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How is reporting used to increase the safety in adventure tourism?

A case study of operators of guided snowmobile tours in Svalbard

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Abstract

Modern land-based tourism in Longyearbyen had its beginning in the early 90s, but ships with tourists visiting Svalbard can be traced back as far as 1807 (Viken, 2006; Viken & Jørgensen, 1998). Over the past 20 years, the interest in Svalbard as a tourist destination has increased significantly (VisitSvalbard, 2018), which has led to a rapid increase in the number of visitors. This relatively young industry have had to constantly adapt to this increased number of visitors while also handling challenges related to high turnover, changing climatic conditions, limited infrastructure, and a lack of experience knowledge (the Arctic operational context) (Albrechtsen & Indreiten, 2021). This dynamic situation coupled with the natural risks of adventure tourism requires a high focus on safety. As of today, there are few and ambiguous regulations regarding safety management within the tourist industry on Svalbard. This study seeks to investigate how reporting is used to increase the knowledge of safety in companies operating guided snowmobile tours on Svalbard. A series of qualitative interviews (n=10) with nature guides and managers from four companies with varied sizes will be used to investigate the use of reporting systems and possible learning processes used to increase knowledge within the companies.

This study has identified two main approaches to reporting incidents in the industry, informal oral reporting, and formal written reporting. In addition, we have seen that the companies in this study have multiple reporting systems to report different information within one company, such as accidents and safety information (i.e., conditions in the field). This study also found that information is shared between the guides in informal arenas like the morning coffee. This process was mentioned in all companies where the guides started their working day at the same time and is believed to be valuable for the company's safety.

Learning within the companies also seem to be separated in two main approaches. Companies with a formal written reporting system focus on organizational learning and facilitate externalization. This approach is rooted in modern safety theory (Reason, 1997). Companies with an informal oral reporting system focus on individual learning and favor organizational learning through socialization. This approach is common in the traditional Norwegian outdoor education (Røkenes & Andersen, 2019). The lessons learned from organizational learning is implemented through continuous improvement of routines and rules. Rule development is done by using a bottom-up approach, which utilizes the information gathered through the reporting systems.

Acknowledgement

As Covid introduced us to online lectures, I decided that this opportunity to do a master's degree was too good to pass up. This thesis symbolizes the end of one and a half years of combining work and studies. This has been challenging at times, but I am incredibly happy with the way it turned out. The new knowledge I have acquired through this study will surely be useful for my future work.

I want to thank my supervisor Are Sydnes. You have steered me in the right direction and helped me produce a thesis I am proud of. This would not have been possible without your feedback, discussions, and wisdom. I would also like to thank respondents who participated in this study. This thesis would not have been possible without your insights and willingness to share. Lastly, I want to thank my friends and family who have offered me advice, support, and motivation throughout this writhing process.

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1 Introduction

Tourism on Svalbard is not a new industry, there are records of tourists joining sailing ships to Svalbard that are dating back as far as 1807 (Viken & Jørgensen, 1998). Land-based tourism in Longyearbyen, however, has a much shorter history. The first local companies established purely for tourism can be traced back to the early 90s (Viken, 2006). Since then, the tourism industry has flourished, and statistics from the tourism organization Visit Svalbard show that there has been an increase with more than 50% in the ten years between 2008 and 2018 (VisitSvalbard, 2018), maxing out at a total of 135 500 people visiting Svalbard in 2018 (Øian & Kaltenborn, 2020). In the so-called Masterplan Svalbard 2030 (VisitSvalbard, 2022a) Visit Svalbard presents a common strategy for the development of the tourism industry for the coming years. In this document, they state that they will focus on getting more visitors during the low seasons and trying to increase the time that each tourist spends on Svalbard. Regarding the total number of tourists, the paper states that hotels are at full capacity during the high seasons. Followingly, there will not be a focus to further increase the total number, which is contrasting with the masterplan from 2015 (VisitSvalbard, 2022a).

Svalbard stands out as an example for how the effects of anthropomorphic climate change manifest, with effects such as *“increased air temperature, increased annual precipitation, more frequent and intense events with heavy rainfall, increased river flow, destabilization of near-surface permafrost, changes in glacier area and mass, increased frequency for many types of floods; and increased frequency for many types of avalanches and landslides”* (Johannessen, 2022, p. 1). Combining the climate effects and an increasing number of visitors means that we are looking at an industry that has been growing quickly and constantly had to adapt to the increasing and changing mass of tourists that arrive on the island, at the same time as operating in a changing environment. In addition to this the Longyearbyen community is known for having a high turnover among workers. Johannessen (2022) documented that the average turnover is between 1-3 years, which will facilitate a loss of knowledge for local companies.

Additionally, Svalbard is also special with regards to Norwegian laws. For example, the “Internkontrollforskriften” and “Produktkontrollloven” which normally govern the safety management of the tourism industry, are not in effect on Svalbard (Røkenes & Andersen, 2019). The only law describing requirements for safety management says tour operators *“must have sufficient and relevant knowledge, competence and experience adapted to the individual field or tour arrangement”* (Turistforskriften, 1991 §6). In addition, companies operating guided

tours must notify the Governor of Svalbard of planned activities. During this process the companies provide information about their safety equipment, trip descriptions and some routines regarding common hazards i.e., polar bears (Sysselmesteren, 2019). These measures are not as comprehensive as the laws applicable for similar activities in mainland Norway, and will due to their vague formulation provide room for interpretation. This makes it interesting to see how different companies in the industry have chosen to approach safety management, and especially the experience feedback. This study will investigate if and how companies use reporting to acquire and store experience-based knowledge to improve safety.

1.1 Adventure Tourism

Buckley (2007) defined adventure tourism as “*Guided commercial tours, where the principal attraction is an outdoor activity that relies on features of the natural terrain, requires specialized equipment, and is exciting for the tour clients. The clients may operate the equipment themselves or they may simply be passengers*” (p. 1428). Tourists visiting Svalbard are in search of thrill and adventure, which fits this definition well. They seek risks or pleasurable experiences like spotting a polar bear or enjoying the view of a glacier front (Renn, 2004). Røkenes and Andersen (2019) argued that a considerable amount of nature-based tourism is created based on risk filled activities (ice climbing, snowmobile tours, skiing) or environments (avalanche terrain, sea ice, glaciers). Adventure tourism is also internationally regarded as one of the fastest growing types of mainstream tourism (Wang et al., 2019), this trend is also seen in Svalbard (Øian & Kaltenborn, 2020).

The guide works professionally in these environments and is considered a leader and a host for the tourists (Andersen & Rolland, 2018) with the main responsibility being safe travel (Røkenes & Andersen, 2019). Karlsen (2022) states that the guide needs to “*balance between value creation towards the experience yet stay away from harmful events*” (p. 52) to be able to provide the tourists with the adventure they seek safely. This form of safety management is a continuous process in all phases of the tour (before, during, after) (Aven, 2004).

Establishing safety rules and routines is an important part of safety management in the tourism industry (Røkenes & Andersen, 2019), but can prove to be challenging due to the complexity, uncertainty, and dynamic of the work environment (Aven, 2004). In other words, most companies have routines for common activities, although it is impossible to have routines for every scenario.

Using my experience from working in the tourism industry in Longyearbyen (further information in chapter 3.4.3), I will provide some practical examples from a guided snowmobile tour in my former company. Starting in the morning one would use the latest weather data and field reports to plan the day. In this process one would also identify relevant hazards based on updated information and existing documents (i.e., risk analysis, routines). Upon the completion of this, one would check all the guest and guide equipment (i.e., snowmobiles, safety equipment, clothing) to make sure it is working, and sufficient for the trip. After picking up the guests one needs to brief and train them to make sure they have the information and confidence to handle the snowmobiles. Once in the field one would continuously assess the guests' ability, weather, and route difficulty to ensure there is no mismatch between these. In addition, one would continuously monitor environmental hazards like avalanche conditions, glacier travel, wildlife, and sea ice. Upon return one needs to service and restock all equipment as well as note down updated field information for the next guide.

1.2 Arctic Operational Context

Albrechtsen and Indreiten (2021) describe the operational context of the Arctic as a combination of five factors that can create challenges when operating in this environment. The combination of these factors is what differentiates the operations from otherwise similar operations on the mainland. These factors are harsh weather conditions, remoteness, limited access to infrastructure and resources, lack of knowledge, and experience data, as well as climate change. Some of these factors affect the safety aspect of tourism on Svalbard and will provide important background for some of the other topics that will be discussed. In the following paragraphs each factor will be described in short, and its relevance for this study will be presented.

Harsh weather conditions describe how the Arctic is known for a combination of multiple environmental factors, i.e., low temperatures, rapidly changing weather, and changes in daylight. Not only is this relevant for the companies while conducting their day-to-day operations but it will also be important from a safety management perspective. Information regarding these conditions will be valuable for the companies both in a risk assessment situation but also as background knowledge for developing standard operating procedures (SOP) and similar.

Remoteness describes the issues related to the geographical location in terms of distance to emergency help and other resources like hospitals. This is important for the safety management

of the companies since it means that the companies need to be prepared to handle an incident alone for an extended period. This factor also needs to be considered when in the decision-making process of the guides. Remoteness is relevant for this study because it demonstrates a need to collect knowledge from the guides to better handle emergencies in the future, and to provide guides with good tools and routines to aid their decision making.

Limited access to infrastructure and resources describes issues that are related to limited communication infrastructure and roads amongst others. As with remoteness this factor is relevant since it demonstrates a need to gather knowledge to better handle situations, and to provide the guides with realistic expectations for an emergency.

Lack of knowledge and experience data is the most relevant factor for the topics covered in this study. As mentioned in the introduction the tourism industry is young, experiences changing conditions and a high turnover. This means it should be important for the companies to collect knowledge to continually improve their safety management.

The last factor is *climate change*. This factor amplifies the changing conditions that companies experience, making some of the knowledge obsolete due to ever-changing field conditions. This again will create an **even** greater need for accumulating knowledge within the companies.

1.3 Regulation of Tourism

There are many laws and regulations that govern nature-based tourism. According to Røkenes and Andersen (2019) there are 4 main regulations that are relevant for tourism: Internkontrollforskriften (Systematic safety management), Produktkontrolløven (regulation of products), Arbeidsmiljøloven (workers' rights), and Friluftsløven (ensures the right to travel in nature) (Arbeidsmiljøloven, 2005; Friluftsløven, 1957; Internkontrollforskriften, 1996; Produktkontrolløven, 1976). Due to Svalbardloven §2 these laws do not apply on Svalbard, “*Norwegian private and criminal law and the Norwegian legislation on the administration of justice apply to Svalbard, unless otherwise stipulated. Other legal provisions do not apply to Svalbard, except when specifically stipulated*” (Svalbardloven, 1925, § 2.).

This does not mean that the tourism industry on Svalbard is completely unregulated. There is a specific regulation (Turistforskriften, 1991) that does regulate tourism in Svalbard. This regulation specifies the company's need to operate safely and in accordance with environmental laws (Svalbardmiljøloven, 2001) and motor traffic laws (Motorferdsel på Svalbard, 2002). Turistforskriften (1991) can be described as short and open to interpretation and it presents little

or no need for a documented safety management system. §6 reads “*Tour operators and research and educational institutions that take participants out into the field must have sufficient and relevant knowledge, competence and experience adapted to the individual field or tour arrangement*” (Turistforskriften, 1991, §6 .)

The ambiguity in the current law has recently started the process of suggesting a new regulation for safety in field on Svalbard (Justis-og-Beredskapsdepartementet, 2021). A suggestion was sent out to consultation in 2022 and is currently under review. This is expected to be implemented during the next two years.

