lists from the database, without manual interference from IT personal as is the case now.

Google analytics for web analysis and Facebook pixel for social media analysis

Google analytics and Facebook pixel are mainly used by the communication department within Opinion and Impact but sometimes the IT group gets involved as well. Facebook pixel is used for measuring frequency of ads from Facebook and Google analytics for data surrounding pure web traffic. For instance, the resulting web traffic from newsletters is followed up to see whether the letter led to any donations, new members, or signings of actions.

During the interviews, concerns regarding these platforms have been brought to light. Some mean that it is questionable whether these platforms should be used going forward since it is problematic to share data both with Facebook and Google. In that case third party solutions could be used instead.

Additional discussions about Google analytics and Facebook pixel were brought up during the interviews with employees from Opinion and Impact and is described in the next subchapter.

Additional need for data and analysis in Opinion and Impact

Several ideas surrounding additional data and analysis needs within Opinion and Impact have been discussed during the interviews with IT group employees. The most mentioned ideas which are believed to have the largest impact are listed in below table.

Type of data/analysis	Description
Segmentation of members and supporters	As discussed previously, some segmentation based on the interest of members and supporters have been made on an ad hoc basis with the purpose of sending directed requests to certain people. During the interviews, segmentation has been discussed as the most impactful analysis that can be made for Opinion and Impact. Segmenting based on interest in different human rights issues could be done using the information from signed actions and potentially also from the web traffic originating from links in emails from Apsis (where mailing too could be categorized by human rights issue). The IT group also believes some data from other web traffic could be used for this purpose. Apart from segmenting based on interest, there is also an interest in segmenting on demographic and geographic factors, as well as on factors such as via what channels (email, phone, face-to-face) Amnesty has been in contact with each individual. Ultimately, one would like to link the segmentations together to provide insights such as *"members in age group X-Y are generally interested in human rights issue A and B"*. A cluster analysis of members and supporters is considered having the potential to add value. Such an advanced analysis thus lies in a more distant future.
Performance measurement	There is a need to follow the revenue streams and better follow-up recruiting activities. All though this would mainly benefit the Fundraising department, it would also provide value to Opinion and Impact since it could provide insight in how their actions and publishing activities effect the number of new members. Evaluation of activities have also been discussed in other contexts. For instance, actions are only evaluated in relation to a pre-defined goal in terms of number of signatures. Opinion and Impact would benefit from understanding what factors impact the number of signatures and how things have changed over time.
Recruiting/drop-offs	Generally across the organization, there is a need to better understand why people become members/supporters (e.g. what human rights issues/questions motivates them, and how come they choose to donate to Amnesty and not any other human rights organization). At the same way it would be beneficial to understand why some members choose to stop being members (e.g. how many stops being members after reading a newsletter they do not agree with, etc.). This might be a more complicated analysis and is thus meant to be carried out in a more distant future by the analyst at Amnesty.

A or B testing	For some activities, A or B testing might be relevant. The meaning of this is to take action A during some occasions and action B during others and compare the results. Newsletters were mentioned as an example, where for instance, the emails could be sent out during different days and times. By following up on how many people opened the emails and what web traffic the emails resulted in, one could evaluate what days and times are best for sending the newsletter.
External brand surveys	Some believes there is a need to collect new data to work with. Doing a brand survey has been mentioned as an example to understand what view the public has on Amnesty, what human rights issues most are interested in, and how Amnesty could reach new members and supporters. There are however no clear plans to conduct such a survey.

Table 13: Identified data- and analysis need in Opinion and Impact based on interviews with the IT group.

While believing above analyses would provide value to the organization, several people from the IT group thinks that there might be additional needs that they are unaware of. Contrary, the analyst claimed that he was able to provide additional analysis and insights for the face-to-face fundraising department than what had been asked for. Thus, he meant that with a background in business intelligence and data analysis it is possible to provide additional insights on top of the need identified by knowledge workers.

4.1.1.3. Supporting infrastructure and processes

As discussed in the literature review, supporting data management infrastructure and process need to be in place for supporting the business intelligence and analytics capabilities in an organization. These factors were discussed with the IT group and the findings are presented in below table:

Subarea	**Comments from interviews**
Data governance	There is a gap between IT and the rest of the organization, resulting in that knowledge workers do not always have access to the right data. Also, knowledge workers do not always know what data exists and how it could be used. With the new CRM system the ambition is to provide data and analyses at the hands of knowledge workers in a more smooth and accessible manner, however the interview objects claim there is still a long way to go. The IT- and data knowledge within the organization is naturally not on a sufficient level for all employees to know what data exist and how it could be accessed and used. There are however plans to educate "superusers" across the organization. These people will be educated in how the new CRM system functions, what data is appropriate to look at, and what analyses can be made. Then, in turn, the superusers will spread the relevant information within their work groups. The superuser-approach has been decided on but is yet to be implemented. Besides the new CRM system, the idea is that the newly employed analyst will bridge the gap between IT and knowledge workers. By understanding the information need within the organization and having great knowledge in what data exist, the analyst will provide insightful reports on a more regular basis than what has been done previously.
Data quality	Generally there has not been any major difficulties in upholding a decent level of data quality. However, when switching from the former to the new CRM system there has appeared several duplicates of

	members. Matching with personal identification numbers are a bulletproof way to avoid duplicates, however this data is not always available. In those occasions matching must be done on phone number or email addresses, which are not as accurate since the same person might have multiple phone numbers and email addresses, sometimes resulting in faulty data when integrating different systems and combining data sets.
Data security	The IT group has not experienced any acute security breaches, nor are their operations hindered by any major security requirements. However, there is a risk relying on older technology and un-patched versions of software that does not entail the latest security protocols, as is the case for some of the legacy systems and older systems used. All newer systems are however maintained and updated regularly, also regarding security. Some data handled by Amnesty is especially sensitive, for instance information regarding the Amnesty fund which give financial aid to people in need and information related to individual refugee matters that Amnesty is working with. This data is therefore handled in a more sensitive matter with stricter security protocols. There are ongoing discussions within Amnesty about developing a new IT security policy. The responsibility would fall on the IT group lead.
Data structure	Traditionally the IT group claims to have had decent structures and classifications of data, all though not as stringent and organized as one would have wished for. Ad hoc solutions have often been used to solve problems that have appeared, resulting in deviating structures.
Documentation	Amnesty has some but little formal documentation surrounding the IT landscape and systems used. The latest mapping of the IT landscape was made around 2018.
Compliance and ethics	There is a balance in how much and what personal data the organization wants to store since the data could be sensitive. Additionally, the storage and handling of personal data is heavily affected by GDPR, which limits how data can be gathered, stored, and used.

Table 14: Key characteristics of data management subareas based on interviews with the IT group.

4.1.1.4. Key takeaways

The most important finding from interviews with the IT group are presented below:

- The CRM system containing member- and donor information can be considered a main pillar to which other systems are generally integrated.
- The web is architecturally differentiated from the cluster of systems related to the CRM.
- The most important and largest data set is the member- and donor data in the CRM system, which includes personal information and information on payments.
- Of interest for Opinion and Impact are the lists of signatures for actions.
- There is an interest from Opinion and Impact to segment members- and donors by what human rights questions they are interested in, as well as to connect said segmentation to demographic, geographic, and other factors.
- Opinion and Impact employees have occasionally requested lists of contact information to people that have signed specific actions.

- There is a need for additional performance measurement and follow-up activities across the organization.
- Several, more advanced analyzes are loosely planned to be carried out in the future.

4.1.2. Summary of interviews with employees in Opinion and Impact

Interviews was carried out with employees in a variety of roles within Opinion and Impact. The interviews focused on identifying information needs for decision making and performance measurement, as well as on mapping current data and analysis activities for supporting decision making and performance measurement. The findings have been compiled and are presented in below subchapters. Note that the opinions expressed are those of the employees and not necessarily considered to be entirely true.

4.1.2.1. Organizational structure

The department Opinion and Impact consist of four subgroups, namely: 1) Policy, 2) Communication, 3) HRE, and 4) Impact. The policy group is responsible for knowledge in subject matters and for developing the organizations standpoint in human rights related issues. Communication consists of several areas such as social media, web, and newsletter. Common for all is that they cover communication with the public. HRE works with educating the public and creating public opinion in human rights questions. Their work thus includes visiting schools and other institutions for discussing and lecturing about human rights. Lastly, the Impact group is responsible for launching campaigns and actions against human rights issues, ultimately for impacting political leaders and policymakers.

All though the divisions within Opinion and Impact are distinct and clearly separated from each other, they often work cross functional by assembling people from all divisions under specific human rights issues for aligning their efforts. In the end the divisions share the common goal, namely, to create a movement in the public opinion related to human rights issues and in extension impact policymakers and assuring the human rights of specific individuals as well as for society at large are uphold.

Amnesty is considered a broad and diverse organization by some interview objects. Additionally, the organizational structure is multifaceted since the organization is in principle controlled by the members, but also are dependent on guidelines and policy from the central Amnesty International organization. These factors result in a complex managerial situation and need for alignment with stakeholders when making decisions.

4.1.2.2. Decision making and information demand

As seen in the theory chapter, decision making can be categorized according to four categories: *Strategic decision making*, *Management control*, *Operational control*, and *Knowledge level decision making*. This section has thus been structured accordingly, all though *knowledge level decision making* has been left out as it is out of scope for this project.

Strategic decision making – *general guidelines regarding resources and objectives long-term*

There is a need for additional information when deciding on entering larger campaign operations, and when designing campaigns, including topic, how it should be carried out, etc. From a strategic standpoint it would be beneficial to understand the potential of campaigns regarding how many members and supporters can be mobilized, as well as how much money the campaigns are expected to raise. Having this information would be beneficial for high-level prioritization, whereas decisions related to smaller campaigns lie on a more operational level. In addition, the communication between Opinion and Impact, and Fundraising and Engagement, is somewhat halting. Fundraising campaigns are often separated from the campaigns run at Opinion and Impact. Having a closer

collaboration and sharing of information could aid in giving greater insight in the topics mentioned above.

Because of communication with members and the public, a general perception on what human rights issues they are interested in does exist. However, it would benefit to understand their interests in a more data-driven and objective manner, again for aligning high-level prioritization between human rights issues.

For the reason of understanding the interests of members and the public, as well as their perception of Amnesty, external surveys are made on a regular basis. In extension the surveys are used for identifying target groups and low-hanging fruits (people that could be approached for member- and donor requests with little effort). These surveys, as well as other communication between the public and Amnesty is considered valuable for both legs of the organization – Fundraising and Engagement, and Opinion and Impact.

Management control – *efficiency and use of resources and performance of teams and units*

In terms of resource allocation a common decision that must be made concerns different human rights issues and the level of effort that should be put on each issue. At first there is a trade-off between focusing on broad topics that are of interest to the large public and narrow topics that might not generate as much traffic and interest from the public. On one hand, Amnesty could be considered having the role of acknowledging and shedding light on violations against human rights that other media do not cover. For that purpose, there is value in also focusing on narrow topics even though it might result in less publicity compared to a broader topic. On the other hand, there is a belief that Amnesty should serve its members and thus should focus their efforts on the human rights issues that the members and supporters are most interested in. To add additional complexity, Amnesty's policy standpoints and focus is largely regulated by the international, central, Amnesty organization.

For above reasons resource allocation is in theory a complicated matter at Amnesty and balancing between stakeholders' interests must be made. However, the interview subjects recognize that incorporating data in this decision making process could be of high value. They expressed a need to better follow up on such as web- and social media traffic based on what human rights issue Amnesty has published about. Overall, there is an interest to better understand members and supporters, as well as the public's interest for human rights issues of different sorts. It is also considered of value to link interests to different demographic and geographic belongings. However, the extent to which this data would be used is difficult to decide. For instance, Amnesty is not regularly targeting specific groups on social media, which could easily be done with built in functions provided by Google and Facebook. The reasons for not using such services are based on principles and ethics, where Amnesty has taken an active decision not to target specific groups, but rather broader masses of the public.