1.4 Previous Research

Safety is a well-researched topic that has gotten a lot of attention since the industrial revolution. The theory has developed from considering accidents an act of God, to today’s view where human and organizational factors are a focus (Reason, 1997). Safety within adventure tourism, however, is not a well-researched topic, despite increasing interest in the field over the last years. The traditional view of safety within Norwegian outdoor education has been to focus on the guides’ individual knowledge to manage safety (Røkenes & Andersen, 2019), whereas safety theory to a higher degree focuses on organizational factors to manage safety (Reason, 1997). Although both approaches utilize some similar tools, the terminology is quite different. In addition, we can see that the traditional Norwegian outdoor education would combine Cohen (1985) the basic functions of a guide (pathfinder and safety responsible) with elements from educator, facilitator, mediator, host, psychologist, and ambassador for the environment to ensure the guests get the best experience (Andersen & Rolland, 2016; Christie & Mason, 2003; Pond, 1993). One example of this could be a “ferdråd” which is a meeting between guides and guests where the plan for the trip, protentional hazards, and expectations are discussed. Although it is explicitly mentioned this ferdråd contains elements of i.e., risk analysis, safe job analysis.

Viewed from a safety science perspective it has been documented that adventure tourism creates a paradox where the removal of all risk will make the activity less desirable (Coxon et al., 2008). Similarly, Røkenes and Andersen (2019) say that the risk is a part of the activity and needs to be controlled, reduced, or accepted. Morgan and Fluker (2006) confirm this from the guest’s point of view and argue for the importance of balancing risk and thrill, and that they value safety, especially related to equipment and the guides’ knowledge. Because of this

balance Morgan and Dimmock (2006) argue that safety management is necessary in adventure tourism. Røkenes and Andersen (2019) share that opinion and argue for its necessity also considering the cross pressure that the guides experience from the guests as well as the company.

To improve safety management in adventure tourism Røkenes and Andersen (2019) have developed a handbook for safety management in collaboration with companies in the industry. In the handbook they argue that due to the complexity of the operations the company should emphasize the guide's competence rather than a rule-based system, to facilitate the guide's ability to make optimal operational decisions. It is because the work environment is so complex, that rules and routines never will cover all scenarios, leaving the possibility that the guides do bad decisions because they must follow company routines (Andersen & Einang, 2015).

Røkenes and Andersen (2019)'s handbook mentions reporting of accidents and near misses as a part of safety management because it is thought to facilitate learning, and to potentially avoid accidents by addressing unsafe conditions. Bentley et al. (2010) found that reporting and accident investigation was not utilized as source of experience feedback among companies in Queensland. Similarly, Page et al. (2005)'s study on adventure tourism in Scotland found that near misses were underreported and that some companies were lacking both economics and competence to do so. Bentley et al. (2010) argue that high turnover leads to a loss of knowledge and a lack of familiarity with the company's safety management. Both Rantala and Valkonen (2011) and Indreiten et al. (2018) found that information and knowledge relevant for a company's safety management were shared through informal platforms, like between coworkers as a part of day-to-day conversations. This was central for the safety management for some companies operating in Finland and Svalbard.

From other industries where small companies are common (i.e., farming, fishing) we find similarities to the issues mentioned above. In smaller companies, Hasle and Limborg (2006) often found the owners themselves to be the driving force, and changes, values and prioritization were a result of their attitude. Similarly, Sinclair and Cunningham (2014) found that the owner's perception and motivation strongly affected the company's attention to safety. They found that conflicting objectives (i.e., time, cost) often where the reason safety would not be a priority. This means that the company's resources and economy could affect their safety focus (Micheli & Cagno, 2010). It was also found that smaller companies often had an informal

approach to safety management and mostly focused on continuous improvement (fixing problems as they arise).

1.5 Research Topic

Based on the information from previous research and the specific challenges that apply for Svalbard, we have seen that gathering knowledge through reporting could benefit the companies. In addition, there are few and ambiguous laws governing the industry. There is also little information available describing how companies in Svalbard approach safety management or reporting. This study will seek to document how reporting is used to increase the knowledge in tourism companies. To do this the main research topic has been formulated as:

How is reporting used to increase the knowledge of safety in companies operating guided snowmobile tours on Svalbard?

To provide an answer to this main question there has been formulated two research questions:

RQ1: What reporting systems are established to gather safety information from guides?

This question will investigate what type of incidents happen on guided snowmobile trips, and the different systems that are being used by companies to report. Reporting is a cornerstone in safety management and is a valuable tool to gather information that can lead to learning and improving current safety management systems (Reason, 1997). Both formal and informal systems will be of interest, and it is expected to be a combination of systems within a single company serving different purposes. This study will also identify the limits of reporting, which is relevant to understand what type of information is gathered.

RQ2: How do companies use information from reporting to improve safety?

This question will investigate the different learning processes, if any, that occur based on the information gathered by the reporting systems. This can be individual learning, organizational learning, or a combination of the two. Secondly, the study will document how this new knowledge is used within the company to improve their safety management, through risk analysis, new routines, or changes in their existing safety management systems.

1.6 Structure of the Study

In this first chapter I have described the background, context, and previous research associated with the research questions. The second chapter will contain the theoretical framework, which

will be the foundation for the discussion. The third chapter will focus on the methodology before the fourth chapter will present the empirical data. In the fifth chapter this data will be discussed based on the theoretical framework given in chapter two. The last chapter will present the conclusions giving an answer to the research questions.

1.7 Limitations

The tourism industry on Svalbard is large and complex with 130 tour operators working within adventure tourism (Øian & Kaltenborn, 2020). To be able to compare the companies that are participating in this study, it was decided to focus on companies operating guided snowmobile tours in Longyearbyen, Svalbard. This is due to the differences in regulations for land- and sea-based tours, and the differences in the activities themselves between companies working with motorized vehicles (snowmobiles), animals (dog sledding) or other activities (ice climbing, skiing). This study has only focused on established companies (with some years of experience) operating tours throughout the year in Longyearbyen.

2 Theory

This chapter will present the analytical framework used to answer the research questions in this study. The chapter will firstly introduce safety management and different reporting and communication channels used to share information. Followingly organizational learning will be described, both in terms of different learning processes but also common categorizations. Lastly, rule development models will be presented.

2.1 Safety Management Systems

Reason (1997) argued that safety simply is the absence of negative events. When discussing safety, one often discusses the risk involved in an activity. Aven (2004) defines risk as the combination of the probability or frequency of an incident, and the consequences of it. Following this definition, one could affect safety by influencing the event's probability or its consequences. A common categorization is to separate individual and organizational safety (Grote, 2012). This study will focus on organizational safety. Aven (2004, p. 67) defines safety management as "*all measures taken to achieve, maintain and further develop a level of safety in accordance with defined objectives*". A company operating in adventure tourism will always need to balance risks and experiences, and safety management is a useful tool to keep this balance (Aven, 2004; Kjellén & Albrechtsen, 2017). Providing training, rules, operating procedures, and preparedness would be a common approach to prevent incidents (Santana, 2004). Due to factors like high turnover and changing operational conditions, collecting experience feedback from the sharp end (operational level) will be necessary to gather up-to-date information, and thereby facilitate learning and continuous improvement. Kjellén and Albrechtsen (2017) explain this process by Demings' cycle (figure 1), where improvement and learning are achieved by a continuous process of planning, doing, evaluating, and correcting. To use this new knowledge to improve the safety management it is important to formalize this through creating or updating relevant procedures and manuals (Hale & Borys, 2013a; Kjellén & Albrechtsen, 2017). It is also important to stress that learning and experience knowledge could be collected from both negative and positive incidents (Hollnagel, 2018) and from external experts or companies (Ferjencik, 2020).

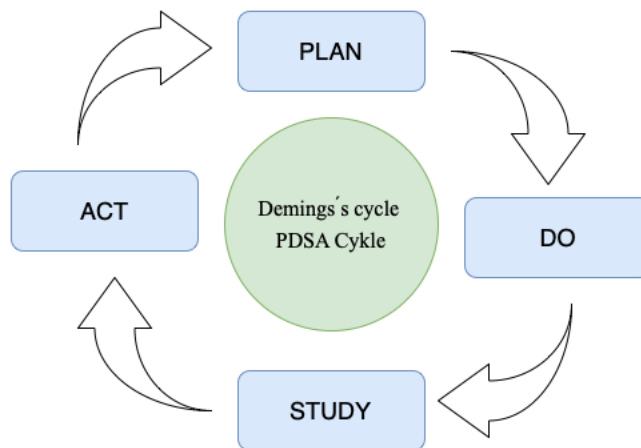


Figure 1 Demings's cycle as described by (Kjellén & Albrechtsen, 2017)

Organizations will have different resources available for safety management depending on the size of the organization and the company's economic situation (Rasmussen & Svedung, 2000). Common components of a safety management system are guidelines, procedures, routines, training, nonconformance reporting and accident investigation (Grote, 2012). Organizations can have a very structured formal approach or a more informal approach to safety management (Harms-Ringdahl, 2004). As mentioned in the introduction, mainland Norway has laws which set a minimum standard for safety management in tourist companies, which are not valid on Svalbard.

A successful safety management system is reliant on a system for collecting, storing, analyzing, and distributing relevant information within a company that could prove useful for future decision making, assuming that accidents are avoidable through systematic experience feedback (Kjellén & Albrechtsen, 2017). Such a system would be called a safety information system. The process of gathering and using the information is complex and takes both informal settings like socialization between coworkers, and formal settings into account, for example the documentation of accident investigations, near miss reports and others. This form of experience feedback is a necessary part of the information flow that will facilitate organizational learning and improve the safety rules and procedures (Kjellén & Albrechtsen, 2017). Figure 2 below illustrates how a safety information system works in a production system. Experience feedback is collected from the process. This information gets processed together with previous information and is stored. This information is then shared with the decision makers, who then

again influence the production system. This gives a circular information flow, which continuously collects, processes, and distributes information.

Safety information system

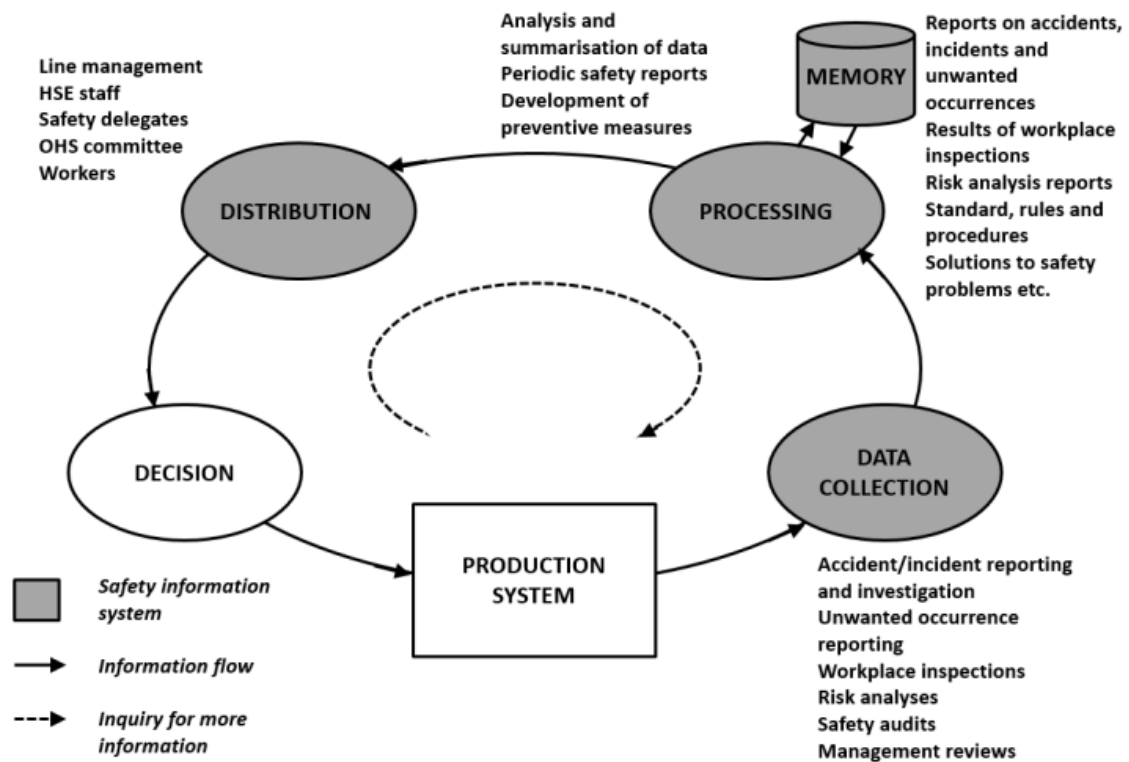


Figure 2 Safety information system (Kjellén & Albrechtsen, 2017)

Reporting is an important part of any safety information system (Kjellén & Albrechtsen, 2017). Flemons and McRae (2012, p. 1) describe reporting as “*an activity where information is shared with appropriate responsible individuals or organizations for the purpose of system improvement*”. Using this definition this study is not limited to written formal reports, but it also considers information shared in less formal settings like for example during the morning coffee (Indreiten et al., 2018).

By reporting incidents or near misses one could increase the chance that unsafe acts or unsafe conditions will be discovered before an accident occurs (Kjellén & Albrechtsen, 2017; Reason, 1997). Heinrich (1959) explained this with the iceberg theory (figure 3) which states that for

every major accident there will be increasingly more small accidents, incidents, and unsafe conditions/practices. By reporting near misses or unsafe conditions/practices companies generate input for their safety information systems that could lead to measures being implemented before a major accident occurs, thus avoiding the accident completely.

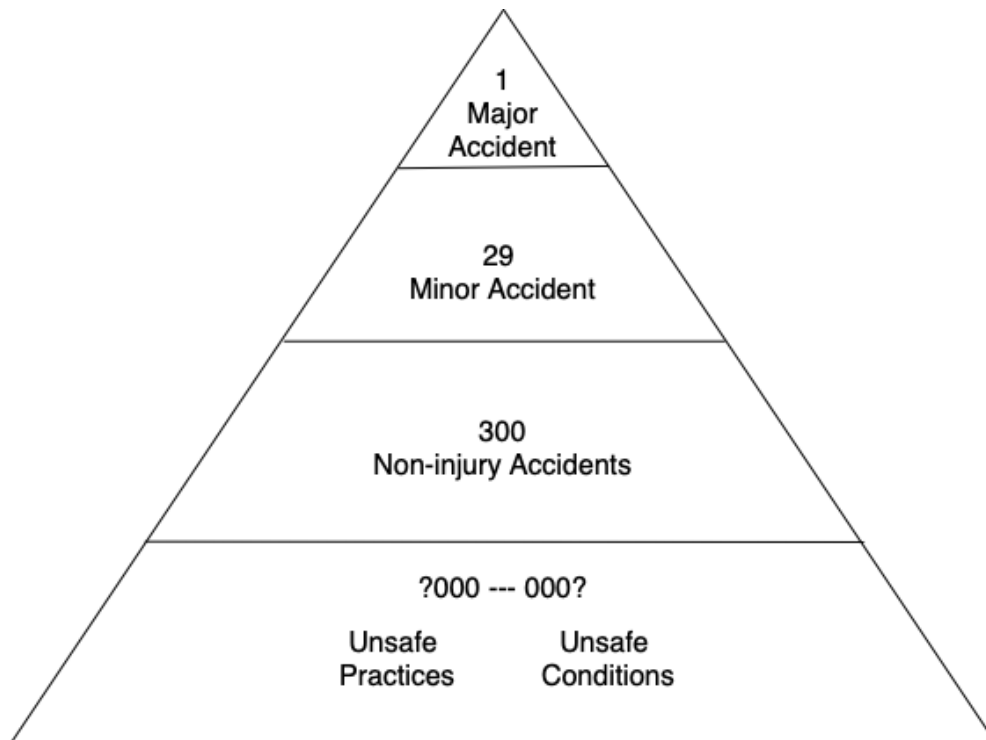


Figure 3 Iceberg Theory (Adapted from: Heinrich, 1959)

Reporting together with accident investigation could also facilitate both individual and organizational learning, this will be explained further in chapter 2.2 (Grote, 2012; Nonaka & Takeuchi, 1995). Kjellén and Albrechtsen (2017) argues that near misses will in a better way facilitate learning compared to accident investigation since there is less emotional connection and less self-protecting behavior.

When discussing the willingness and motivation for reporting one will come across the term reporting culture. Reason (1997) explains that it can be hard to get employees to report because people do not like to report their own errors, they are afraid of disciplinary actions, and they do not see the value created by reporting. If possible, Dekker (2016) suggests anonymizing the reports, making the process of reporting easy and available, creating feedback mechanisms, and showing that reporting leads to results. If the employees are willing to report their own mistakes Reason (1997) would classify it as a reporting culture. Another common classification from

Reason (1997) is a learning culture. In a learning culture there is willingness and competence to draw right conclusions based on the information in the reports and implement changes if needed. For the company it is favorable to promote a good reporting culture, which is believed to improve the quality and quantity of the reports and thereby the amount and quality of the experience knowledge.

2.1.1 Distribution of safety information

Experience feedback is an important mechanism to improve safety in an organization (Kjellén & Albrechtsen, 2017). Information from the guides about current conditions in the field is an invaluable part of the company's safety management. Kjellén and Albrechtsen (2017) separate this feedback as in a positive - (goal reached) and a negative - (goal not reached) feedback whereas both can be of value to the company. These terms are closely related to safety-I and safety-II (Hollnagel, 2018) which will be discussed in greater detail in subchapter 2.2.3.

To understand how decision-making and learning happens in an organization one needs to investigate what communication channels are present (Jacobsen & Thorsvik, 2019), and if the experience feedback is distributed from the operational level (i.e., nature guide) to the tactical level (i.e., guide manager, HSE manager). Flin et al. (2013) describe that a combination of channels will be used in a company and that they are categorized as formal and informal communication. Formal communication channels often follow the formal structure or hierarchy of an organization and are officially recognized by the company (Anderson & Narus, 1984; Kjellén & Albrechtsen, 2017). In our case this communication is often explicit knowledge like near miss reports, accident investigations or audits. Informal communication channels are based on the social relationships between the employees (Anderson & Narus, 1984). During a conversation between coworkers that are not specifically used to share work related information, it is common for some relevant information to be shared i.e., with the purpose of entertainment. Both forms of communication channels are believed to be valuable and complement each other (Gilsdorf, 1998).

Flin et al. (2013) claim that the distribution of between operational and tactical level are important, however it needs to lead to decisions or actions to have a positive impact on the company's safety (Aven, 2004; Kjellén & Albrechtsen, 2017), for example, through updated rules and procedures (Hale & Borys, 2013b). A company can have a reactive (wait for information) or a proactive (request information) focus on gathering this information (Provan et al., 2020).

2.2 Organizational Learning

Organizational learning is the process of gathering and using information from various sources, and use this to change the organization's operation for the better (Argyris, 1977; Fiol & Lyles, 1985). Using Demings's cycle we could define this as a combination of study (gather information) and act (use information for improvements) (Kjellén & Albrechtsen, 2017). This process is a corner stone of safety management since it gives the organization a possibility to identify new unsafe conditions and unsafe acts, and uses this information to improve response or avoid incidents (Reason, 1997). In this way organizational learning could be seen as a barrier to prevent accidents. This subchapter will present some theories and categorizations related to organizational learning.

2.2.1 Learning Processes

Levy (1994) differentiates between individual learning and organizational learning as two separate processes. Argyris (1977) argues that organizational learning is a result of individual learning and a process where this individual learning is spread to others in the organization and thereby made collective knowledge. However, individual learning will not necessarily create organizational learning, unless there are systems in place to share, process, and store this information, so it could be used for future decisions (Sommer et al., 2016; Sydnés et al., 2021).

Nonaka and Takeuchi (1995) say that there are four ways that learning could affect the learning for an organization (Figure 4). All these processes involve a transfer or transformation of tacit knowledge (in the human mind i.e., experience, know-how, personal wisdom) and explicit knowledge (documented information i.e., books, documents, reports, memos).

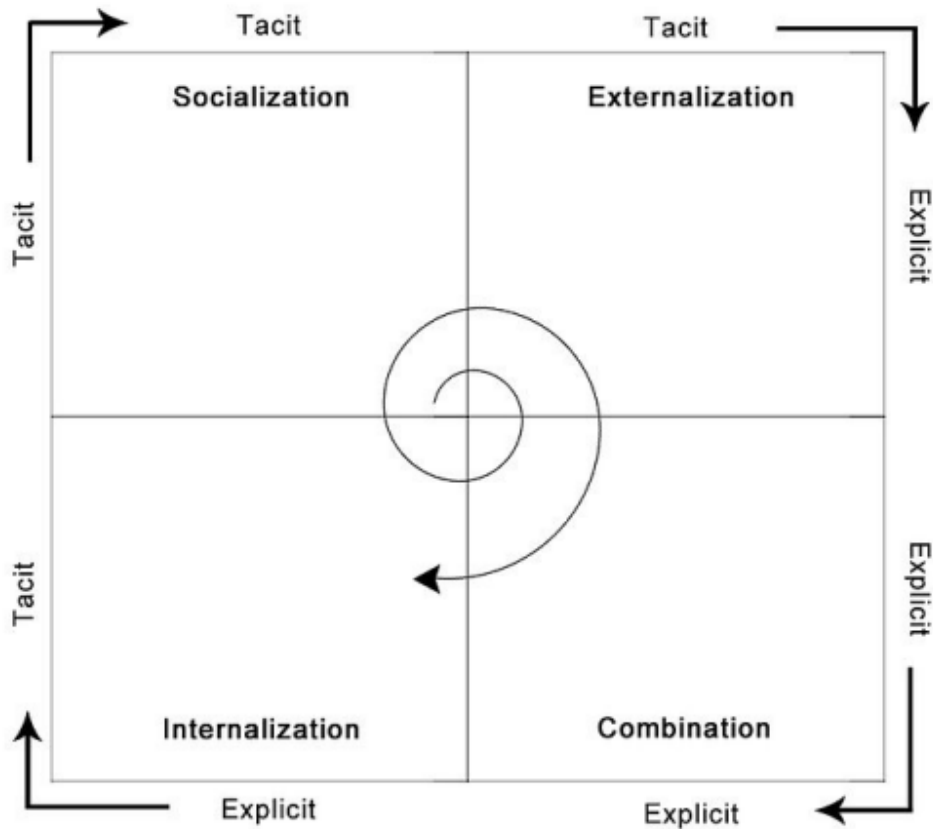


Figure 4 made by Nonaka and Takeuchi (1995) shows four different ways an organization can create learning

Socialization describes processes where tacit knowledge is informally spread to other colleagues without them actively trying to transfer knowledge. One example of this could be chatting between the guides in the morning before trips. In this forum one could easily tell stories from yesterday for the purpose of entertaining without considering learning.

Externalization is the process of turning tacit knowledge into explicit knowledge. Some common examples of this include reporting systems, audits, and accident investigations. This process is important for any safety management systems as it turns tacit knowledge into explicit knowledge. This process makes the information available for storage and processing in a safety information system.

Combination is a process where explicit knowledge from multiple sources is combined through systematic analysis, like the processing and memory in a safety information system as shown in figure 2. This process is important for rule development. One example of this could be when

a company uses information from accident investigations and near miss reports to improve their routines or risk analysis.