Sometimes though, specific groups are targeted with certain information. One interviewee explains that during these occasions, the target group is often identified using the employees' own biases. For instance one could imagine that environmental issues are of high interest for many young activists. In some of these situations it could be valuable to rely on data instead of personal biases when identifying suitable target groups. Some interviewees also claim that they wish to tailor communication for certain target groups to a larger extent than what is done today since it is an effective way to both draw people closer to Amnesty and to increase the relevance of communication for supporters and other people.

Another source of data that is deemed having the potential to provide valuable insight is the data concerning members and supporters, and how they engage in different activities within the organization. For instance one could analyze what members have been engaged in a certain campaign, whether these people are recurring, or new members. This would concern both digital actions and real-world campaigns. One interviewee spoke about a concept called “circles of commitment” which is a way to analyze and categories supporters depending on how many times and on what level they have engaged with the organization. Currently this mapping of supporters is very unclear and unstructured.

Exemplifying how the circles of commitment concept could be used, one could look at the signing of actions. Apparently, the number of recurring signers is supposed to be measured, however there is no automatic or easy way to do so. Today, the data must be pulled manually and is even then not completely reliable. Additionally, the analysis can only be made after an action is finished and not on an on-going basis. For that reason, adjustments based on the data cannot be done until after the action has ended. This process should be systemized for ongoing monitoring, where the number of signers of an action and the shares of which are members/supporters, or neither is visible. Additionally, it would be beneficial also to map the source of visitors to understand how many that found the action through social media/newsletter, or other sources. Evaluating this data would be of great value since one of the toughest tasks is to attract new people to Amnesty, and understanding what sources are most efficient in doing so could help prioritize marketing efforts going forward.

On the same topic, every new person Amnesty get in contact with could be considered a potential lead, i.e. someone that could become a member, donor, or engage in actions and campaigns. To involve the lead into a deeper level of commitment it is of value to understand what human rights issues that person is interested in and their history with Amnesty (i.e. what actions, and activities they have engaged in related to Amnesty). Only then is it possible to tailor communication that fits that person’s profile. However, there are some complicating factors that make it difficult to store such information. For instance, GDPR prohibits Amnesty from storing contact information from signed actions for longer than one year.

While some analyses of web- and social media data is made, there has also been asked for more in-depth analysis. For instance, additional work could be done to understand why some posts get more attention than others. The proximity principle has been mentioned as an example. It says that the closer an event happens, the higher will the interest from the public be. This is one factor that could be evaluated by looking at the web- and social media traffic, and there might be several more factors explaining the varying reach of communication efforts.

Operational control – *how specific tasks should be carried out*

Some interviewees claim that small changes in actions sometimes might generate very different results. Examples of this include the times for which texts to the SMS network, and emails to the email network are sent out. Generally, they mean, people are more likely to open emails in the afternoon and texts during lunch. Another example that was brought up is that if one would change the order of donation-amounts listed on the website, the resulting number of donations and size of donations might also change. Today, the employees claim to have a decent understanding of factors like these but admit that they ideally would like to confirm their understanding by conducting some testing and evaluating the results from different actions. Unfortunately, they consider it too time consuming.

Other topics discussed

Analyzing web- and social media traffic gives one perspective. There is a will among interview subjects to broaden this perspective by also analyzing other data. For instance, one would like to follow the actions of activists in a more thorough way. An activist is a person that in some way is engaged in the organization. They are considered extremely important for carrying Amnesty's questions to the public, since every carrier of a question gives it more legitimacy and greater spread. However, their actions are not followed up in any way.

4.1.2.3. Performance measurement

Goals and targets

On an organization-wide level the business plan is the primary tool for follow-up and evaluation against goals and targets. The business plan entails yearly goals regarding such as member count, donations, and number of activities. The targets are considered general and rather indistinct. While they give an idea of the overall performance of the organization, it does not include department specific targets.

One employee divided the overall goals and objectives of Amnesty into three categories, where Opinion and Impact are mostly responsible for the first two and Fundraising and Engagement for the third:

- Educating: increasing the knowledge of human rights and human rights violations within society. This is for instance done by visiting schools and giving lectures. The result from such actions is considered difficult to measure.
- Forming public opinion: ultimately the goal is to influence policymakers and leaders for adopting policies supported by Amnesty.
- Mobilizing: getting as many people as possible involved in Amnesty's activities and raising as much money as possible. This is considered easier to measure since it involves concrete data that is highly available.

In general, targets for specific workgroups and roles are somewhat vague and might be stated as an over-arching purpose rather than a target. The same is true for the web and thus the web editor. The over-arching purpose is to drive traffic to the web. However, there are no specific targets other than the personal targets individual employees set for themselves.

Current performance measurement and indicators

Some high-level measures are followed-up for evaluation against the targets specified in the business plan (such as member count and donations). There are also some, more detailed, measures related to visibility that are followed up on a tertiary basis. These are mostly based on web- and social media data and concerns the number of readers, somewhat segmented by what human rights issue the posts concern. Additionally, a more qualitative evaluation of the presence in traditional media is made by the same time intervals. The measures are considered simple and there is no focus on conducting any deep analyses within this context.

Besides from member count, Amnesty also counts number of "supporters". The definition of supporters is somewhat unclear within the organization, and it is considered to be in need of alignment. Currently, a supporter is considered a person that is either a member or that has in some way acted in the organization during two occasions (could be by signing actions, participating on a demonstration, or donating money, for instance). It should however be mentioned that some employees have given other definitions of the supporter-measure, all though this seem to be the

most commonly used definition, and the definition which is officially reported and monitored. As discussed previously, interview objects have asked for a more thorough follow-up of how activists engage with the organization and move within it. They claim the supporter definition to be a too simple measure.

In some cases Amnesty is involved in lobbying governments and policymakers for adopting certain policies or make certain decisions. The outcomes of such activities are followed up. The same applies for cases involving individuals that are fighting for their justice and are supported by Amnesty. In these occasions the outcomes of such actions are clearly monitorable, however they do not entirely result from the actions of Amnesty. There might be several external factors that effect a certain policy decision, which makes it hard to evaluate the effectiveness of Amnesty's actions directly. Another complicating factor is that Amnesty often gets involved in cases that are deemed to be lost with the sole purpose of highlighting some injustice in order to create change in the future, even though the specific case they engage in will be lost. In such cases it is difficult to evaluate the actions of Amnesty since the actions might have had a positive impact, even though the case was lost.

In the work of educating the public in human rights, some follow-up is made. For instance, the number of schools visited, and students reached is monitored and reported regularly. Additionally, evaluations of each lecture are made to assure the level of quality is sufficient.

Need for more extensive follow-up and performance measurement

Overall there is a large demand for additional indicators to measure result and effectiveness of actions. Efforts have been made with the last years business plan, but there is still a high demand for additional performance measurement. The interview subjects however agree that much of the operations of Amnesty are difficult to measure in terms of results and efficiency – and that all cannot be measured using quantitative data due to the qualitative nature of human rights work.

A large portion of the performance measurement at place focuses on activities instead of results. This is simply due to the difficulty of measuring results, as discussed above. While being of the opinion that measuring activity is good and that ”doing a lot” is better than “doing a little”, multiple interview subjects believe there is a need to focus more on the quality of work, even though it might be harder to define and measure.

Specifically for the web and social media, there is a need to better categorize and tag posts and pages to increase the value of analysis. Since a new system for tagging is being developed in the CRM system, the categorizations for social media and the web must be made accordingly in order for the data sets to be easily combined and analyzed. The resulting work for aligning the categorization is considered rather extensive and interviewees claim it is unclear how and who will be responsible for the development.

Multiple interviewees express a will to further understand visitors on the website. Understanding if the web visitors are current members, supporters or new to the organization would be highly valuable. This is also true for signings of actions, where one would like to understand if the actions draw any new people to the organization. Partly, this is possible to understand by connecting the data with the membership data from the CRM and by collecting for instance demographic data from Google analytics. However, there is a belief in the organization that it is unethical to collect too much information about users and sharing that information with Google, Facebook, and other external parties. Multiple individuals thus claim that it is an active choice not to collect all information possible, but there is not an official decision which can be referred to.

When it comes to signed actions, phone numbers collected from non-members are delivered to the tele-fundraising group. They then call each person with the purpose of asking them to become members. The conversion of these people is believed to be high, however it is not thoroughly followed up upon. There is a will to continuously evaluate how many new members each action result in, as a mean to understand the effectiveness of actions.

Related to performance measurement employees also express a demand to make information sharing more systematic. For instance, a knowledge worker that is focused on a specific question might be interested in collecting data on how many supporters that have signed certain actions, the amount of likes on certain Instagram posts and so on. While all this data exists, and have the potential to provide valuable information, there is currently nothing to relate the numbers too. Employees ask for continuous measurement to be able to relate numbers too past performance, instead of just to predefined goals related to the isolated project in which one is working. Additionally, it would be beneficial to map other factors such as the time of the year and whether other campaigns were active during the same period, to better understand and relate the reach of communication activities to past performance.

4.1.2.4. Current use of Google Analytics

Google analytics is currently used for analyzing web-related data. Mainly the analysis consists of looking at page views, conversion, and sources from which the traffic origins (e.g. google, social media or the newsletter). Social media is considered important for driving traffic to the website. Some efforts are also put into analyzing the activities of users on the website, including how long people stay at different pages. It can also be seen what search words users have searched for and what resulting page they have landed on. Other than that, segmentation and tracking of interest in different human rights issues are barely conducted at all.

Most of the analysis is carried out by the web editor. All though some measures are reported on a tertiary basis, as discussed previously, most of the analysis stays with the web editor and is not reported neither to other work groups nor up in the organization. Some of the data is considered to be of value for other people as well, even though they might not get in contact with it.

The web editor stated that the most important use of google analytics is to help in prioritizing what content and pages should be developed to drive additional traffic to the website. As seen in other contexts, information about what human rights issues the public is interested in is of high value. With that purpose, the most important data is considered to be: 1) page views, including source and how long visitors stay on the page, and 2) conversion on pages where there is an option to convert, this includes donating money and signing actions.

4.1.2.5. Key takeaways

The most important finding from interviews with employees in Opinion and Impact are presented below:

- Amnesty has a complex organizational structure with stakeholders in form of the central international organization, as well as members and donors to adhere to.
- For strategic prioritization and resource allocation employees wish to better understand the interest of different human rights questions among the public.
- For targeting communication one would like to link interest of human rights questions to demographic, geographic, and other factors.
- For tailoring communication to individuals there is a need to track each individuals' engagements with Amnesty according to the "circles of commitment" principle.

- The signings of actions possess great potential for mapping the interest of different human rights questions.
- Employees wish to evaluate the share of signings of actions that come from members, donors, and non-members.
- Factors that affect the reach of communication efforts (e.g. the proximity principle) should be mapped.
- In general, targets for specific workgroups and roles are somewhat vague and might be stated as over-arching purposes rather than targets.
- Some high-level measures related to member count, money raised, and influence on policymakers, as well as web- and social media traffic based of Google analytics, are continuously monitored but there is a strong demand across Opinion and Impact for further performance measurement.
- While the quantity of activities is easier to measures, there is a demand for quality-based measures.
- Web- and social media content should be better tagged for tracking the interest and reach of communication across different categorizations.
- Information sharing and performance measurement need to be more systematic, compared to the ad-hoc way it is conducted today.
- There is an unsettled debate within the organization on what personal data is ethical to collect, and whether it is ethical to share information with third parties such as Google and Facebook.

4.1.3. Collected data set for review

The list of action signings has been identified as a valuable data set for multiple reasons. Additionally, this data proved simple to isolate and extract compared to much other data, e.g. CRM data. Therefore, this data set was extracted, anonymized, and shared with the author. The data set contained 1.037.770 rows, each corresponding to one signature of actions. Furthermore it contained the following columns:

- *title:* the title of signed action.
- *action_id:* all actions are given an id number, referred to as *action_id*.
- *namn:* submitted name by the signer (anonymized).
- *E-postadress:* submitted email by the signer (anonymized).
- *last_modified:* date and time of signing.

5. Analysis

Analyses of the empirical data based on the theoretical platform from *2. Theory* was made in phase 2 of the project and are presented in this chapter. First however, the organizational characteristics of Amnesty are discussed in order to later be able to discuss the generality of findings. Also before discussing the findings from phase 2, the subchapter *5.2. The decision making process* discuss the current decision making process at Amnesty and the degree to which it is aligned with general decision theory.

5.1.Organizational characteristics of Amnesty

Amnesty appears to be a quite unique organization based on the information provided in the introduction chapter. Information concerning the organizational structure and decision paths obtained from interviews further strengthened the view of Amnesty as organizationally complex. Related to this project, there are primarily three factors that seem to characterize Amnesty and differentiates the organization from others. These are: 1) Amnesty is a non-profit organization, 2) Amnesty is a social impact organization, and 3) Amnesty has a complex organizational structure and multiple stakeholders. The three factors are elaborated further below.

Amnesty is a non-profit organization

Financial results are not the primary interest of the organization. That means performance measurement must be tailored to align with non-financial goals.

Amnesty is a social impact organization

Amnesty work for social impact which is extremely difficult to measure. Employees brought this up frequently during interviews. The aim of a social impact organization is to change society, influence public opinion, and the leaders of society. Since these factors are difficult to measure, performance measurement is mainly focused on activities rather than results.

When discussing the thesis with external parties a common misconception was that Amnesty is an aid organization and thus works with allocating resources to people in need. While this might be true is some cases, the main goals of Amnesty, and other social impact organizations, are different from those of aid organizations. Instead of allocating donor money (as do aid organizations), one of the primary activities of social movement organizations is to communicate with supporters and the public. This difference in the main activities of organizations is valuable to keep in mind when considering the generalization of findings.

Amnesty has a complex organizational structure and multiple stakeholders

The complex stakeholder structure of non-profit organizations is thoroughly discussed in literature. In the case of Amnesty however, the international presence and structure of national chapters adds additional complexity to the organizational structure. Not only do Amnesty need to take members and donors opinions in account, but also the guidelines and recommendations from the international Amnesty organization. It is true for many non-profit organizations that compromises between stakeholder wills must be made.

Implications

While some findings might be even more general and applicable to a broad range of organizations and companies, it is believed that Amnesty well resembles, in theory and practice, a *non-profit social impact organization* and findings are especially relevant for other organization with the same characteristics. What mainly characterizes a *non-profit social impact organization* is that social

impact rather than financial gain is the main goal, work is focused on communication and spreading of information, and that the organization is accountable to stakeholder interests (generally donors and members).

5.2.The decision making process

As discussed in the theory-chapter, the decision making process consist of five steps. Namely, to *define the objective, collect relevant information, generate feasible options, make the decision,* and *implement and evaluate the decision*. The second, third, and last step (with focus on the second and last step) will be addressed in *5.3.* where proposals of how data and data analysis can support the decision making process are brought up. This sub-chapter thus mean to address the remaining steps of the process. Namely, how objectives are defined, and decisions are made.

Define the objective

The power/interest matrix was presented as a model to analyze stakeholder positions which are considered especially important for non-profit organizations since they rely on members, donors, and other stakeholders for their financial livelihood. Figure 11 shows an illustration where the model has been applied to Amnesty. The stakeholders are then discussed more deeply below.

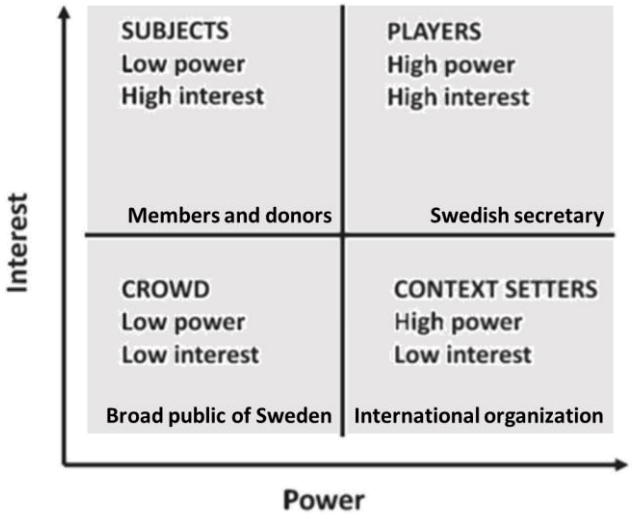

Figure 11: Power/interest matrix applied to Amnesty.

- *Swedish secretary* is the decision maker and should therefore have the main responsibility in defining objectives.
- *International organization* is considered to have high power since the Swedish section of Amnesty are subjects to guidelines and policies decided by the international organization. However, their interest is considered low since they do not interfere or have opinions of the work of the Swedish organization as long as they cohere with the international guidelines.
- *Members and donors* have a large interest in the activities of Amnesty since they are the financial supporters, however they do not have a significant possibility to influence decision making.
- *Broad public of Sweden* neither have power nor interest in the activities of Amnesty.

During interviews it came clear that much of the work of Opinion and Impact means to draw people closer to Amnesty and get them more involved and engaged in the activities of the organization. As seen in the power/interest matrix it unfortunately does not come naturally to engage such stakeholders in decision making and in defining the objective of decisions. One possibility to draw

people closer to Amnesty is however to listen to the interests and opinions of members, donors, and the public. Doing so has the potential to increase the reach of the organization as well as the depth of engagement among activists. Proposals on how to do so are elaborated more thoroughly in the next subchapter (*5.3. Phase 2: Proposing methods of analysis*).

Making the decision

Decisions can be based on the decision makers experience, instinct, and knowledge, but also on data and analysis. Literature suggest that using data and data analysis to inform decisions paves the path for effective and correct decision making. The interviews at Amnesty unfortunately suggest that most decisions are made solemnly on the experience, instinct, and knowledge of the decision makers. Additionally, many workgroups and individuals work somewhat isolated which results in that decisions are not always aligned and agreed on across the organization.

To capture the possibility of extracting value from data and using data to inform decisions an organizational and cultural change is necessary. That is, employees must agree that decisions should be based (at least partly) on data. Agreeing on such a principle, either formally or by integrating such behavior into the organizational culture, puts pressure on decision makers and thereby increasing the probability of them basing their decisions on real evidence.

A positive finding from interviews was that many employees express a need to incorporate data and data analysis in their decision making. Many see the potential that such activities could lead to in their respective work and are open to the idea of incorporating data analysis in their work. As discussed, motivation and a will to change is sadly not necessary for achieving behavioral and organizational change. What is also necessary is infrastructure and ways of working that makes it easy for employees to take use of data and data analysis systematically and consistently. Therefore, multiple recommendations that have been developed for Amnesty (found in chapter 6) are focused on aspects related to the infrastructure and actions necessary to enable continuous data analysis and value creation from data.

5.3. Phase 2: Proposing methods of analysis

The analysis conducted in phase two mainly concern the proposition of data analysis methods for supporting identified organizational activities and decisions.

5.3.1. Prioritization of analyzes – analyzing interviews

To analyze the findings from interviews, the theoretical framework presented in the theory chapter have been used. The framework relates the decision making process to the information demand necessary to make good decisions, see figure 12 below:

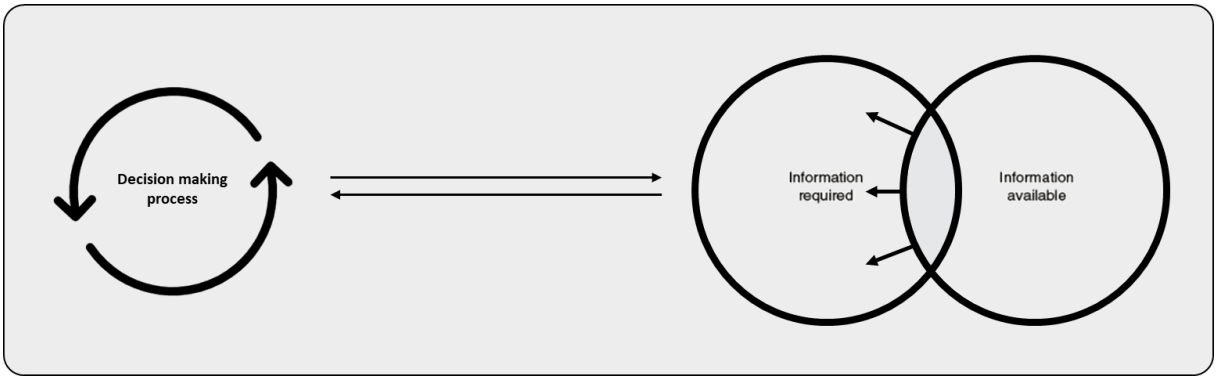

Figure 12: Theoretical framework used in study.

Following subchapters mean to apply the framework to Amnesty by describing: 1) the decision making process focusing on what kinds of decisions are made (note that the wording “tasks” are used instead of “decisions” since a task is considered to consist of several decisions and decision points) , 2) the required or wished for information to make such decisions and perform such tasks, 3) the data available which has the potential to be transformed to pieces of required information, and 4) analyses that can be made to transform available data to required information. The figure on the next page gives an overview of the *tasks*, *information*, *data*, and *analyses*, and the following subchapters describe each bullet in detail.

It should be noted that only a selection of tasks and decisions made by employees are presented. These are types of tasks and decisions that have been identified as activities which have an extended information demand that have the potential to be fulfilled by using data.

Annotation wise, T, I, A, and D stands for Task, Information, Analysis, and Data respectively. Each bullet is numbered, starting with 1. Some bullets have sub bullets, which are marked with an S and an additional number. For example, sub bullet Y on information bullet X would be annotated SIXY. Sub bullets are not included in the figure on the next page.

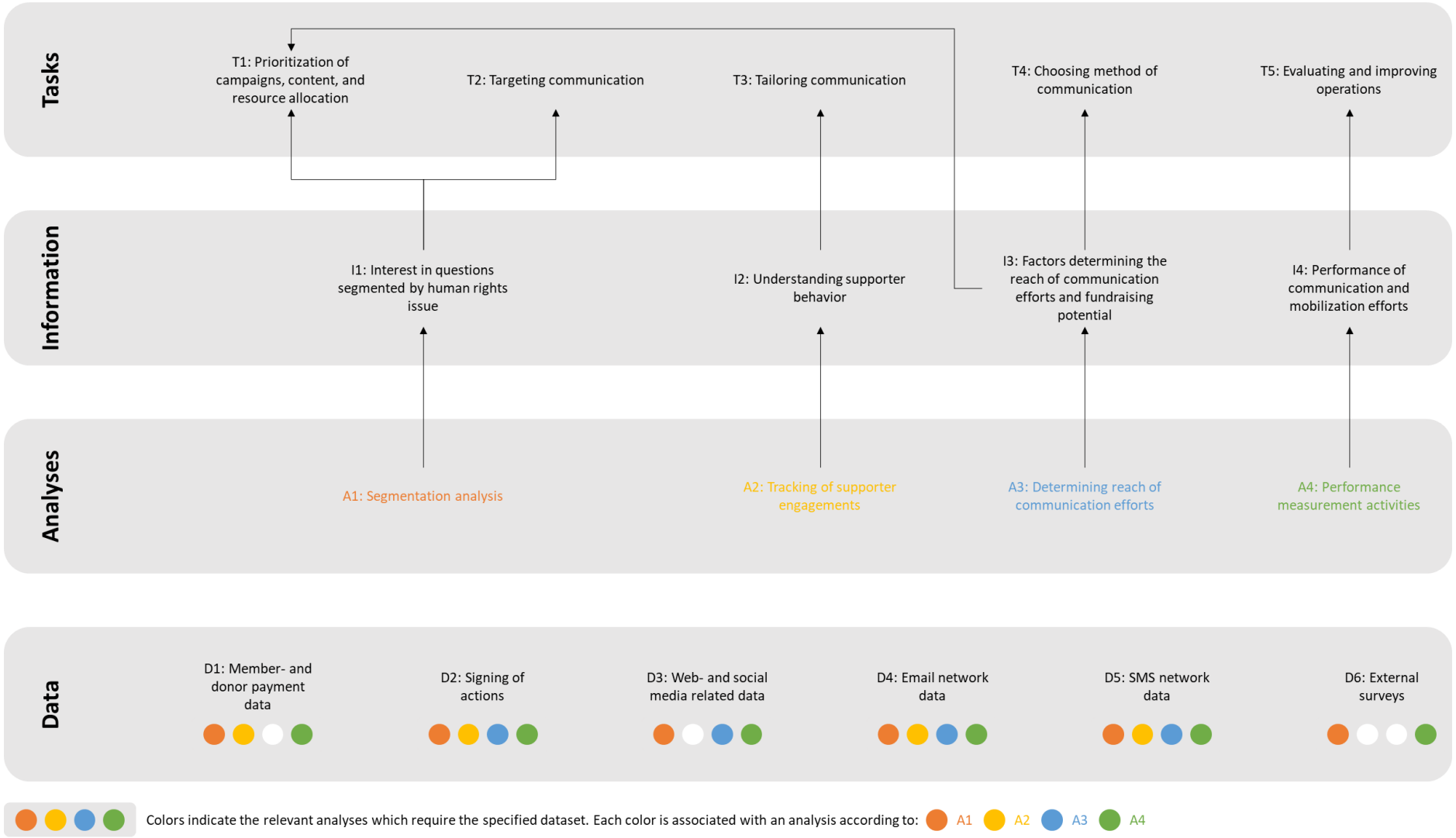

Figure 13: Identified tasks, information needs, datasets, and analyses for transforming data to information. The figure gives an overall idea of how the different components relate to each other, which is also more thoroughly described in the following subchapters. Sub bullets are not included in this figure but are described below.