Internalization brings explicit knowledge to tacit knowledge, making it possible for the users to use this knowledge. This could be done by sharing routines, training, and exercises. Internalization together with this combination is crucial for rule development in companies.

In this study all these learning processes are of interest. Socialization can show how information is shared within the company. We know from previous research that socialization can happen unintentionally in informal settings and is important for managing safety (Indreiten et al., 2018). Externalization is an important part of a formal reporting system, and will help fill the lack of knowledge and minimize the loss of knowledge due to high turnover (Albrechtsen & Indreiten, 2021; Johannessen, 2022). Combination will be relevant for how the companies use the information they have gathered for continuous improvement of their routines and rules. Lastly, internalization will be important for the companies to make this new information available for the guides.

2.2.2 Single-Loop and Double-Loop Learning

When discussing learning it is common to discuss two types of learning, single-loop, and double-loop learning. Argyris and Schön (1997) distinguish between these two forms:

Single-loop learning is answering the question “how did it happen?” In other words, it addresses the error and corrects it without changing the underlying values (doing the same things better) (Argyris & Schön, 1997). This is the most ordinary form for learning in organizations but despite of being valuable it might not facilitate reflections that are resulting in changes in the organization, neither is it contributing to avoiding future deviations of the same nature (Boin et al., 2017).

Double-loop learning is answering the question “why did this happen?” In other words, it is trying to explain the factors that led to the error to prevent this from happening again, by first addressing the governing values and then the actions (Argyris & Schön, 1997; Argyris, 2002). A visual representation of the two forms is shown in figure 5 below.

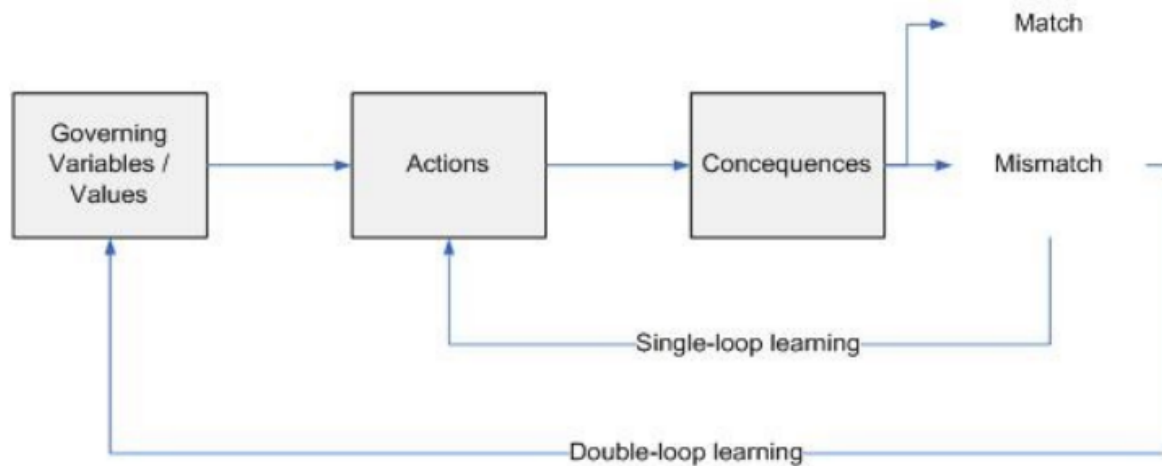


Figure 5 describes the different processes for single- and double-loop learning (Argyris & Schön, 1978).

It is important to stress that these two types of learning are not contrary to each other or mutually exclusive. By applying too much effort and focus on one form of learning one runs the risk of forgoing valuable lessons from the other (Argyris & Schön, 1997). This said, research indicates that single-loop learning is more common in organizations (Argyris, 1977; Pursiainen, 2017), indicating that double-loop learning will need more resources and focus. In our study it will be interesting to see what kind of learning occurs in companies. Due to the ambiguity in the legislation, there is no set standard for companies' safety management systems. This might decrease the potential for double loop learning since this often is a result of a comprehensive investigation. Single loop learning on the other hand is expected since these lessons can be easily found without a comprehensive investigation.

2.2.3 Safety I and Safety II

Hollnagel (2018) presents two categorizations of safety, safety-I and Safety II. Safety-I is regarded as the traditional view of safety, focusing on understanding what goes wrong, accident causation, avoiding errors, and reducing losses. This can be seen as a reactive approach where we mostly learn from our errors. Safety II focuses on understanding what goes right, repeating what goes right, and enforcing successful behaviors. This is regarded as a proactive approach with allow us to learn from our success. Hollnagel (2018) also stresses that these are compatible approaches, and both are desirable for the company. Putting this in the setting of a guided snowmobile trip, one example could be to investigate why a crash happened when parking (safety-I), or to investigate why one guide never experiences crashes while parking a group (safety-II).

2.2.4 Safety Rules and Procedures

Rules and procedures are at the core of any safety management system, especially in high-risk organizations (Grote, 2012). Rule development is an important part of utilizing the new information the company has gotten through organizational learning. Hale and Swuste (1998, p. 165) define a safety rule as, “*a defined state system or a defined way of behaving in response to a predicted situation, established before the event and imposed upon and/or accepted by those operating in the system as a way of improving safety or achieving a required level of safety*”. Rasmussen (1997) explains safety rules as means of maneuvering within or setting borders in a system with cross pressure and in this way establishing a safe zone of operations. These rules can be seen as a barrier to prevent a deviation in the same way as training and certification (Reason, 1997).

It is important to remember that it is the human element and not rules and procedures themselves that improve safety. Dekker (2003) argues that it is important for the companies to monitor the gap between rules and practice and adjust the rules where it is needed. Rules and procedures should be dynamic, meaning they need to be monitored and altered based on the new information the company gets from the experience feedback (Dekker, 2003; Hale & Borys, 2013a; Kjellén & Albrechtsen, 2017).

Dekker (2003) distinguishes between two models describing this process, where Model 1 will adjust the reality to the rules, whereas Model 2 will adjust the rules to the reality. For example, if the employees break certain routines daily, Model 2 would say that we need to change the rule, while Model 1 would say that we need to change the behavior of the employees. Model 1 can also be described as a top-down approach where rules are developed on a tactical level and imposed on the workers. Model 2 can be described as a bottom-up approach where the employees’ knowledge and experience are used to develop the safety management systems (Hale & Borys, 2013a, 2013b).

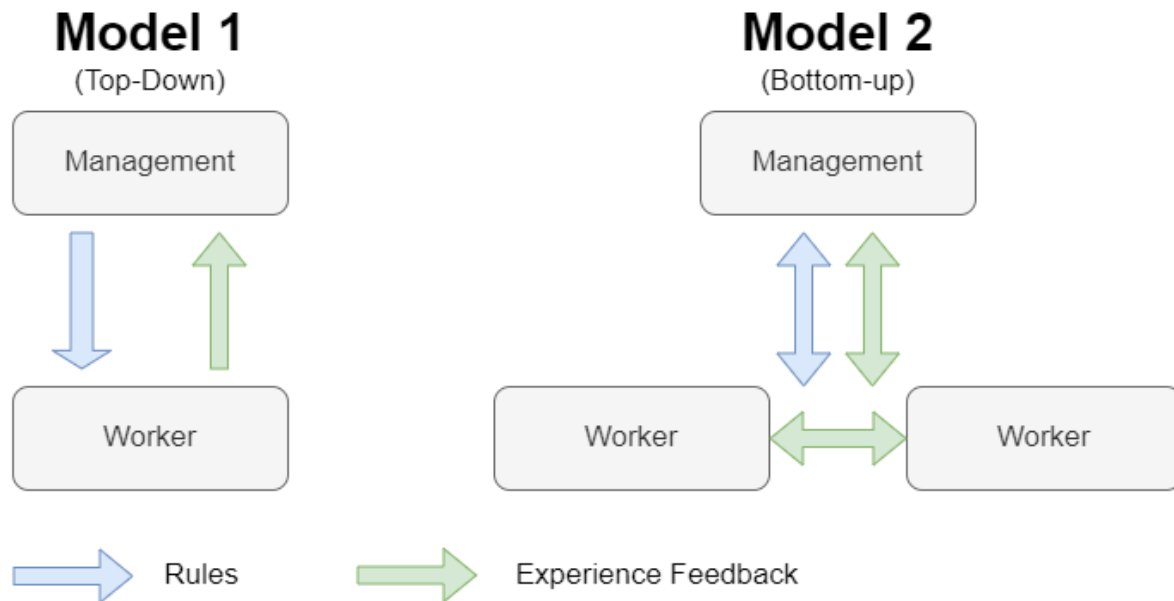


Figure 6 Models for rule development, based on (Hale & Borys, 2013a, 2013b)

In figure 6, Model 1 is presented in a circle where the management develops a rule and imposes it on the workers. Since this rule is considered as optimal, the only response can be deviations from that rule (Hale & Borys, 2013a). The model has been criticized for ignoring signals of failure due to its assumption that the rule is optimal (Provan et al., 2020). In Model 2 the process of rule development can be seen as a continuous process that is involving both the management and the workers and where feedback is used (Hale & Borys, 2013a). This model is considered more dynamic.

2.3 Analytical Implications

This chapter have presented the analytical framework that will be used to discuss the empirical data and to answer the research topic of this study:

How is reporting used to increase the knowledge of safety in companies operating guided snowmobile tours on Svalbard?

By using Reason (1997) and Kjellén and Albrechtsen (2017) as a basis I hope to find some relevant data about the companies reporting systems and how reporting utilized to improve the safety. To do this I will use Flemons and McRae (2012)'s definition of reporting systems and Anderson and Narus (1984) distinction between formal and informal systems to classify the

reporting systems. Further I will utilize Nonaka and Takeuchi (1995)'s model for organizational learning to describe the learning processes I identify. To classify the learning processes I will also utilize Argyris and Schön (1997)'s definition of single-loop and double-loop learning and Hollnagel (2018)'s theory describing safety-I and safety-II. At the end, I will use Hale and Borys (2013a) to describe how the lessons learned are implemented in developing new rules and routines.

3 Method

This chapter will describe the methodical choices and evaluate some of the limitations and strengths of these choices. Further, the data sources and analysis will be addressed, before ending the chapter by discussing the validity, reliability, and ethical considerations.

3.1 Research strategy

When choosing a method for this study, it is important to choose the method that best describes the research questions (Seale, 1999; Tjora, 2016). There are two main approaches to choose between - qualitative and quantitative. In short terms, quantitative research focuses on assigning values and using these values in statistical analysis, whereas qualitative research focuses on meaning, opinions and understanding the participants' perspectives which cannot be measured quantifiably (Dalland, 2017). Since the study seeks to document and create a deeper understanding of how companies in the tourism industry use reporting for learning, an explorative qualitative method was chosen (Bell et al., 2019; Tjora, 2017). In this study the goal is not to generalize for the population but to create and document knowledge, which supports a qualitative method. By using this method one can collect in-depth information from a few informants, which is well suited for the timeframe and the amount of previous research done on this topic (Brinkmann & Tanggaard, 2012; Johannessen & Christoffersen, 2016).

Yin (2017) states that a case study is a well-suited empirical method for answering questions starting with why or how, and well used in studies that seek to describe teams, organizations, or businesses. This fits well with the research questions and gives the opportunity to understand the industry and the informants' perception. One must also consider the limitations of a case study Yin (2017). To generalize these results for the rest of the industry is not a goal of this study.

3.2 Data Collection

Primary data is defined as data collected from informants who answered the research questions through their perception and thoughts on the subject (Ritchie et al., 2013). The primary data for this study was collected by performing in person qualitative interviews (n = 10). In the following subchapters I will describe how the informants were selected and provide some information on the companies and informants participating in this study.