5.3.1.1. Decisions embedded in tasks

The most important decisions in terms of tasks on different organizational levels, where there exists an information demand, was identified during interviews and are presented below.

T1: Prioritization of campaigns, content, and resource allocation

Prioritization appeared as an important topic during multiple interviews. On a strategic level prioritization is necessary for choosing the overall focus and what types of campaigns to run. On a managerial level resource allocation is dependent upon ideas of prioritizing. Operationally, employees in charge of content creation, including for social media, the web, newspaper, and newsletter, must prioritize between different topics. Regardless of where in the organizational hierarchy an employee work, there exist large similarities in how they should prioritize. Mainly, the prioritization concerns what human rights issues to bring forward and focus their work on.

As a complicating factor it is not always clear what that decision should be based on. Several employees described the target conflict where Amnesty must satisfy both the International Amnesty organization and its national members and donors. On top, there is a belief that Amnesty should give attention to topics and issues that other media does not necessarily cover – which sometimes stands against the clearly defined goals of attracting new members and donors.

Employees agree that compromises and balancing between goals and stakeholders must be made, however they also ask for more information and supporting data on the topic. For instance, knowing what human rights issue the members and public are interested in, the fundraising potential of campaigns, and potential to mobilize members are believed to facilitate the process of prioritization.

T2: Targeting communication

Targeting communication to specific groups has two purposes. First, it can be considered a service for supporters of Amnesty, where targeting assures, they receive relevant information that they are interested in. The second purpose lies with the gain of Amnesty. By experience, employees of Amnesty claim that depending on person, the interest for different human rights issues might be very different. Thus, the fundraising potential varies among different people depending on what human rights issues are given attention.

Multiple employees of Amnesty wish to target specific groups more extensively because of its effectiveness. However, the question regarding integrity and discrimination related to the identification of target groups have also been brought up several times. While some targeting is done already, sharing information with third parties like Google and Facebook (which might be necessary for some targeting purposes) is not in line with the values of Amnesty. Therefore, targeting need to be approached with caution and with ethics in consideration.

ST21: Identifying target groups

For targeting to fulfill its purpose, relevant target groups must be identified. Currently, this is mostly done by relying on the judgement and biases of individual employees. As an example, environmental issues can naturally to a lot of people be considered interesting for young activists. All though the employees working with communication with the public most likely has an intuitive understanding of the interests of specific groups, there is a need to identify target groups better and more accurately for specific questions.

ST22: Reaching out to target groups

When having identified relevant target groups, the next natural step is to reach out to identified groups with the relevant information for them. Decision makers must decide how to do so. It might be difficult to attain relevant contact information. Thus, other means of communication channels could be used. Continuing the previous example, youth activists interested in environmental issues likely are part of the networks of other social impact movements such as Greenpeace or Fridays for future. Cooperation with such organizations could therefore be a mean to reach such a target group.

Reaching out to target groups is a challenge. Additional considerations when attempting to do so will be covered under *T4: Choosing method of communication*.

T3: Tailoring communication

While targeting information aims at providing specific communication for certain groups of people, tailoring communication means to provide specific communication on an individual level. The idea is that a person that has engaged with Amnesty might be interested in certain information and thus also would respond well in terms of conversion when receiving that information.

Currently, one could sign up for the Email network or the SMS network, however those entail general communication channels and are not specific for that person. Employees ask for tailoring communication on an individual level. For instance, a person that has signed an action regarding a specific issue might also be interested in signing another action regarding the same topic that appears months later. The same would be true for physical campaign activities and other communication. On occasion, employees have asked for lists of email addresses to people that has signed a specific action with the purpose of tailoring communication to them regarding a new action about the same topic. This however has required a lot of manual work and there is thus a need to systematize such activities for increasing the amount of tailored communication.

There is a belief that this kind of tailored communication might increase the satisfaction of Amnesty among members and donors as well as appeal to people outside of the member- and donor sphere. During many interviews, Amnesty has been described as a broad organization in the sense that the work covers all kinds of human rights issues. Many other non-profit social impact organizations might be focused on one topic, be it environmental issues, racism, the right to abortion, or other. An organization like that might be more likely to appeal to a person that primarily is interested in one or a few more narrow human rights issues. Amnesty could be considered too broad for a person with such interests. In a situation like this, Amnesty could acknowledge the few interests of that individual and tailor communication accordingly. That way Amnesty could increase its appeal to people which believes the organization is currently too broad in its communication.

T4: Choosing method of communication

For communicating with its members and the public, several decisions regarding the method of communication must be made. The main methodological decisions concern communication channel, form of media, and time for communication, all though several more considerations might have to be made from time to time.

ST41: Choosing communication channel

Amnesty could be considered having adopted an omnichannel strategy since they have many possibilities regarding communication channels with members and the public. The communication channels include, but are not limited to the following:

- Website
- Social media (posts and advertising)
- Email network
- SMS network
- Amnesty newspaper
- Traditional media
- Real-world communication, i.e. lectures and speaks at schools and in the public

Some of the communication channels are directed towards people that have already engaged with Amnesty. Both the Email network and the SMS network must be signed up for, whereas the newspaper is sent to all members. These channels connect Amnesty with the people closest to the organization. While social media posts are mostly seen by people that follows Amnesty on social media and thus have shown an interest in the organization, this channel is broader in the sense that people do not have to be members or have signed up for certain services for communication to have potential to reach them.

The website, social media advertising, traditional media coverage of Amnesty's activities as well as real-world communication goas beyond the circle of Amnesty affiliates and have the potential to reach the broader public.

Even though the work groups responsible for the different channels work somewhat separated, decisions on what content that should be posted on what channel, and what channels should be used at all must be made. The reach of each channel, as well as what group of people each channel reaches are important determining factors when choosing communication channels. But there might also be additional factors to consider. Some content could work better through one channel than another and so on.

ST42: Choosing form of media

While the form of media is somewhat dependent on what communication channel is used, many channels possess the ability to distribute multiple forms of media. Amnesty work with content of various forms: text, pictures, movies, and other graphics.

ST43: Choosing time for communication

Again, the optimal time for communication might differ between channels. Employees claim that experience has shown lunch is a good time to send texts via the SMS network and that afternoons are better for the Email network. However, this has not been confirmed by consulting the data and additionally other channels of communication might generate different results. Choosing the timing of communication could play a vital role in terms of reach and conversion in those cases where the content asks for conversion.

T5: Evaluating and improving operations

Evaluation of operations could be considered a sub process part of the other tasks mentioned, however, the need for better follow up has been given much attention by interviewed employees. For assuring that enough focus is given on evaluation it is thus considered a separate task in itself.

Several interviewed employees expressed a need to better follow-up and evaluate operations. The purpose of which are twofold. First, employees in leadership positions wish to track the success of teams and operations. Second, evaluation and follow-up are considered an important step for improving operations.

5.3.1.2. Information

For conducting listed tasks, employees have an information demand that only partly is fulfilled. During interviews, additional information needs were identified. The most important of those needs are expressed below.

I1: Interest in questions segmented by human rights issue

According to the International Amnesty website the organization works with 17 human rights issues, as well as with educating the public about the United Nations (UN) and the Universal Declaration of Human Rights. The issues are listed in figure 14.

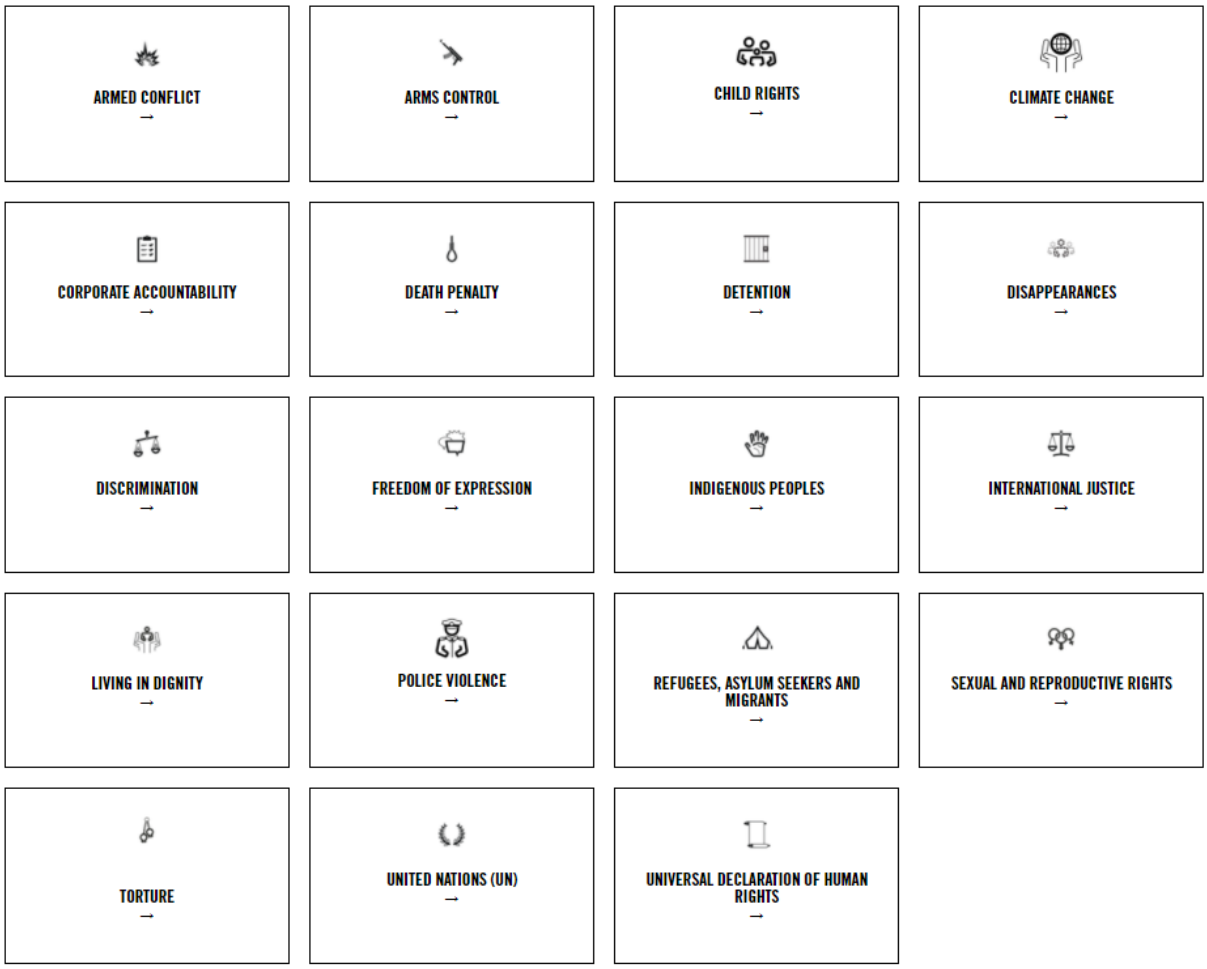

Figure 14: Human rights issues that the international Amnesty organization works with (Amnesty International, 2021).

The Swedish section of Amnesty however are focused on a subset of above issues, some of which being described in other wordings. These issues are:

- Discrimination
- Women's rights
- Refugees, asylum seekers and migrants
- Corporate accountability
- Human rights defenders
- Dictatorships, crisis, and conflict
- Death penalty and torture
- Freedom of expression

Some of the mentioned categories can also be narrowed down more thoroughly. Discrimination for instance include racism, HBTQI rights, and other subcategories.

SI11: Interests of supporters and the public depending on human rights issue

As described, the segmentation of human rights issues is not completely agreed on within the organization. Thus, there is a need to first align the segmentation. After which employees wish to understand the degree of interest of supporters and the public in each issue. This would aid in resource allocation and prioritization of what questions to focus on to satisfy members and draw new people to Amnesty.

SI12: Connection to demographic and geographic factors

With the segmentation of human rights issues in place, employees wish to map the interest of certain issues to demographic and geographic factors. That way, targeted communication can be made much more data-driven and based on real data instead of just on professional experience.

I2: Understanding supporter behavior

Amnesty wishes to understand their members and supporters better to tailor communication to individuals depending on their shown interests.

SI21: Tracking of engagements

Currently, Amnesty tracks members and supporters, where the supporter definition is somewhat unclear. Some claim a supporter is someone that have engaged with the organization during at least two occasions, and some claim it is enough with one occasion to be counted as a supporter. However, this tracking is not sufficient for thoroughly understanding and for being able to appeal to a supporter's interests.

For tailoring communication it would be particularly interesting to understand what human rights issues individuals have shown interest in, as well as in what way they have engaged with Amnesty. The latter include but are not limited to membership status, donation frequency and amounts, and signings of actions.

SI22: Mapping the reason for membership/support status

For reaching out to people outside of the supporter circle and attracting new people to Amnesty, one would like to understand why people become members/supporters. This is of course related to the overall tracking of supporter engagements, but with a larger focus on individuals *first* engagement with the organization.

I3: Factors determining the reach of communication efforts and fundraising potential

We already discussed the need to understand the popularity of different human rights issues among the public, but this could be considered just one factor that determines the reach of communication efforts. It is thus necessary to consider the question in a broader sense: what factors determine the reach of communication efforts and what is the importance of each factor? All though it is not fundamentally proven, fundraising potential should have a positive correlation with the reach of communication, thus understanding these factors also give aid in understanding the factors behind the fundraising potential of various campaigns.

Factors that might have an impact on the reach of communication were identified during interviews. These include, but are not limited to:

- Human rights issue
- Communication channel
- Time of communication
- Language
- Proximity to event
- Time of year

Additional factors that are more difficult to measure would also be valuable to understand. An example of such factors could be the general fuzz about actual question in other media and the world in general. For instance, the large media coverage of police brutality in 2020 might very well also have increased the reach and interest of Amnesty's coverage of the same topic.

I4: Performance of communication and mobilization activities

Multiple factors that complicate performance measurement has been linked to the nature of Amnesty as an organization. Since Amnesty is a non-profit organization, financial results are not the primarily goal. Rather, the purpose of Amnesty is to form public opinion and impact policy makers. Clearly, these factors are much more difficult to objectively measure.

While employees ask for information regarding the results of their actions, i.e. the impact Amnesty's actions have on public opinion and policy makers, no suggestions on what these quality-based measures could be have been brought up. Instead, there is a larger focus on what is more easily measured – activities. This results in a measurement system that is more focused on *reach* rather than *impact*. Since impact is more difficult to quantify, it is mostly evaluated in a qualitative manner.

Employees however, expressed a need for information regarding the reach of the following activities:

- Signings of actions
- Social media
- Web
- Email network
- SMS network

More specifically, Amnesty in particular wants to know how many people are reached by the different channels and how it has developed over time.

5.3.1.3. Data

All though over a dozen data sources have been identified, the data generated in the organization's processes can be divided into a couple of categories, in principle, representing a fewer number of datasets. The available data of greatest interest are discussed below.

D1: Member- and donor payment data

The data from the CRM database is considered the largest and most important dataset within the organization. Through integrations with other services, data related to the signing of membership agreements, membership payments, and donations are stored in the CRM database. This thus, is a major dataset consisting of member- and donor payment data, including personal information of members and donors.

D2: Signings of actions

When a person signs an action, they must state at least their name and email. It is also voluntarily to submit phone number should the activist wish to do so.

D3: Web- and social media related data

Tremendous amounts of data origin from web and social media. The data concerns the number of visitors on each page and post, source of origin, conversion, and many other parameters.

D4: Email network data

Mailings often prompt for certain activity. For instance it could be to follow a link to donate money for a specific purpose or to sign an action. For each mailing, Amnesty gets information on the number of readers, as well as conversion, if they prompt for specific action.

D5: SMS network data

Similarly as for mailings, number of readers and conversion numbers are collected for all texts.

D6: External surveys

On a recurring basis, Amnesty has hired third parties for conducting external surveys. These mean to collect opinions from the public regarding their view of Amnesty and Amnesty's work. All though the surveys do not result in datasets in a strict sense, they do however give aid in delivering some of the requested information discussed under *Information need*, all though in a more qualitative manner.

5.3.1.4. Analyses

Multiple analyses and activities that have the potential to transform available data to pieces of the information sought after by decision makers have been identified and are presented below.

A1: Segmentation analysis

Segmentation analysis relates to *I1: Interest in questions segmented by human rights issue*. Thus, the analysis aims at understanding the interest of supporters as well as the public in different human rights issues, as well as linking the segmentation to demographic and geographic properties. There are several means to achieve such an analysis and several of the discussed datasets are of high interest. Below sub bullets propose varying methods, much dependent on what source of data is central for the analysis.

SA11: Actions for segmentation

Signings of actions are considered a source for valuable information. By categorizing all actions by human rights issue (as listed above) a greater understanding of the interest for different human rights questions can be gathered. The possibility of combining this dataset with the CRM data has also been discussed by several employees. By doing so it is possible to link the interest in human rights issues to other factors, such as age and geographic location of signers. It should although be noted that this data is only available for members and donors. People outside of this sphere might also sign actions, but since the relevant personal data is not collected for them, they must be left out of the analysis.

SA12: Web- and social media tagging for segmentation

A more complex mean of analysis has its starting point in web- and social media data. By analyzing this type of data, a greater understanding of people outside the member- and donor sphere can also be gathered. Traditionally posts and sites have been poorly tagged. However, employees see great value in improving this process and aligning it with the categorization of actions. By doing so, web- and social media traffic segmented by human rights issue can also be understood more thoroughly. It

is also possible to take use of Google analytics and Facebook pixel for making the connection to demographic and geographic factors.

SA13: Emails for segmentation

Mailings too, are analyzed much based on the number of readers. By including the same categorization of human rights related issues, the segmentation split can be better understood. Similarly, as with actions, this data can be linked to the CRM database for making connections to other factors.

SA14: SMSs for segmentation

The idea behind categorizing SMS's is identical to that of emails.

SA15: External surveys for segmentation

As discussed, external surveys in a sense differs from that of other data discussed. It is however clear that many employees value the input they receive from such surveys, and they could play a part as supporting evidence for the distinction between human rights questions and the publics' interest therein.

A2: Tracking of supporter engagements

Supporters can engage with Amnesty in several ways, however how they do so is not monitored and followed up on. Employees wish to better understand how close a supporter is to the organization, to evaluate what actions can be made to draw them closer. For doing so, one could track and store all engagements each person has with Amnesty. Picture a list with all individuals that has ever engaged with Amnesty and in what way they have done so. Following sub bullets underline datapoints that for each person could be monitored and stored.

SA21: Membership status

Whether a person has been or is member of Amnesty. Ex-members are also interesting to monitor to see whether a person that has stopped being a member, ultimately stops engaging with the organization or simply engages with Amnesty in different ways, e.g. by donating.

SA22: Frequency and magnitude of donations

How frequent and much a person donates to Amnesty are very concrete measures that tells a lot about their relation to the organization. The measure can be used in several different ways. For instance if the frequency of donations drop for a specific person, emails and other means of communication can be used to remind them of important work done by Amnesty within fields that they personally have shown interest in previously.

SA23: Signed actions

Actions are a very manageable source for understanding what human rights issues specific people are interested in and can thus be used for assuring that individuals that have shown interest in specific questions will be notified when new actions or other activities within the same topic are carried out. A person that has shown interest in a certain human rights issue is likely to engage with Amnesty again, should they be notified of such activities.

SA24: Email network status

Whether or not an individual has signed up for the email network or not. Additionally, data from mailings (concerning openings of emails and conversion) could help in identifying what questions each individual is especially interested in.

SA25: SMS network status

The same principle as for the email network but for the SMS network instead.

A3: Determining reach of communication efforts

Employees have expressed a need to understand what factors determine the reach of communication efforts. Some factors that have been suggested to have an impact are presented in below sub bullets. For evaluating listed factors and determine their implications in terms of communication reach it is proposed to collect data from several sources (including social media, the web, email network, and SMS network) and conduct regression analysis.

Regression analysis is a statistical method for establishing the relationships between one *dependent variable* and several *explanatory variables.* In this case the dependent variable would be *communication reach* in terms of number of people reached and the explanatory variables would be the different characteristics or factors that might have an impact on the dependent variable. I will not get into specifics and technicalities of the method, but it should however be mentioned that when conducting a regression analysis it might be necessary to test different models in terms of explanatory variables in order to uncover and understand all relevant findings.

AI31: Human rights issue

As discussed under *A1: Segmentation analyses*, peoples' interests in human rights issues of different kinds varies and thus should the human rights issue of focus have an implication on the number of readers and spread of the communication effort.

AI32: Communication channel

It is clear the choice of communication channel (e.g. social media, web, email network, and SMS network) has a large impact not only on what people are reached but also on how many. It might also be the case that different kinds of material in terms of human rights issue of focus, proximity to event, and others, fly better through different communication channels.

AI33: Time of communication

Employees have suggested that the time when material is posted or sent through the different networks influences the number of readers. Furthermore, employees suggest that the ideal time differs between communication channels. Therefore, time of communication is listed as a potential factor. To have sufficient amount of data for evaluating what the ideal time for communication is one might have to collect additional data, i.e. test times of the day that have not previously been thoroughly tested.

AI34: Language

Often posts and material fly better when written in Swedish, according to employees. However, there might be exceptions, for instance regarding specific international issues. One employee explained that material from the international Amnesty organization often is translated to Swedish for this reason and that it requires time and resources. Understanding when it is appropriate to use

what language therefore also have the potential of reducing the workload and improving efficiency of work.

AI35: Proximity to event

By categorizing material according to what place in the world it covers, it is possible to investigate whether the proximity principle holds. It also serves to understand the geographical interest of the public and supporters. For instance, one employee explained that American politics are of high interest in Sweden, but that statement is mostly based on experience and feel rather than on data.

AI36: Time of year

Time of year (along with other variables) could serve as a control variable. It is not always reasonable to compare the reach of communication efforts during vacation weeks in the summer and the rest of the year. Like many other factors this is also interesting to look at by itself to understand the general fluctuations over the year. There might also be many other similarly odd factors that have major implications on the reach of communication efforts. It is therefore proposed to also investigate additional factors that are considered having the potential to influence communication reach.

A4: Performance measurement activities

As discussed under *I4: Performance of communication and mobilization activities*, Amnesty wants to know how many people are reached through different channels and how it has developed over time. Depending on channel there are different measures to look at for determining the reach. To start with, there is a need for simple and standardized methods that can be looked at over time. Such measured are proposed and described for each communication channel below. It should be mentioned that some of these measures are already sporadically monitored, and the data does exist and can be extracted upon request. The proposition however is that the measures discussed below should be monitored in a continuous manner, something that is also more thoroughly discussed in the recommendation chapter.