3.2.1 Selection of Informants

The research question limits the selection of informants for this study to employees in companies operating guided snowmobile tours in Svalbard. To best triangulate the data, I chose to interview a minimum of two informants from different hierarchical levels within the company (Johannessen & Christoffersen, 2016; Tjora, 2017). The two different hierarchical levels used in this study were the tactical level (i.e., QHSE manager, guide manager) and the operational level (Nature Guide). This means that a strategic selection was made to recruit informants that have qualifications and characteristics relevant for answering the research questions (Thagaard, 2018; Yin, 2017). The selection process started by identifying companies doing similar activities (guided snowmobile tours) but varying in their size to best represent the industry in Longyearbyen. Using my knowledge, I identified relevant companies and found informants within the companies that had relevant information for the study (Yin, 2017). I tried to the extent possible not to use informants that I knew well, but this is challenging and not always possible in a small community like Longyearbyen. During the interviews, the informants called my attention to other relevant people worth interviewing, an effect which is called the snowball method (Tjora, 2017). According to Brinkmann and Tanggaard (2012) This is a good method for collecting informants if one makes sure that the recruitment does not happen from one network only. This effect was naturally counteracted by recruiting from different companies.

Thagaard (2018) describes a phenomenon where one, after conducting enough interviews, reaches a point of saturation. At this point, little or no added information is gained by conducting more interviews. This phenomenon was not observed in this study due to the selection of different hierarchical levels in different companies. Although some of the statements made by informants of the same hierarchical level and company were similar, there were some different nuances. Still, I would argue that the data collected is relevant for answering the research question.

The informants were coded by using two letters and one number. The first letter corresponds to the companies, making it possible to compare the data gathered from people within the same organization. The second letter is an indication of the hierarchical level. M is used for a manager at the tactical level, and G is used for a guide at the operational level. The number is used to separate people within the same company and level. i.e., informant AG2 would be informant number two in company A working as a guide (operational level).

3.2.2 Companies and Respondents

There are 4 different companies who have participated in this study. From each company there is a minimum of one manager and one guide. The companies were given a size classification based on the number of full-time employed guides during the winter season. The classifications can be seen in table 1 below.

Table 1 Classification of company size based on number of guides

Company Size	Number of fully employed guides
Small	<5
Medium	5-7
Large	7<

The classifications from table 1 were then applied to the companies in this study, and the results can be seen in table 2. Table 2 also contains information about the company's main operational focus, information that I got from the empirical data. All companies in this study are focusing on snowmobile trips, however there are some differences in the length of the trips. Some companies focus on day trips. A daytrip is defined as a trip where guests are picked up from the hotel in the morning and returned the same day. Multiday trips are defined as trips that contain one or more nights in the field. All companies will, to some degree, have a combination of these. However, their focus is presented in table 2.

Table 2 contains information about the companies' relative size and the focus of their trips

Company	Size	Trip Description
A	Medium	Multiday trips
B	Small	Multiday trips
C	Large	Daytrips
D	Small	Multiday trips

In total, this study has 10 respondents. Table 3 contains a list of the respondents together with their work title and some information about their education and experience as a nature guide. Their experience is not limited to Svalbard, but also contains years of experience from guiding in other Arctic or high mountain areas (i.e., Alps, Pyrenees, Greenland)

Table 3 contains all respondents, and some information on their job, education, and experience

Respondent	Hierarchical level	Education / experience
AG1	Operational (Guide)	Bachelor Arktisk Friluftsliv og Naturguiding* 1-5 years of work experience
AG2	Operational (Guide)	Arctic Nature Guide** 1-5 years of work experience
AM1	Tactical (manager)	Background from emergency preparedness 1-5 years of work experience
BG1	Operational (Guide)	Arctic Nature Guide** 5+ Years work experience
BM1	Tactical (manager)	Arctic Nature Guide** 5+ work experience
CG1	Operational (Guide)	Bachelor Arktisk Friluftsliv og Naturguiding* 1-5 year of work experience
CG2	Operational (Guide)	Arctic Nature Guide** 1-5 years of work experience
CM1	Tactical (manager)	5+ years of experience
DG1	Operational (Guide)	Arctic Nature Guide** 1-5 years of work experience
DM1	Tactical (manager)	Svalbard Guide Oppl�ring*** 5+ years of work experience

* Bachelor Arktisk Friluftsliv, three-year program (180 ECTS) from UiT (UiT, 2022b).

** Arctic Nature Guide, one year program (60 ECTS) from UiT (UiT, 2022a).

*** SvalbardGuideOppl ring, 10-day course given by Visit Svalbard (VisitSvalbard, 2022b).

3.2.3 The Qualitative Interview

Conducting qualitative interviews creates data from the interviewee's experiences and perceptions that otherwise would be hard to gain considering the small number of documents available on the topic (Brinkmann & Tanggaard, 2012; Thagaard, 2018). There are several types of qualitative interviews, with varying degrees of structure. In this study it was chosen to use a semi-structured interview. This choice was made to combine the possibility of structuring the interview and at the same time ensuring answers to the questions, with giving the informants some freedom which may increase the chance of getting to information that I had not considered

(Kvale & Brinkmann, 2015). This proved to be a viable choice to get information on all the different approaches to reporting systems.

Before conducting the interview, an interview guide was developed to ensure I would get answers on the topics that were of interest. While preparing the interview guide, I quickly realized that I was interested in different information from the different hierarchical levels. This resulted in two interview guides being developed, one for the tactical level and one for the operational level. When conducting the interviews, I started the session by explaining my project and going through the formalities regarding anonymization, the right to withdraw and the recording of the session. A recorder was used so that I could focus on the interview and not on taking notes as described by Tjora (2017). Most interviews were conducted face to face, and one over Skype due to practical reasons.

3.3 Analysis

Brinkmann and Tanggaard (2012) describe the analytical process as a combination of breaking down (analyze) and rebuilding (synthesize) the data material. During the process, I thought I may be biased due to my knowledge of the tourism industry and that this might affect my interpretation and understanding of the answers given by the informants. Despite this I am confident that the method describes the phenomenon in a nuanced manner. In this process I would also argue that my knowledge of the tourism business could be used as a source of insight rather than error (Aguiler, 1981).

The recordings from the interviews were transcribed. Transcribing was a lengthy process but made me familiar with the data material. While transcribing I also noticed some similarities, patterns and interesting points that were noted down for the coding phase.

The transcribed documents were transferred to the program NVivo where the coding was conducted. This was done using a constant comparative method as described by Glaser and Strauss (1967) during which the transcripts were broken down and reconnected to form new categories (open, axial, and selective coding). I started by coding the interviews based on some interesting topics and the interview guide (Thagaard, 2018). After this, I condensed the data material through what Bell et al. (2019) describe as re-coding, comparing, and consolidating, and re-grouping the codes to generate concepts. In this way I got the data down to a manageable level.

3.4 Quality of Research

In this subchapter I will discuss the reliability and validity of this study being the primary criteria for assessing trustworthiness and authenticity (Bell et al., 2019). Furthermore, I will discuss preconceptions and ethical considerations.

3.4.1 Validity

To measure the study's validity, we must evaluate the results and conclusion (Thagaard, 2018). According to Seale (1999) one could differentiate between internal and external validity. Internal validity measures if the study answers the research questions and whether the conclusions are correct (Johannessen & Christoffersen, 2016). To improve the internal validity, I chose to use multiple respondents from multiple companies to better represent the industry and not one subgroup or one single company only. External validity measures if the study is transferable or could be generalized and used in other settings or groups (Thagaard, 2018). Because of the sample size, methodological choices, and the limited geographical area, one should be careful to generalize based on the results of this study.

I have earlier in this study mentioned my background as an Arctic Nature Guide. This background will on one hand mean that I easily could relate to the informants' situation, while on the other than it could make it harder to notice nuances different from my own experience (Thagaard, 2018). This will be further discussed in subchapter 3.4.3 Preconceptions.

3.4.2 Reliability

Reliability is described by Thagaard (2018) as an indicator for whether another researcher could repeat the study and get the same or comparable results. This means that both the data collection methods and the analytical process are important for the reliability, even though one could argue that it will be difficult because of changes in the informants' perceptions happening over time (Johannessen & Christoffersen, 2016).

To increase this study's reliability, I have focused on being as transparent as possible about my background, and how that might have affected the informants or the data analysis. I have also been as transparent as possible about the methodical choices I made in this study to make it easier to replicate.

Another factor influencing the reliability is what Jacobsen (2005) describes as the interview effect, which is describing how you as an interviewer influence the informant or interpret the answers. The interviewer himself can be seen as an instrument for data collection, which would

be hard to re-create exactly (Johannessen & Christoffersen, 2016). This effect might be noticeable in this study, despite my best efforts to mitigate it, because of my background as a Nature guide and Guide manager (further details in subchapter 3.4.3). I am convinced that my background also contributed to finding relevant respondents who wanted to participate in the study as well as minimizing exaggerating or lying since they knew that this might be noticed easily.

3.4.3 Preconceptions

I have previously mentioned my background in the tourism industry and some implications this might have on the data collection and analysis. In this subsection I will give some considerations on how this might have affected the study.

My background from the industry has been a clear motivation and inspiration for choosing this subject for my study. I have been working as a guide and guide manager for the last 8 years and have also completed the one-year program for becoming a certified Arctic nature guide. Dalland (2017) describes how a researcher should approach a subject without any preconceptions. I think this would be impossible even though I am not working as a nature guide now. It is hard to put my knowledge and experience completely to the side. I would argue that this background could be seen as a relevant foundation for understanding the different perspectives which again could be seen as an advantage if greater competence and knowledge is the result. However, I am aware that it may also shape my research (Aguiler, 1981; Dalland, 2017).

Studying a subject where you are an insider yourself may also provide some other advantages. Firstly, I had an easier time relating to my subject (Bell et al., 2019), making it possible to ask more meaningful questions and thereby get a more accurate understanding of the phenomenon. I also noticed the use of terminology quite specific for the industry. Secondly, I had a network that put me in contact with informants that indeed were happy to contribute to the study and help me out. This enabled an open and honest dialogue during the interview. On the other hand, it is described by Greene (2014) that this could affect the study negatively as it is easy to make assumptions, also called the researcher bias. On this matter, Aguiler (1981) describes the possibility of missing information and nuances due to preconceptions. Because of this well-known effect it became an important focus of mine to actively consider the researcher bias throughout the work in this study. Although I think I have done what I can to counteract my preconceptions and to stay neutral, I want to advise the reader to keep my background in their mind.

3.4.4 Ethical Considerations

When conducting research, it is important to make sure that this is done in a way that ensures that there are no adverse effects for the people and companies involved (Johannessen & Christoffersen, 2016). This is ensured by strictly adhering to the ethical guidelines (Thagaard, 2018). Jacobsen (2005) argues that there are three main principles that need to be fulfilled: informed consent, keeping data anonymous, and correct citations. This study was approved by NSD, and their guidelines were followed throughout the project. In this study written consent has been given by all informants. The data has been kept anonymous, although this has proven to be challenging in a small community. To handle this, I had to accept the loss of some data because it could be used to identify my informants. All recordings and the transcribed interviews have been stored on an encrypted server belonging to the university. Citations have also proven to be a challenge due to the interview being conducted in multiple languages. Citations have all been translated to English, with an effort made to keep their message as close to the original language as possible.

4 Empirical Findings

This chapter will present the empirical findings based on information collected from the respondents during interviews. Each chapter is divided into multiple subchapters, most of them will consist of a presentation of the relevant empirical data and a summary where the chapter is condensed to its main messages. Firstly, I will provide data on the different types of incidents that are common during a guided snowmobile tour. Following this, I will display the data showing how the companies use reporting, and where they put their limit for reporting. Thereupon I will provide the data showing the companies' reporting goals and the communication channels they use. Lastly, I will present the data associated with how the companies and guides learn from reporting and how this knowledge is used to improve the safety management system.