AI41: Performance of actions

Actions are today only evaluated against the preset goal in terms of number of signings. Employees however ask for several measures related to actions. The most important being to follow the total number of signings with different splits according to below:

- Total number of signings
    - Share of signings from current members and non-members respectively
    - Share of signings from people that has not signed an action before, people that has signed 1 action before, and so on
    - Share of signings based on source origin (web, social media, email, SMS)

AI42: Performance of web

The web might today be the most followed-up and evaluated communication channel. There might however be a need for more systematic evaluation and for making measures available for a broader range of employees. Following measures are monitored and reported on a tertiary basis and it is recommended to continue measuring the same:

- Page views, including source and how long visitors stay on the site
- Conversion

AI43: Performance of social media

Currently the performance measurement and evaluation of social media is performed in a similar ad-hoc manner as for the web. The people working with social media has by experience a good understanding of how followers and likes have fluctuated over time, however it is not consistently being monitored and reported on, which makes it difficult for people in different parts of the organization and on higher hierarchal levels to determine how social media have performed over time. Thus, basic measures are proposed to be monitored and reported regularly. These measures include:

- Number of followers over time
- Likes per post over time
- Conversion

AI44: Performance of Email network

Just like previously mentioned, there is a need for standardization and for looking at data over time to see whether performance have increased or not. That is also true for both the Email- and SMS networks. The proposed measures are:

- Numbers of emails sent
    - Share of opened emails
        - Conversion of opened emails

AI45: Performance of SMS network

Analogous to the Email network, the proposed measures for the SMS network are:

- Numbers of SMS's sent
    - Share of opened SMS's
        - Conversion of opened emails

5.3.2. Review of gathered dataset

Review of gathered dataset was conducted in MS Excel, where all data was important in a tabular form. The review was made with the proposed analyses from interviews in mind and focused on determining what efforts had to be made for the data to fulfill identified purposes, and whether such efforts are reasonable or not.

First and foremost, it can be concluded that the only existing representation of the data is the raw data itself. The data has in no way been manipulated or transformed. Additionally, one can conclude that data is poorly classified and commented. The existing columns of the data set were presented in the previous chapter. These columns are considered only to contain the absolute necessary information. No classification of the content of each action is present. Nor does it exist a column entailing the source of origin from which the signer has been linked to said action (e.g. social media, email, SMS, web).

On one hand, with this little information and classification of data, few analyses can be done in an instant. For instance, no segmentation of actions can be done. It is merely possible to look at the total number of signings over time. On the other hand, little effort can make a large difference. By classifying each action with relevant human rights issue, as well as what country/region they concern, many analyses can be made. With this classification, simple visualization of the data is considered having the ability to provide valuable insight.

6. Recommendation

Apart from the proposed data analysis measures from *5. Analysis* the thesis also developed a set of recommendations for implementing continuous and systematic data analysis to support decision making and performance measurement. This corresponds to phase 3 of the project.

6.1. Phase 3: Recommendation for implementing continuous data analysis

While several actions and analyses has been proposed during the previous chapter, this chapter means to describe recommendations related to implementing continuous data analysis and the necessary underlying infrastructure. The recommendations have been grouped according to three major themes, namely *Infrastructure and actions for enabling analysis*, *Availability of information and data* and Systematic *performance measurement and data analysis*.

6.1.1. Infrastructure and actions for enabling analysis

Following four recommendations concern underlying infrastructure and actions for enabling analysis. These concern both technical, as well as organizational considerations that might have to be addressed for enabling Amnesty to better work in a data driven manner.

Recommendation 1: Align categorization of human rights issues and initiate tagging of material

As thoroughly discussed in the analysis chapter, segmenting material by human rights issue is considered having great potential and many use cases. To conduct analysis and filter material based on such segmentation, all material must be tagged. That means that Amnesty must align their categorization of human rights issues and start tag all material that is posted on the web, social media, mailings, SMS's and preferable also campaigns that do not take place digitally. While categorization based on human rights issue is considered being of highest value, it is also recommended to implement geographical tagging, i.e. tagging material with the country and region of which it handles. That way geographical coverage and interest of different geographical regions can also be better understood.

Recommendation 2: Implement structure in CRM for tracking supporter engagements

Employees within the IT group described their current work with migrating to a new CRM system, much because of an increased need to have structured data and be able to provide knowledge workers in Opinion and Impact with requested information and data. Within the scope of this project, data from action signings are planned to be integrated in the system, along with data from other sources. This work-in-progress is consistent with the findings from this study. Thus, it is recommended to continue the process of integration to have one large database with most of the organizations data stored.

This study has also identified an interest in tracking supporters on an individual level for tailoring communication and providing each supporter with relevant information. Beyond the integration of data sources to the CRM it is thus also recommended that data linked to certain people be combined in such a way that the engagements for each supporter can be tracked. This feature must be top of mind when designing the structure of the CRM database.

Recommendation 3: Develop data management documentation for aligning ethical standards and ways of working with data

Many employees, both within the IT group and in Opinion and Impact highlight the ethical concerns related to the handling of personal data, as well as the sharing of such data with third parties. The thoughts on the topic however express different concerns and captures different perspectives. While there is an overarching agreement that personal data must be handled with care and that the organization must be compliant with the law space (e.g. GDPR), it is rather unclear what implications that put on the work of Amnesty. Some mean that relying on third party data for targeting specific demographic and geographic groups that has shown great interest in a specific human rights issue might be unethical. Others have described the belief within Amnesty that superfluous personal information about supporters should not be collected, although none has been able to refer to a specific decision or policy related to the issue.

On a related topic, there currently exist no IT security policy within the organization. There are however ongoing discussions about writing such a policy and the responsibility would then likely fall on the new IT group lead which will be in place in January 2022. Similarly, there is a lack of IT- and data documentation, policies, and strategy documents.

With conflicting views on ethics related to data handling and a lack of documented IT- and data guidelines, it is recommended that such matter be discussed, and policies developed. The reasons are twofold. First, thoughts must be aligned in order not to over cross any ethical standards. Second, guidelines on how data can be collected, stored, handled, and analyzed are necessary for unleashing the full potential of data and developing consistent ways of working that makes it easy to work with data.

Matters like these often fall on the Chief Information Officer or Chief Technology Officer in for-profit organizations. At Amnesty these specific role does not exist. The IT group lead however hold the position that mostly resembles that of a CIO or CTO. The ownership of this task is therefore recommended to fall on the IT group lead, should there not be any other person better fit for the task.

Recommendation 4: Define the circles of commitment for tracking of supporters

The membership status is considered too narrow of a measure for tracking all backers of Amnesty. Therefore, the organization use “supporters” as a measure for also capturing people that are not members, but that have donated money or signed actions and thus also can be considered backers of Amnesty. Unfortunately the supporter definition is somewhat vague and might even be described differently depending on who you ask. The definition would have to be aligned within the organization. I would however suggest to entirely abandon the supporter definition and instead implement a model called “Circles of Commitment” as proposed and described by one employee during the interviews.

Circles of Commitment is a concept within campaigning that was discussed by Rick Warren in his book The Purpose Driven Church (1995). The model is used to assist organizations in bringing people with low commitment to a state of high commitment. Warren (1995) divides all people that have been in contact with the organization in five categories according to figure 15.

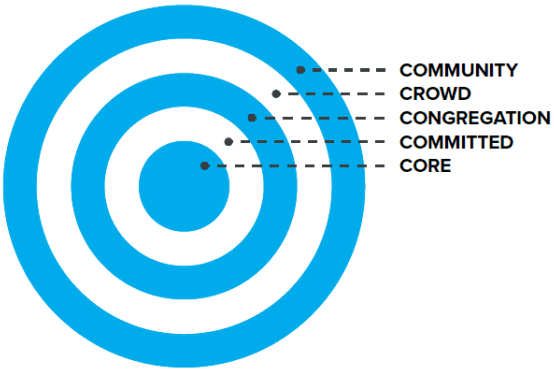

Figure 15: Circles of Commitment illustrative model.

The definition of each circle of commitment are as follows:

- Community: prospects that potentially could engage with the organization.
- Crowd: people that at least once have engaged with the organization.
- Congregation: official members of the organization and people that occasionally engage with the organization.
- Committed: people that regularly engage with the organization.
- Core: employees and volunteers that are of major importance for conducting the work of the organization.

By clearly defining all circles of commitment and tailoring the definitions based on the different ways in which an activist can engage with Amnesty, it is possible to get a deeper understanding of the level of engagement and degree of commitment among what today merely is called supporters.

6.1.2. Availability of information and data

Multiple employees explained that they are not technically oriented enough to be able to gather all relevant data that they, if it was easy to access, would like to see and analyze. Of course, those qualities cannot and should not be expected from knowledge workers with background in social sciences rather than data and IT. However, the trust and reliance of the IT group is extensive, and they have proved to have a good understanding of the data- and IT landscape of the organization. While the IT group occasionally handles data requests from knowledge workers (all though in a very manual manner), there is a need to bridge the gap between data and knowledge workers. Bridging said gap can be done from two perspectives, both a technical perspective and an organizational. *Recommendation 5* and *Recommendation 6* mean to address this issue, one from each perspective.

Recommendation 5: Develop platform for easy-to-access analysis and for pulling data

Related to the technical structure of the CRM system, it is also necessary to develop a purposeful user interface that with ease can be used for employees to pull data and access relevant tools for analysis. When implementing the new CRM system it is therefore recommended to keep in mind that the platform not only should be used by technically oriented employees, but also by knowledge workers with less focus and experience with technology. It would be beneficial for knowledge workers to be able to access data, such as lists of certain people, and relevant analyses to the highest degree possible. Of course manual hand-laying by the IT group might in some cases be necessary, but

by keeping the user interface in mind it is possible to minimize the workload and increase the chances of knowledge workers using data to assist their decision making.

Recommendation 6: Develop guides on how to access and analyze data, and educate superusers across the organization

While *Recommendation 5* mean to bridge the gap between data and knowledge workers from a technical perspective. *Recommendation 6* address the issue from an organizational perspective. Related to *Recommendation 3* concerning IT- and data documentation, there is also a lack of guides and support documents concerning how to access and analyze data. Regardless how intuitive the CRM user interface is made, there will still be a need for guides on how it should be used and recommendations on analyses and measures to look at. Though the analyst at Amnesty will be responsible for conducting analyses and delivering reports to each relevant department, it might be more efficient for said employee to focus on, first setting up the user interface as discussed previously, and second, develop guides for how it should be used. That way, knowledge workers can by ease look up how to access relevant data and analyses, when needed.

The second proposal within the same topic concerns the education of superusers, which is already decided to be carried out. The idea behind superusers is to educate a handful of employees in diverse roles and work groups on how to use IT systems. They are then able to spread the relevant information for their work groups to the rest of the employees. Additionally, they serve as a first point of contact for employees that have questions concerning how to access specific data and analyses. While it has been decided that the superuser-model should be implemented, there is not a concrete plan on how to roll out such model. It is therefore recommended that such a plan should be developed, and the way of working be rolled out.

6.1.3. Systematic performance measurement and data analysis

Many ideas on analyses to be made and measurement of performance was presented in chapter *5. Analysis*. This subchapter instead means to present actions necessary for such activities to add value consistently and continuously, i.e. for implementing systematic performance measurement and data analysis. All previously mentioned recommendation too aids in this matter. The following recommendations however put emphasize on making performance measurement and data analysis *systematic*, much with the purpose of being able to follow trends over time and assuring that important reporting lines are uphold.

Recommendation 7: Decide on measures and analyses for continuous monitoring

Some of the previous recommendation primarily focus on enabling data analysis, when necessary, i.e. on an ad-hoc basis. While this is of great value for informing decisions, employees have also expressed a need for better follow-up and for monitoring changes over time. To have the ability to compare current performance with previous, the same measures must be monitored and reported. For that reason it is of high importance to decide what measures and analyses to use for systematic monitoring and reporting.

In previous chapter, several performance measures related to different activities performed by Amnesty was proposed. In addition to proposed measures, other measures related to the same and

other activities could potentially also be of value to track. Important to keep in mind is that chosen measures are in line with overall strategy and goals, as discussed in the theory chapter.

Recommendation 8: Establish routines and standards for reporting

When decisions on what measures to report have been made, it is also necessary to establish routines and standards for reporting. Currently, some measures (but not all) are reported on a tertiary basis. This means that a forum for reporting and routines related to it does exist. However, since several employees ask for better and more extensive performance measurement, it is clear that the current routines are not sufficient.