This chapter contains quotations from the respondents. All quotations from respondents who chose to be interviewed in Norwegian have been translated to English.

4.1 Incidents on Guided Snowmobile Trips

Aven (2004) defines safety management as *“all measures taken to achieve, maintain and further develop a level of safety in accordance with defined objectives”* (Aven, 2004, p. 67). Adventure tourism is a paradox, since one cannot remove all the risk without making the activity less desirable (Coxon et al., 2008). Because the risk is part of the activity, it needs to be controlled, reduced, or accepted (Røkenes & Andersen, 2019). This is in accordance with what Karlsen (2022) describes as balancing risk and guests' experience. The companies that participated in this study all have their focus on snowmobile trips, even though there are some differences as shown in table 2. Driving a vehicle like a snowmobile will always come with some risks and despite the companies' best efforts to mitigate these risks through training, instruction, procedures and routines, there will always be a residual risk and accidents will happen. To better understand how the different companies utilize reporting, it is important to understand what types of incidents commonly happen on their guided snowmobile trips.

There are many incidents that could occur on snowmobile trips. The combined answers from the respondents can be categorized as driver-related problems, external factors, and environmental factors. Driver-related problems are a result of the driver losing control of the snowmobile, leading to a collision or a flipped snowmobile. These incidents can be seen as a high potential incident that easily could lead to damage to the snowmobile or injuries to a

person. External factors describe incidents where an external force (i.e., glacier calving, avalanche) causes an incident. Environmental factors describe damage or injuries related to harsh weather conditions like frostbite and hypothermia.

Based on the respondents it seems like some incidents have a higher probability of happening. All respondents mention a flipped snowmobile or low impact collisions during parking as the most common incidents (AG1, AG2, AM1, BG1, BM1, CG1, CG2, CM1, DM1, DG1). Respondent BG1 describes experiencing “*Mostly flips on scooters. Somebody drives into somebody else*” while on guided trips. These incidents can be considered high potential incidents where damage or injury is lightly, even though some respondents mention that there is no damage or injury due to the snow absorbing the shock (AG1, AG2, CG2).

4.2 Reporting Systems

Now that we have established the types of accidents that typically occur according to the respondents, we will take a closer look at the data regarding the reporting processes. Reporting is an important part of the safety management system, and facilitates for the documentation, use, and increased availability of experience knowledge gathered by the guides in the sharp end of the operation (Kjellén & Albrechtsen, 2017). This information could provide a valuable insight which again could contribute to safer trips in the future if unsafe acts or unsafe conditions are identified before the accident occurs (Kjellén & Albrechtsen, 2017; Reason, 1997).

All respondents from company A describe an electronic form used in a browser or an app. This form contains multiple questions and options and is created to identify trends over time. “*This online form which was long actually. You had to answer quite detailed questions*” (AG2). Both AG2 and AM1 say that they during the season have been transitioning from a paper form to an online solution. Company C currently has two systems for reporting, one on paper and one online (CG1, CG2, CM1). The paper form has been used over some years now, and they have started investigating a digital solution. CM1 says the online form is not yet capable of being customized to fully replace the paper form. CG1 describes the paper form being the main documentation for analysis after the season ends, and the electronic one being used to easier notice trends already during the season. This is supported by CM1 who explains that there is a lot more information in the paper forms for overall trends, whereas the online form makes it easier to pick up and adjust for minor changes of conditions in the field.

Respondent BM1 explains that company B does not have a formal system, but “*We reported in the sense that if something is broken on either a person or a snowmobile or something else that needs to be discussed*”. This is initiated in a WhatsApp (communication app) message that the core staff of the company can read before it then is discussed face to face. BG1 describes the importance of discussing the incidents with their manager or other experienced guides and calls this a key learning arena. Likewise, company D does not have a written system for reporting incidents but focuses on an oral system where the guide and the manager discuss the scenario and see if they could have done something differently (DM1). “*If something happens, we talk about what happened and try to see if any signs were missed, or if there is something one could have done differently*” (DM1). DM1 also says “*I write a note for myself, just in case there is something from the guest at a later point*” (DM1).

In addition to the reporting of incidents, most of the companies had some form of reporting to share updates on the conditions in the field, a piece of information the next guide can use when planning a trip. This could be a valuable tool considering the harsh and rapidly changing weather conditions described by Albrechtsen and Indreiten (2021), and how this could affect the conditions in the field.

In company C, both CG1 and CG2 describe the information flow between the guides as active. They describe talking about field conditions in the morning before trips, both discussing with co-guides and with the guides who drove the route last time. “*It’s the chat during the morning coffee*” (CM1). This is similar for company B, where the oral information flow is described as good (BG1, BM1). “*You meet nearly every day, so then we talk about everything, like if we got stuck or where we drove or where we’re going to drive and all those things so*” (BG1).

For company A and company D there seems to be less oral communication due to a difference in when the guides start their trips in the morning, making them less likely to meet in the morning. AG1 describes that “*you mostly work alone*” due to starting times and overnight trips there is little communication between guides with regards to conditions or other updates from the field. AG2 describes similarly that there is not a lot of information flow between guides because of the same issues as raised by AG1 but mentions there is some more face-to-face information sharing. This could be related to their experience, that AG2 might be actively seeking information to a higher degree than AG1. Company D is describing the same challenges limiting the possibility for face-to-face interaction. To combat this loss of information company D describes the use of a logbook for information about conditions in the field (DG1, DM1).

This is seen by DG1 as a valuable way of sharing information. *“We have a logbook where they write mostly about the conditions in the field but sometimes also if there is anything else that was out of the ordinary on the trip. This is quite nice to read in the morning, then you feel like you have an updated picture of the conditions in the field”* (DG1). DG1 also says that there is a culture for direct contact if there is something extraordinary. *“Of course, if there are things that can be dangerous for the person doing the trip next, I will talk to them but for small normal things we will not really talk about it, no.”* (DG1).

Company B and company C describe similar solutions to the logbook that company D is using to share information about current conditions in the field. CG2 describes an online group where they share information about the conditions with the whole company. *“Then we have a group for conditions in the field, where people can add pictures and so on”* (CG2). Similarly, BG1 describes a second WhatsApp group where all guides participate. This is used for practical information, especially condition updates. *“Like there is a big meltwater channel and it has not been there before, or snow cornices are falling down in this valley or things like that”* (BG1).

4.2.1 Summary

The data collected from the respondents has shown some similarities and some differences in their approaches to reporting (summarized in table 4). Firstly, some companies have a formal written system (company A and company C) whereas the others have a less formal oral reporting system (company B and company D). In a way, this seems to correspond to the size of the companies with the two smallest ones having an oral- and the two biggest ones having written systems.

Furthermore, there seems to be a focus on delivering updated information about field conditions to the guides working the next days. When the guides start working in the morning, and if they meet, this is a key challenge to share this information. Company B, C and D have created written systems on different platforms to convey these messages to the next guide.

Table 4 Contains a summary of the reporting systems in the different companies

Company	System for Reporting
A	Online Form (incidents)
B	WhatsApp group Core company + oral communication (incidents) WhatsApp group All guides (conditions in field and general information)
C	Online form (incidents, equipment, cars) Paper form (incidents) Online chat (conditions in the field)
D	Oral reporting (incidents or equipment) Logbook (conditions in the field)

4.3 Limit for Reporting

After identifying the different reporting systems, we will now look at the data in terms of the companies' limits for reporting. The limit of reporting will decide what amount and what type of data should be collected (Heinrich, 1959). This will in turn influence the number of unsafe conditions and - practices that will be identified as well as the potential for organizational learning (Kjellén & Albrechtsen, 2017; Reason, 1997).

Company A started the season wanting to report every incident, every near miss, accident routines and all route changes (AM1, AG1, AG2). *"We should report everything, even if we drove another route than planned"* (AG1). Both AG1 and AG2 describe that this was not possible due to the number of reports it led to, and that being without reception for multiple days would make the act of reporting both challenging and time consuming upon return. AM1 says that they ended up with a reporting limit at "tipped snowmobile" after realizing that the original goal of reporting everything was not possible. This is confirmed by AG2 who puts the limit on flips even if they did not lead to injury or damage, and AG1 who reported damages and injuries. Company C used a similar approach and CM1 says that their wish was to report all near misses, but a "tipped snowmobile" was the limit that was possible to report since an almost tip can be more challenging to notice. This is again confirmed by CG1 and CG2 who both say that they report every single snowmobile flip, regardless of the consequences. CG2 also mentions they report other things like equipment issues, and problems with cars, or in the office. DG1 also mentions that similar issues are reported to the manager so they can be fixed.

Company B has a more practical approach to reporting and both respondents say the limit for reporting an incident is if something needs to be done (BM1, BG1). For example, if there is damage to the snowmobile or injury to a person. Company C has the same approach, BG1 describes the limit as follows: *“if it's problems that need to be followed up like a damaged snowmobile or injured guests, I will report it but smaller things like getting stuck or almost tipping we don't really report”* (DG1). DM1 confirms this information, but also mentions that they sometimes have a short informal chat about the trip upon return where things like a snowmobile flip without consequences could be mentioned.

BG1 mentioned a WhatsApp group containing all guides where they share information about *“everything worthwhile mentioning”* (BG1), referring to relevant information from other sources (like Sysselmasteren) and updates on conditions in the field. CG1 and CG2 mention a similar online work-chat where information about conditions in the field is shared. DG1 describes the use of a logbook for the same purpose, particularly sharing relevant information from the field with the guides working the next day.

4.3.1 Summary

The most relevant information from this subchapter has been condensed into table 5. There seems to be two different approaches between the 4 companies where the two companies categorized as small (company B and company D) report incidents with consequences (damage or injury) whereas the medium and large companies (company A and company C) include incidents without consequences. In addition, there is a similarity between company B, C and D, where they all report relevant information from the field to their colleagues. Company C and D both mention reporting problems with equipment.

Table 5 contains a summary of reporting limits for the different companies

Company	Limit for reporting
A	Incident without consequence
B	Incident with consequence Conditions in the field
C	Incident without consequence Conditions in the field Equipment, car, office issues
D	Incident with consequence Conditions in the field Equipment

4.4 Reporting Goals

We have now seen what focus the different companies have in their reporting and how they report relevant information. In this subchapter I will present data describing their goals and motivation for reporting to better understand the perceived value of reporting.

Company B has a practical purpose as their main purpose for reporting (BG1, BM1) is keeping track of broken equipment that needs fixing or injured guests that should be followed up. DM1 also mentions that reporting provides an overview of the incidents that happened in the company. *“For me it is about having an overview of what has happened in the company, especially if there should be guests demanding money back or if insurance companies need any form of documentation”* (DM1). It can be argued that this is valid for all companies even though company A and C have mentioned other main goals.

Company A and company C both mention organizational learning as one of their main goals. CM1 says organizational learning and identifying trends are their main goals for reporting. Similarly, AM1 says that obtaining relevant information is their main goal. *“Main purpose is to identify trends, or repeating incidents. To see if we can fix this by changing the way we work”* (AM1). Both AM1 and CM1 confirm that the information collected will be used for risk analysis and routine updates. CG1 and CG2 mention that the statistics from reporting have been used in guide-seminars to teach new guides in the company, and that they have seen direct effects of reporting (CG2). Both CG1 and CG2 seem positive to reporting because they see. *“If*

we are good at reporting, then the company learns a lot from what is happening” (CG1). In company A, both AG1 and AG2 say they have seen little or no effect of reporting, and AG1 argues that the real reason is to cover the company in case of an insurance claim or any economic consequence. “I believe the reporting is there to cover their backs if there are any claims from insurance companies” (AG1). AG1 continues to argue that “purely in statistical terms, I think there is little information to be found. It is more up to the experience of the guide.”

Company B and company D seem to focus more on individual learning for the guide as a goal for reporting (BG1, BM1, DG1, DM1). Both BG1 and DG1 mention that they are small companies with good internal communication who facilitate individual learning through discussing incidents with their manager - a reflection and a learning that create value. BG1 says, “*You meet nearly every day, so then we talk about everything*” (BG1). DG1 argues that the discussions are good for learning, “*I feel like I learned a lot from discussing, trying to figure out if there are signs, I should have seen earlier, or anything else I could have done to avoid the incident*” (DG1).

4.4.1 Summary

The data from this subchapter is condensed into table 6. Overall, most guides are positive to reporting if they can expect to get something in return as either organizational, individual learning, or other positive effects. Again, it seems like the smaller companies (company B and company D) have a similar goal, which is to keep track of damage and injuries, and to provide learning opportunities for the guides so they can develop and become better. Similarly, the larger companies (company A and company C) seem to focus on a more active use of the reports to create information about trends and challenges that can be used by the company to create safer trips.

Table 6 Shows the different goals and motivational factors in the different company

Company	Goals and Motivational factors
A	- Identifying trends and challenges
B	- Individual learning - Overview of incidents (damages and injuries)
C	- Organizational learning, helping the next guides - Identifying trends and challenges
D	- Individual learning - Overview of incidents (damages and injuries)

4.5 Distribution of safety information

We have now been presented with data about what is being reported, how it is reported and what the goal and motivation for reporting is. This subchapter will present empirical data explaining how the information from reports is handled and further distributed to the guides as a part of the companies' safety information system. This information can be distributed by using a combination of communication channels, either categorized as formal or informal communication (Flin et al., 2013). By investigating these communication channels, we can better understand how learning happens (Jacobsen & Thorsvik, 2019).

Company A and company B use a digital reporting solution based on a report being sent to the HSE (Health, Safety and Environment) responsible, to be evaluated before necessary actions are implemented. AM1 will evaluate if it can be handled in the department or if it needs attention higher up in the company. *“Then I see if this is something I can fix, or if it needs to be taken up higher in the organization, or if it is something that should be handled in the season sum-up”* (AM1). CM1 describes that through their online solution, all guides have a personal user where status updates and feedback will be received. CG1 and CG2 both describe a notification with feedback when it has been handled and seem to be satisfied with the way their reports are handled. AM1 says the guides decide when sending the report if they want feedback or not. AG1 tells the opposite, that feedback is not common in company A. *“You never get any*

feedback, positive or negative” (AG1) and continues to describe a black box scenario where no feedback or statistics are communicated back. “I have filled in the non-conformance form for 4 years now and have never seen any statistics or single feedback related to critical points in the field”.

Company B and company D both use an oral reporting system and seem to combine the process of reporting and evaluation of the report in one conversation (BG1, BM1, DM1, DG1). BG1 says that after the incident, the guide and manager will have a meeting where they discuss the incident together. Unless there are changes that need to be implemented, the subject is considered closed. *“Most of the time when we talk, we discuss how we could have prevented it. If it is a result of poor conditions or similar problems in the field, we might inform the others that do the trip” (DG1).* Similarly, BM1 and BG1 say they will discuss the accident and how it happened, why it happened and, in this way, orally evaluate and try to learn from the incident. BG1 describes that if something needs to be followed up, it will be. Broken snowmobiles, injured guests, broken or missing equipment are a few examples. *“If one scooter is broken, we have to repair it” (BG1).* Both companies B and D say that relevant discoveries from this conversation will be shared with the other guides, for example changes in routines (DM1) or a reminder to focus on routines (BM1). *“We just basically focus again on the relevance of explaining how to approach ice conditions or icy conditions, especially when it's icy conditions” (BM1).*

AM1 describes the communication as good but finds it challenging to have common meetings due to the differences in the working schedules. *“I hope the guides discuss these things together, but this season has been full of overtime work, and that is not when you call people in to a big meeting” (AM1).* AG1 says that communication between the manager and guides is limited to short conversations before the trips due to a lack of meetings. AG1 also points out the challenges to discuss with co-workers due to the differences of starting times. *“At the expedition center you meet very few of your co-workers because you never work at the same time. You mostly work alone.” (AG1).* Company C seems to have an opposite situation where frequent guide meetings are conducted during the season (CG1, CG2). CG2 says that reports are a subject in every meeting, and they get discussed to look for trends. CM1 says the guides communicate and share information with the other guides in the morning, *“mostly during the morning coffee” (CM1).* CM1 also explains the use of a control form they fill in before trips, that the guides use to discuss conditions and weather before picking up the guests. *“They sit together and talk through the form with a cup of coffee” (CM1).* CG1 and CG2 both agree that

it is an open atmosphere, easy to ask colleagues for their opinions, and an open atmosphere in the office.

Company B and company D both describe an open atmosphere like company C. BM1, BG1, DM1 and DG1 all describe communication in the company as good and blame this on their small size (BM1, DM1). DG1 describes effective communication as one where you have all the information you need, *“if there is anything that affects all of us. Like if we decide to not drive a specific route, then everyone will be informed”* (DG1). BG1 similarly says that *“you meet nearly every day”* (BG1) and that they discuss latest information face-to-face *“The daily stuff is more based on a coffee than on a written thing”* (BG1).

Most guides say they will be influenced by information from other guides, and that this sharing is important for them to feel more updated on conditions and confident (AG1, AG2, BG1, CG1, CG2, DG2). AG1, BG1 and DG1 all agree that new information from a colleague would not necessarily stop them from going a specific route but make them more alert when traveling in that area. *“Try to judge it myself again, because maybe they have information I don't have”* (BG1). CG1, CG2 and BG1 also mention the influence of information about new stops, stories, or ways to do things. *“A colleague told me how he made a lunch pit for the guests. I have done that so many times since then”* (CG1).

4.5.1 Summary

The data from this subchapter is condensed into table 7. Again, there are some similarities between the two smaller companies (company B and company D) in the way they handle reports, and how they make the information available for the other employees. The company size is mentioned as a reason for how well this communication works.

Company A and company C have some similarities regarding the handling of reports, but differences in how they share the information with other employees. Regarding this, company C has more communication. One reason could be that they are more gathered in the mornings since they mostly focus on day trips, and actively use meetings as a platform for discussing new knowledge.

Most guides, regardless of the company, seem to agree with being influenced by information from other guides. Information is shared between the guides about hazards and incidents, but also success stories are used as an inspiration for other guides.

Table 7 Contains a summary of report handling and the communication of information in the companies

Company	
A	<p>Reports are read, necessary actions are implemented</p> <p>Limited number of meetings due to workload</p> <p>Limited discussions due to different starting times</p>
B	<p>Discussion between guide and manager to identify causes and solutions. Often informally during morning coffee.</p> <p>Information is shared to other face-to-face or using WhatsApp group</p>
C	<p>Reports are read, necessary actions are implemented, and then the report is considered closed, and the guides receive an update</p> <p>Regular guide meetings are used to share information from reports</p> <p>Field conditions are shared between guides during morning coffee</p>
D	<p>Discussion between guide and manager to identify causes and solutions</p> <p>Information is shared to others face-to-face</p>

4.6 Learning from Reports

In this last subchapter, I will present the data regarding the outcomes the respondents have seen from reporting. These outcomes will include direct effects like new equipment and fixed snowmobiles, but also individual and organizational learning (Levy, 1994) and how this information is used to improve the companies' safety management system through changes in routines and procedures (Dekker, 2003).

Company A will improve the companies' routines and procedures and create new solutions based on the information from the reports (AM1), "*Changing routines, the way we work and the way we think*" (AM1). AG1, however, is skeptical of the value of the information and how it is used. "*I have written reports for the last 4 years and I have never seen statistics or gotten feedback regarding critical points in the field*". AG2 also mentions that there have been little effects from reporting. Company C has opposite results. CM1 explains that their reporting system has created many useful statistics used to change the way they operate. CG1 also mentions an active use of statistics during the guide seminar. CG1 says changes in routines have been made to make trips safer. "*Like changing how we park the groups, or to avoid sharp left turns*" (CG1). DM1 And DG1 both mention that changes in routines will be done because of the conversation between the guide and the manager after an incident. "*We have a guide*

manual so I guess that might be updated if we have learned something, or if a routine needs updating. But most of the time it is the guides that learn something, and the more the guides learn, the better for the company I guess” (DG1).

Some companies (B, C and D) also mention practical outcomes like equipment management. CG2 mentions changes in equipment as a direct effect of reporting. *“I always wanted to have a drill to check the ice thickness and quality... then they said we would get two for next season” (CG2).* DG1 similarly describes, *“if there is something in the field or something we are missing, then he will fix that straightaway. Like if we are missing equipment, or if a trip needs to be re-routed” (DG1).* BM1 mentions that if they agree that changes are needed, they will be implemented and the other guides inform, likewise, if equipment is needed.

Company B differs from the others since they do not have any fixed routines and focus on learning as the main outcome of reporting. BG1 and BM1 both argue that the discussion after an incident is facilitating individual learning and can be considered valuable for the guide. *“Yes, I mean especially after people who are more experienced than I am. I always learn a lot when we talk about these things” (BG1).* Similarly, DG1 says that discussing with the manager provides individual learning and development *“I feel like I learned a lot from discussing, trying to figure out if there were signs that I should have seen earlier, or anything else I could have done to avoid the incident” (DG1).* DM1 also mentions individual learning for the guides as an outcome of their discussions, but also changes to routines if necessary. *“I get feedback that tells me if guides, routines, and equipment is working. Some updated routines, but as I said it is mostly learning for the guides” (DM1).* In company A all respondents agree that reporting is a tool to reflect over an incident to look for reasons or things that could have been handled differently. *“I think that was good, just reflecting a little bit on yourself maybe” (AG2).* This could also be seen as facilitating individual learning. However, AG1 is not convinced that learning is the result of reporting, and argues it comes from being in the situation. *“Gives me experience-based learning. Not so much from the reporting, but from experiencing the situation” (AG1).* In Company C it seems like organizational learning is the main outcome. CG1 and CG2 both say reporting mostly is helpful for the company, and the guides for the next season. They also agree that they get some sort of individual learning from evaluating the incident before filling in the form.

Most companies (A, C and D) welcome their guides to suggest changes based on their experience and new data. Company B, however, explains that they do not have fixed routines

and focus on having experienced guides and giving them the freedom to do things their own way (BM1). CM1 says that new ideas are always welcome in company C. *“We talk about it in the seminar and meetings, if there are any suggestions to changes before the season”* (CM1). CG1 argues that it might mostly be the guides that have stayed in the company over time that help with these. CG2 also agrees that there is an open atmosphere, and ideas are welcome. *“My perception is that the company was very open to new ideas”* (CG2). In Company D, DG1 describes an open atmosphere where suggestions are welcome, especially during the meeting before or after a season. *“We get asked if there is anything in the guide manual we want to change or update”* (DG1). *“It’s also very open to come into the office and talk about these things and I feel like if there is something, he will listen”* (DG1). DM1 confirms this and says these conversations have been used to change routines. *“As I have said, we have changed the routines and changed our routes”* (DM1). Company A is open to letting the guides participate in changing routines based on their experiences (AM1, AG2). *“Yeah, I think (NAME) was open to that. I got the feeling that he was listening quite well to what people had to say”* (AG2). AG1 also agrees but says it is not in an organized fashion, and it becomes a case of whoever yells the loudest gets their wish. *“Guides get to affect the systems, both equipment and safety. Mostly if they have a natural authority”* (AG1).