For keeping reporting effective, informative, and for enabling comparisons over time it is beneficial to standardize formats where standardization can be made. Apart for developing such standardized formats, the lines of reporting and what employees should be informed too must be decided. Lastly, the frequency of reporting must also be considered. Some mean that the tertiary structure that today is used, is too infrequent.

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7. Discussion

The discussion means to give answers to the research questions, discuss the degree to which findings are generalizable, answer to whether the research purpose was fulfilled or not, describe the thesis' contribution to academia, and lastly, propose topics for future research.

7.1.Conclusions

In summary, the thesis has resulted in the following answers to the three research questions:

RQ1: What data is generated within a non-profit social impact organization's processes and how is it stored and handled?

Two main categories of data are generated in Amnesty's processes. The first concern members and donors' personal information, as well as payment data. The second concern traffic related to communication activities. These two categories of data can be considered general for non-profit social impact organizations that are member-based and which operations are mainly focused on communication.

Datasets are generally kept apart and stored at their respective sources. All though, in an effort to collect data in a single system, some integrations to a central system exist, and additional integrations are being planned.

Data is not systematically structured or handled. Analysis of data is conducted on an ad-hoc basis, apart from some web data which is analyzed in a more systematic manner.

RQ2: What analyses of the generated data can be made to attain value-creating insights?

As a social impact organization, a strong need to understand the interests of members, donors, and the public have been identified. Therefore, categorizing published material and evaluating the interest based on different segmentation is considered highly valuable. Digging deeper, following each supporters' engagements with the organization could give aid in the work of getting people more engaged in the organization.

Data related to the performance of communication efforts have been deemed valuable for performance measurement activities, as well as for more advanced statistical analyses such as regression analysis for determining the potential reach of communication efforts.

Said conclusions possess potential not only for Amnesty, but also for other non-profit social impact organizations.

RQ3: What key recommendations should be considered in the implementation of continuous data analysis?

The recommended actions have been divided into three categories and are presented in table 15.

Infrastructure and actions for enabling analysis	Recommendation 1: Align categorization of human rights issues and initiate tagging of material Recommendation 2: Implement structure in CRM for tracking supporter engagements Recommendation 3: Develop data management documentation for aligning ethical standards and ways of working with data Recommendation 4: Define the circles of commitment for tracking of supporters
Availability of information and data	Recommendation 5: Develop platform for easy-to-access analysis and for pulling data Recommendation 6: Develop guides on how to access and analyze data, and educate superusers across the organization
Systematic performance measurement and data analysis	Recommendation 7: Decide on measures and analyses for continuous monitoring Recommendation 8: Establish routines and standards for reporting

Table 15: Recommended actions for the implementation of continuous data analysis.

7.2.Generalization of findings

Some findings from this project are considered specific for Amnesty, while some finding might be more generalizable and therefore could also be true for other organizations. This chapter means to identify the factors that characterize Amnesty as an organization and based on that characterization discuss to what extent findings might be true for a broader range of organizations. First comes the discussion regarding factors that characterize Amnesty as an organization. The chapter then follows a simple structure based on the subchapter titles of the two previous chapters:

7.2.1. Data analysis measures

This subchapter means to discuss identified analyzes and whether they may be relevant for other organizations or not.

(T) Tasks and decisions with information demand

It can be concluded that the identified tasks and decisions faced by knowledge workers in Opinion and Impact at Amnesty mainly concern communication efforts. This is no surprise since their main work, and the main work of Amnesty as a whole, consist of spreading information, creating opinion, and shedding light on human rights violations for the public and policymakers to see. The tasks include prioritizing between content, allocating resources, identifying target groups, reaching said target groups with relevant information, choosing effective methods of communication, and evaluating and improving communication operations.

Major focus has been on the importance of prioritizing between different human rights issues. It has been understood that the segmentation of human rights issues is of large interest and importance to the organization. This is indeed very specific for Amnesty and results from the broad focus of the organization. While others reasonably do not have to prioritize between these exact questions, all organizations must allocate resources in some manner and prioritize between some content categories. All organizations with a large focus on communication and spreading of information therefore stand with similar tasks and decisions. Findings are therefore thought relevant to such

organizations, i.e. to organizations with their focus on communication and on informing a broad public.

(I) Information needs for decision making and performance measurement

As with all member-based organizations there is a strong need for Amnesty to understand the interests of their members and donors. Resulting from the complex organizational structure, Amnesty as an additional need to understand the interest also of the central, international, Amnesty organization. With the different stakeholders' interests in mind, many of the tasks described (such as resource allocation and prioritization of content) can be carried out. Literature too, highlight the need for non-profit organizations to understand their stakeholder interests.

Much of the understanding is based on communication and discussions with said stakeholders and is therefore mainly qualitative. Employees at Amnesty consider themselves to have a decent understanding of their stakeholder interests because of this communication. The problem with relying on qualitative discussions is that one may fall prey to selection bias. It is reasonable to believe that discussions with Amnesty supporters most often take place with supporters that are deeply engaged in the work of the organization and that communication with the broader member- and donor circle happens more infrequent. For capturing the entire scale, it is of interest to understand the supporter behavior also in a more quantitative manner.

On the same topic, understanding the organizational journey of each individual engaged with the organization has been highlighted as a potential tool for drawing people closer to the organization and increasing people's depth of engagement. This could be considered as a form of customer journey mapping, but for a non-profit organization, and is entirely in line with the macro-trend of personalization and individualization. Many companies today offer customers the possibility to tailor products and make personal adjustments. By following supporter engagements in detail, a non-profit organization too, can appeal to people via their individual preferences.

The second category of information demands relates to performance measurement and efficiency of operations. This is a very general category of interest for any organization. One would like to understand how effective communication efforts are in reaching a large number of people, as well as what influences the reach of communication (e.g. communication channel, time of communication, type of content, etc.).

(D) Data available

We have seen that data is generated in many processes within Amnesty. On a high level, all data sources can be divided into two categories. The first concern membership- and donor data, i.e. the CRM data. This kind of data include personal information and payment information. The second category concerns data that is generated in the communication processes with the public. This includes social media, email, SMS, Web, and all other data related to communication.

As seen, this type of data is much due to the characteristics of Amnesty being a member-based organization with its main activities in the communication space.

(A) Data analysis methods to attain information

The proposed analyses in essence consist of very simple methods. Barely any statistical methods have been proposed. This largely has to do with the fact that Amnesty just recently have started working with data analysis and thus are quite immature in their data management processes. Most

proposed analyzes simply concerns structuring and tagging of data, which can be considered a first step to enable more advanced analysis.

The types of analyzes might very well be relevant also for other organizations. Each method of analysis is simply a measure to bridge the gap between data and information. As discussed, many similar organizations have the same or similar information demand, and similar types of data. The same types of analyzes might therefore very well be valuable also for other organizations.

Conclusion

Many of the tasks and decisions faced by Amnesty are like those of other non-profit social impact organizations, just is their information demand, data availability, and thus also the value of analyses. All findings are of course not entirely transferable, but many are. The analysis chapter is therefore considered valuable as a source of inspiration and guide for other non-profit social impact organizations whose data analysis measures are still in the cradle.

7.2.2. Continuous data analysis

The theory chapter entail general recommendations for all organizations concerning data management, business intelligence and analytics. This platform is indeed considered very general. A thorough understanding of data management processes at Amnesty has been gathered during this project. The final recommendation for Amnesty has been developed to align data management process with theory, thus the recommendations are very specific for Amnesty. Therefore, the final recommendations should not be considered a guideline for other organizations. They are instead guided towards the theory chapter.

7.3.Purpose fulfillment

The purpose of this thesis is once again outlined:

The purpose of this thesis was to investigate how data and data analysis may support decision making in non-profit social impact organizations. This includes understanding what kind of data is generated in the processes of such organizations, exploring what decisions need information as decision basis, finding what methods of analysis that can be exploited to transform the data to insightful information and examining what supporting process (technical and organizational) that must be in place for data driven decision making to work properly and smoothly.

With a deep dive in the Swedish section of Amnesty International the areas highlighted in the purpose formulation have indeed been investigated. The analysis, together with the theoretical platform are, as discussed, to a high degree general for non-profit social impact organizations. With that said, the purpose is considered fulfilled.

7.4.Contributions to academia

Starting with general data management and decision literature this thesis applies known theory to the non-profit social impact sector. The specific sector brings certain challenges and considerations specific for the sector. Thus, this project brings knowledge and specific considerations relevant to the sector when implementing business intelligence and analytics. This might be of value both from an academic standpoint and for other non-profit social impact organizations. For-profit organizations often have the financial capability to have a more extensive R&D program compared to non-profit organizations. A project like this can consequently be considered of societal value as it brings value to the non-profit sector.

7.5. Further research

Data analysis at Amnesty, and the field of business intelligence and analytics in the non-profit sector could be considered fairly immature since not much work has been done in said field. Much of the theoretical platform presented is general and does not specifically concern non-profit organizations, and certainly not specifically non-profit social impact organizations. Therefore, a lot of work can be done to make general knowledge available for these specific organizations. Some topics discovered during the work of this thesis are presented below. Note that they could all be researched using Amnesty as the subject of a case study, by studying another relevant organization in the same space, or by using any other research method.

Proposing and conducting advanced analysis

Multiple recommendations have been made within the scope of this project. Many of which concern preparations and actions for enabling the implementation of continuous business intelligence and analytics. The project has also touched upon some more advanced methods of analysis, including statistical analysis, forecasting and predictive analysis using machine learning, and pattern analysis. A next natural step would be to investigate which of the more advanced tools can be exploited and used to uncover value creating insight for non-profit social impact organizations.

Investigating what external data could add value

This thesis has focused on internally generated data. Any organization might also make use of external data. In the case of Amnesty we have discussed external surveys as a method to attain external data. One could also suppose that macroeconomic data could have an impact even on non-profit organizations. For instance, levels of GDP growth could potentially impact donations. A topic for future research could therefore be to investigate how Amnesty and similar organizations can benefit from incorporating external data in their data analysis activities and examine what external data might be relevant for such a purpose.

Investigating data sharing across national organization sections

A clear delimitation of this thesis was to only consider the Swedish section of Amnesty International. While this is a natural starting point, the work of the organization must also be aligned with international targets and guidelines. Considering multiple national sections, or even the entire organizational network, additional findings could be uncovered. One managerial/organizational topic would be to investigate how data, as well as methods and protocols of analysis effectively should be shared across national bodies, be it at Amnesty, or any other organization.

8. References

Adair, J. (2019) *Decision making and Problem Solving*. 4th edn. Kogan Page. Available through: https://www.perlego.com/book/1589748/decision making-and-problem-solving-pdf [accessed 9 September 2021].

Agarwal, R. & Tanniru, M. (1989). *Technological Support for Decision making in the Presence of Uncertainty and Equivocality*. ICIS 1989 Proceedings, January 1989, p. 19– 30, Available through: https://aisel.aisnet.org/icis1989/7 [accessed 9 September 2021].

Austin, C. & Kusumoto, F. (2016). *The Application of Big Data in Medicine: Current Implications and Future Directions*. Journal of Interventional Cardiac Electrophysiology, vol. 47, no. 1, p. 51–59.

Awang, A. H., Hussain, M. Y., & Malek, J. A., (2013). *Knowledge transfer and the role of local absorptive capability at science and technology parks*. The Learning Organization: An International Journal*,* 20(4/5), p. 291-307.

Bansal, P., (2013). *Emerging Technology in Fashion Retail Business*. [Online] Available through: http://www.slideshare.net/bansalpan/emerging-technology-in-fashion-retail-business [accessed 18 September 2019).

Barr, S. (2014). *Practical Performance Measurement - Using the PuMP Blueprint for Fast, Easy and Engaging KPIs*. Samford:PuMP press.

Berntsson Svensson, R. & Taghavianfar, M. (2020). *Toward Becoming a Data-Driven Organization: Challenges and Benefits*. In F. Dalpiaz, J. Zdravkovic, & P. Loucopoulos (eds), Research Challenges in Information Science, 2020, Cham: Springer International Publishing, p. 3–19.

Biehn, Neil (2013). *The missing V's in big data: Viability and value*. Available through: http://www. wired.com/insights/2013/05/the-missing-vs-in-big-data-viability-and-value/ [accessed 7 September 2021].

Byman, D., Lesser, I., Pirnie, B., Benard, C. & Waxman, M. (2000). *Strengthening the Partnership: Improving military coordination with relief agencies and allies in humanitarian operations*. Santa Monica: RAND.

Choo, C. W. (1991). *Towards an Information Model of Organizations*. The Canadian Journal of Information Science, [e-journal] vol. 16, no. 3, p. 32–62, Available through: http://choo.fis.utoronto.ca/FIS/respub/CJIS.html [accessed 9 September 2021].

Daft, R. L., Lengel, R. H. & Trevino, L. K. (1987). *Message Equivocality, Media Selection, and Manager Performance: Implications for Information Systems.* MIS Quarterly, [ejournal] vol. 11, no. 3, p. 355–366. Available through: http://www.jstor.org/stable/248682 [accessed 9 September 2021].

De Mauro, A., Greco, M. & Grimaldi, M. (2016). *A Formal Definition of Big Data Based on Its Essential Features*. Library Review, vol. 65, no. 3, p. 122–135.

Dijcks, Jean-Pierre (2012). *Oracle. Big data for enterprise*. Oracle Working Paper, p. 1–14.

Earley, Susan & Henderson, Deborah, Data Management Association (2017). *DAMA-DMBOK: data management body of knowledge*. 2nd edition. Technics Publications.

Eden, C., & Ackermann, F. (1998). *Making strategy: The journey of strategic management.* London: Sage Publications, p. 349.

Evans, R., (2009). *Balfour Beatty Among Firms That Bought Information on Workers*. London: The Guardian.

Everyaction, (2018). *5 things you need to know about nonprofits big data.* Available through: https://www.everyaction.com/blog/5-things-you-need-know-about-nonprofits-big-data/ [accessed 21 September 2021].

Fallahchay, S. A. (2020). *Data Science for Business and Decision making: An Introductory Text for Students and Practitioners*. Arcler Press. Available through: https://www.perlego.com/book/2076351/data-science-for-business-and-decision making-an-introductory-text-for-students-and-practitioners-pdf [accessed 13 September 2021].

Flynn, P., & Hodgkinson, V. A. (2001). *Measuring the contributions of the nonprofit sector*. New York: Kluwer Academic/Plenum Publishers.

Franco-Santos, M., Lucianetti, L. & Bourne, M. (2012). *Contemporary performance measurement systems: A review of their consequences and a framework for research*. Management Accounting Research, 23(2), p. 79-119.

Ghavami, P. (2020) *Big Data Management*. 1st edn. De Gruyter. Available through: https://www.perlego.com/book/2108136/big-data-management-pdf [accessed 7 September 2021].

Gilks, P., (2016). *Barclays Innovates with Customer Insight from Teradata and Tableau* [Interview]. 2nd February 2016.

Gils, B. van (2020). *Data Management: a gentle introduction*. 1st edn. Van Haren Publishing. Available through: https://www.perlego.com/book/1440390/data-management-a-gentle-introduction-pdf [accessed 7 September 2021].

Gordon, K. (2013) *Principles of Data Management*. 2nd edn. BCS Learning & Development Limited. Available through: https://www.perlego.com/book/787820/principles-of-data-management-pdf [accessed 7 September 2021].

Guberek, T., & Silva R., (2014). *"Human Rights and Technology": Mapping the Landscape to Support Grantmaking.* Partner for Human Rights Information, Methodology & Analyses.

Hansson, C. & Palmgren. R, (2020*). Are we there yet? Constructing performance measurement systems within development aid organizations*. Lund University, Department of Production Management.

Hilbert, M., & Lopez, P., (2011). *The world's technological capacity to store, communicate, and compute information*. Science, 332(6025), p. 60-65.

Höst, M., Regnell, B. & Runesson, P. (2006). *Att genomföra examensarbete*. Lund: Studentlitteratur.

https://www.amnesty.org [accessed 15 November 2021].

https://www.amnesty.se/ [accessed 15 November 2021].

Jibril, T. A., & Abdullah, M. H., (2013). *Relevance of emoticons in computer mediated communication contexts: An overview*. Jibril, 9(4).

Kang, N., Zhao, C., Li, J. & Horst, J. A. (2016). *A hierarchical structure of key performance indicators for operation management and continuous improvement in production systems*. International Journal of Production Research, 54(21), p. 6333-6350.

Kidwell, Jillinda, Vander Linde, Karen M., & Johnson, Sandra L. (2000). *Applying corporate knowledge management practices in higher education.* EDUCAUSE Quarterly 23(4): p. 28–33.

Kitchin, Rob (2014). *The data revolution. Big data, open data, data infrastructures & their consequences.* Los Angeles: SAGE, p. 4.

Kulkarni, V., Barat, S., Clark, T. & Barn, B. (2015). *Toward Overcoming Accidental Complexity in Organisational Decision making*. In 2015 ACM/IEEE 18th International Conference on Model Driven Engineering Languages and Systems (MODELS), 2015, p. 368–377.

Kumaresan, A. & Liberona, D. (2018). *A Case Study on Challenges and Obstacles in Transforming to a Data-Driven Business Model in a Financial Organisation*. In L. Uden, B. Hadzima, & I.-H. Ting (eds), Knowledge Management in Organizations, 2018, Cham: Springer International Publishing, p. 263–276.

Laney, Douglas (2001). *3D data management: Controlling data volume, velocity and variety*. Stamford, CT: META Group.

Laudon, K. & Laudon, J. P. (2002). *Management Information Systems: Managing the Digital Firm*. Upper Saddle River, N.J: Prentice Hall.

Lindgren, T. (2019). *On Data Driven Organizations and the Necessity of Interpretable Models*. In A.-S. K. Pathan, Z. M. Fadlullah, & M. Guerroumi (eds), Smart Grid and Internet of Things, 2019, Cham: Springer International Publishing, p. 121–130.

Little, B., (2002). *Harnessing learning technology to succeed in business.* Industrial and Commercial Training*,* 34(2), p. 76-80.

Mabaso, Obey & Sagandira, Conerlious Zechariah (2021). *Data Driven Decision making*. Lund University, Department of Informatics.

McCandless, David (2010). *Data, information, knowledge, wisdom*. Available through: http://www.informationisbeautiful.net/2010/data-information-knowledge-wisdom [accessed 6 September 2021].

McFarlane, D.A., (2010). *Social communication in a technology-driven society: A philosophical exploration of factor-impacts and consequences*. American Communication Journal*,* 12.

McKenzie, J., van Winkelen, C. & Grewal, S. (2011). *Developing Organisational Decision- making Capability: A Knowledge Manager's Guide*. Journal of Knowledge Management, [e-journal] vol. 15, no. 3, p. 403–421. Available through: https://doi.org/10.1108/13673271111137402 [accessed 9 September 2021].

Melnyk, S-A., Bititci, U., Platts, K., Tobias, J., Andersen, B. (2014). *Is performance measurement and management fit for the future?* Management Accounting Research. Vol. 25. No. 2. p. 173-186.

Miller, J. B., (2014). *Internet Technologies and Information Services*. Santa Barbara (CA): ABC CLIO.

Morris, Robert J. T., & Truskowski, Brian J. (2003). *The evolution of storage systems.* IBM systems Journal, 42(4): p. 205–217.

Mouchamps, H. (2014). *Weighing elephants with kitchen scales: The relevance of traditional performance measurement tools for social enterprises.* International Journal of Productivity and Performance Management, 63(6), p. 727-745.

Olszak, C. (2020). *Business Intelligence and Big Data*. 1st edn. CRC Press. Available through: https://www.perlego.com/book/1882805/business-intelligence-and-big-data-pdf [accessed 21 September 2021].

Parmenter, D. (2015). *Key Performance Indicators: Developing, Implementing and Using Winning KPIs.* 3rd edition. Hoboken: John Wiley & Sons, Inc.

Ravelomanantsoa, M. S., Ducq, Y., & Vallespir, B. (2019). *A state of the art and comparison of approaches for performance measurement systems definition and design*. International Journal of Production Research, 57(15-16), p. 5026-5046.

Rowley, J. & Slack, F. (2004). *Conducting a literature review.* Management Research News. 27(6), p. 31-39.

Scholz, Tobias M. *Big Data in Organizations and the Role of Human Resource Management: A Complex Systems Theory-Based Conceptualization.* NED - New edition ed., Peter Lang AG, 2017. JSTOR, p. 13. Available through: www.jstor.org/stable/j.ctv9hj9z6 [accessed 6 September 2021].

Schroeck, Michael, Shockley, Rebecca, Smart, Janet, Romero-Morales, Dolores, & Tufano, Peter (2012). *Analytics: The real-world use of big data – How innovative enterprises extract value from uncertain data*. IBM Global Business Services, p. 1–20.

Sharma, R., Mithas, S. & Kankanhalli, A. (2014). *Transforming Decision making Processes: A Research Agenda for Understanding the Impact of Business Analytics on Organisations*. European Journal of Information Systems, [e-journal] vol. 23, no. 4, p. 433–441. Available through: http://dx.doi.org/10.1057/ejis.2014.17 [accessed 7 September 2021].

Shollo, A. & Galliers, R. D. (2016). *Towards an Understanding of the Role of Business Intelligence Systems in Organisational Knowing, Information Systems Journal*. [e-journal] vol. 26, no. 4, p. 339–367. Available through: https://onlinelibrary.wiley.com/doi/abs/10.1111/isj.12071 [accessed 7 September 2021].

Simons, R. H. & Thompson, B. M. (1998). *Strategic Determinants: The Context of Managerial Decision making*. Journal of Managerial Psychology, [e-journal] vol. 13, no. 1/2, p. 7–21. Available through: https://doi.org/10.1108/02683949810369093 [accessed 7 September 2021].

Strengholt, Piethein (2020). *Data Management at Scale*. O'Reilly Media, Inc. California, United States.

Troester, Mark (2012). *Big data meets big data analytics. Three key technologies for extracting real-time business value from the big data that threatens to overwhelm traditional computing architectures*. SAS White Paper: p. 1–10.

Warren, R. (1995). *The Purpose Driven Church: Growth Without Compromising Your Message & Mission.* Zondervan.

Yin, Robert K. (2014). *Case Study Research: Design and Methods*. Fifth edition. SAGE Publications.

Appendix

Appendix A: Interview guide for data- and IT- employees

Introduction

1. What is your role and responsibilities?

Data architecture – systems, data sources, warehousing, and data

2. What systems and data sources exist in the organization?
    a. Are different systems well integrated with each other?
3. Do you have a mapping of the IT landscape?
4. What type of data and what data sets are generated from the different sources of data?
5. How and where is data stored?
    a. Are all data stored in a central server?
    b. Do you have separate data marts for providing relevant data for different departments/work groups?

Data requests and analysis

6. How are collected data used for data analysis?
    a. What analysis are made?
    b. What tools for analysis are used?
7. How are collected data used for measuring performance?
    a. What KPIs are measured and used?
8. In what additional ways could collected data be used for value creation?

Supporting infrastructure and processes

9. Data governance: does the people who could benefit from data have access and ownership of the correct data?
    a. Does it exist an organizational gap between IT and other departments which makes it difficult for knowledge workers to use relevant data?
10. Data quality: do you have any challenges or difficulties regarding the quality of data?
11. Data security: do you have any challenges or difficulties regarding data security?
    a. Are security requirements limiting the ways in which data can be used?
12. Data modeling and structure: are data structured and classified in an understandable and consistent manner?
13. Data integration and interoperability: can you easily move data between different contexts to consolidate and combine data from different systems/sources?
14. Documentation: are IT systems and processes thoroughly documented?

Appendix B: Interview guide for employees within Opinion and Impact

Introduction

1. What is your role and responsibilities?

Organizational decision making

2. What are the main decisions and tasks you work with?
3. Are the information needs for making these decisions met?
    a. What data and analyses are used as decision basis?
    b. What additional data would you benefit from?
    c. What additional analyses would you benefit from?

Performance measurement

4. Are your goals and objectives clearly defined?
    a. What are your primary goals?
5. How are results and efficiency of you and your work groups measured?
    a. Do you use and KPIs?
    b. Is there a need for additional quantitative measures?

Knowledge and access to data

6. Do you know what data is generated and stored in the organization?
7. Do you have access to relevant data?