4.6.1 Summary

The data from this subchapter have been condensed into table 8. Company B stood out due to their lack of written routines and is in this way hard to compare to the others. The other three companies seem to all have some form of organizational learning (new routines, changes in equipment and changes in routes), although to varying degrees. All companies have also been described as open to suggestions when it comes to new or changed routines. Lastly, it seems like the small companies (company B and company D) focus mostly on individual learning for the guides as the main outcome of reporting. This is valued by the guides.

Table 8 contains the main outcomes from reporting, mentioned by the respondents. Where there are multiple outcomes, they are listed after which get the most focus.

Company	Main Outcomes (sorted by focus)
A	Organizational learning (Statistics to be used in Risk analysis and updating of routines) Encouraged to suggest changes to routines
B	Individual learning Direct effects on equipment
C	Organizational learning (Statistics to be used in Risk analysis, training and updating of routines) Guides encouraged to suggest changes to routines, especially long-term guides.
D	Individual learning Organizational learning (new equipment, changes to routines) Guides encouraged to suggest changes to routines

5 Discussion

Based on the empirical data presented in the previous chapter we identified different approaches to reporting among the four companies participating in this study. Most companies have multiple systems for reporting different types of information within their company (i.e., one system for reporting accidents and another one for reporting field updates). In addition, this information is shared in multiple arenas including both formal and informal communication channels. This will in turn facilitate various kinds of learning and different learning processes. In this chapter, we will discuss these findings and the theory presented in chapter 2.

This chapter will be structured around the two research questions. For RQ1 we will discuss the different reporting systems we have identified and the limits for reporting set by the different companies. For RQ2 we will discuss how these reporting systems facilitate different learning processes. This is followed by a discussion on how the companies utilize this information and if improvements are made based on their new knowledge.

5.1 RQ1: What reporting systems are established to gather safety information from guides?

This subchapter will discuss the first research question, “*What reporting systems are established to gather safety information from guides*” by analyzing the empirical findings in the analytical framework. When adventure tourism is taking place in the arctic operational context, like the complex and changing environment on Svalbard, it becomes increasingly important to know the risks involved in the activity and handle them through a safety management system. Reporting systems is an important part of a safety management system. The main objective is to gather information which would correspond to study in Demings’s cycle, where one collects and analyze the data collected from an activity (Kjellén & Albrechtsen, 2017). Reason (1997) argues that reporting nonconformance, incidents, near misses and accidents potentially could stop unsafe acts or conditions before the accident occurs. Due to the nature of adventure tourism, there will always be a residual risk in driving a vehicle like a snowmobile, despite all efforts to mitigate these risks through different measures. The empirical data reveals driver-related problems, external factors, and environmental factors as the main accident categories. All respondents mention a snowmobile flipping or low impact collisions during parking as the most common incidents (AG1, AG2, AM1, BG1, BM1, CG1, CG2, CM1, DM1, DG1). “*Mostly flips on scooters. Maybe somebody drives into somebody else*” (BG1).

To investigate what procedures are established for reporting the incidents, I will base the discussion on *Flemons and McRae (2012)*'s definition of a reporting system. Utilizing this definition allow both formal and informal systems to be included. Some companies have formal written reporting systems where a form is filled in and submitted to the manager (A, C). *"We report both online and on paper. We enter all contact information in addition to different categories like injuries, damages, why it happened, what terrain it happened in, how many guests were on the trip, where it happened, what time and so on. Then the guest explains the incident from their perspective"* (CG1). Anderson and Narus (1984) classified this as formal reporting since it uses an official communication channels and following the company's hierarchy. A formal reporting system will allow information to be stored in a safety information system so it is available for future decisions. Both companies (A, C) report transitioning from a paper-based system to an online system. Company A has made a complete transformation whereas company C uses both systems in tandem. This transition is believed to improve automation during the handling of reports, making it easier to identify trends during the season, whilst also lowering the resources needed for the analysis. The reason for not completing the transfer in company C is due to problems customizing the electronic solution to their needs. The other companies (B, D) use oral reporting to the manager directly to report incidents according to the respondents. DM1 describes oral reporting, *"If something happens, we talk about what happened and try to see if any signs were missed, or if there is something one could have done differently"* (DM1). This could be viewed as an informal reporting form since it does not use formulized procedure for reporting. This form of reporting does not store the information in a safety information system, but as knowledge for the manager and guides. This approach will make the companies more vulnerable for loss of knowledge due to high turnover. Both the formal and informal approach are forms of reporting (Flemons & McRae, 2012) but will, according to Nonaka and Takeuchi (1995), facilitate distinct types of learning. This will be further discussed in the next chapter. The formal reporting could also be classified as a proactive approach where the company actively seeks information. Companies using a proactive approach are believed to gather more information because they actively request and gather information from their guides. Companies that utilize a reactive oral approach will get less information since they only get the information the guides actively share with the company. A formal reporting system will also prevent loss of knowledge due to high turnover by making the knowledge explicit and storing it in a safety information system .Bentley et al. (2010) identified loss of knowledge due to high turnover as a challenge among adventure tourism companies.

The above discussed reporting system is used to report incidents or accidents (A, B, C, D). Additionally, it has been used to report missing or broken equipment by some companies (B, C, D). Respondents from some companies (B, C, D) also mention sharing information about current conditions in the field. *“We have a logbook where they write mostly about the conditions in the field but sometimes also if there is anything else that was out of the ordinary on the trip. This is quite nice to read in the morning, then you feel like you have an updated picture of the conditions in the field”* (DG1). This could be considered one form of reporting updated conditions (Reason, 1997) since it will alert the guides about potential new hazards in the field. The companies (B, C, D) have different solutions for utilizing these logbooks and online chats. There is also empirical evidence which suggests that informal arenas are used to share this information between co-workers. Respondents from company C describe active socialization between the guides before trips, *“It’s the chat during the morning coffee”* (CM1). Also in company B, the oral information flow is described as good (BG1, BM1). *“You meet nearly every day so then we talk about everything, like if we got stuck or where we drove or where we’re going to drive and all those things so”* (BG1). This statement shows that some information is shared in informal arenas, that would not be considered important enough to be shared in the company’s other reporting systems. Comparable results were found in adventure tourism in Finland and Svalbard (Indreiten et al., 2018; Rantala & Valkonen, 2011). Such socialization seems to happen less in company A and D due to the guides starting work at separate times during the day. AG1 says that due to this, *“you mostly work alone”*.

When discussing reporting systems, it is also important to identify the limit for reporting, or in other words, what types of incidents the company reports. Heinrich (1959) shows, using the iceberg theory, the relationship between accidents, near misses and unsafe acts. By reporting incidents and near misses that did not result in injury or damage, the companies have a better chance of managing unsafe acts and unsafe conditions before they lead to an accident (Heinrich, 1959; Reason, 1997). It has also been argued by Kjellén and Albrechtsen (2017) that near misses will facilitate learning in a better way than accident investigation. This is because there is less emotional connection and less self-protecting behavior. Based on the empirical data we have identified two main approaches used by the companies in this study. The two companies categorized as small (B, D) report incidents with consequences (damage or injury) and the medium and large company (A, C) seem to include incidents without consequences. This means that companies A and C could identify unsafe conditions and unsafe acts and, in this way, avoid potential accidents (Reason, 1997). Companies B and D would have a harder time identifying

unsafe conditions and unsafe acts based on their incident reporting systems. Page et al. (2005) found comparable results among some adventure tourism companies in Scotland where near misses were underreported, blaming a lack of knowledge and economic reason (Hasle & Limborg, 2006). The company's focus on safety was often found to be a result of the owner's attitude towards safety, and would often be given a low priority when there were conflicting objectives like time or economic (Rasmussen, 1997). The different limits for reporting will also affect the potential for learning as mentioned above (Kjellén & Albrechtsen, 2017). It can be argued that this information could also be shared through informal communication channels, and in that way be picked up before an accident occurs. Even if company B states that they discuss relevant information, it is not as reliable as a safety information system, like the formal systems found in company A and company C.

5.1.1 Summary RQ1

Between the four companies that participated in this study we see some different approaches to reporting in the industry. Two companies have a formal written reporting system, either online or on paper. These companies report near misses as well as accidents. These companies are classified as proactive since they gather information from incidents without injury or damage to prevent future incidents. In this study it seems like this is more common in medium and large companies, which might be explained by the availability of resources to handle the reports, as observed by Page et al. (2005).

The other two companies have an informal oral way of reporting accidents. This is true for the smaller companies in this study, which can be explained by less reports and less resources to handle reports. This approach is considered reactive since they only gather information after an incident with a damage or injury. By not reporting near misses they are less likely to prevent an accident ahead of time. An informal system will store the information as knowledge for the manager and guide, and therefore be more vulnerable to a loss of knowledge due to high turnover. Hasle and Limborg (2006) and Sinclair and Cunningham (2014) similarly found that informal systems lead to information being stored in the head of the manager, and the manager's attitude to safety became the company's policy.

Three of the companies seem to have a system to report conditions in the field. Information from the guides about current conditions in the field is an invaluable part of the company's safety management and can be classified as reporting of unsafe conditions. This information is shared in formal written systems, but also through informal arenas. The companies that have

guides starting at work about the same time seem to have more socialization between the guides. This facilitates the spreading of new and relevant information between the guides and will impact operational safety for that day.

5.2 RQ2: How do companies use information from reporting to improve safety?

In the previous chapter, we showed different approaches to reporting systems used by the four companies included in this study. This chapter will discuss their different reporting goals, how the information is processed and distributed, and whether this information is used to improve safety. This will be done by discussing the research question, *“How do companies use information from reporting to improve safety?”*. Nonaka and Takeuchi (1995)s definitions of organizational learning will be used to investigate and classify the different learning processes, and Argyris and Schön (1997)s definition of single-loop and double-loop learning will be used to classify the lessons learned. Hale and Borys (2013a)s models of rule development will then be used to see how the lessons are implemented through rule development.

All respondents mention learning as one of the main goals of reporting. Respondents from companies B and D had individual learning as their main goal, *“I feel like I learned a lot from discussing, trying to figure out if there are signs I should have seen earlier, or anything else I could have done to avoid the incident”* (DG1). Even though the respondents in these companies list individual learning as the main goal, there is evidence that suggests that organizational learning also occurs. *“We have a guide manual so I guess that might be updated if we have learned something, or if a routine needs updating. But most of the time it is the guides that learn something, and the more the guides learn, the better for the company I guess”* (DG1). This statement shows individual learning as the main focus, and organizational learning as a secondary focus. This focus on the guides individual learning is commonly found in the traditional Norwegian outdoor education (Røkenes & Andersen, 2019). Respondents from companies A and C mention organizational learning as their main goal, *“Like changing how we park the groups, or to avoid sharp left turns”* (CG1). This approach is more aligned with modern organizational safety theory (Reason, 1997). Some respondents also mention practical purposes, like tracking equipment, as a benefit of reporting (BG1, BM1, DM1), *“For me it is about having an overview of what has happened in the company, especially if there should be guests demanding money back or if insurance companies need any form of documentation”* (DM1).

In the previous chapter, we found that a company could have multiple systems for reporting information, utilizing both formal and informal communication channels (Flin et al., 2013). From the empirical data we see the same communication channels are used for processing and distribution of the safety information from the reports. According to the respondents, companies B and D have an informal oral approach that combines reporting and feedback in the same dialogue. Company C replies with formal written feedback to reports. Both approaches motivate the guides to report because the companies provide feedback, which again facilitates a learning and a reporting culture (Reason, 1997). *“If we are good at reporting, then the company learns a lot from what is happening”* (CG1). This creates a positive feedback loop where more reports lead to more adjustments and motivation to report. This provides a desirable steady stream of reports contributing to the continuous improvement of rules and routines (Reason, 1997). Company A seems to distinguish itself from the others by not providing as much feedback, *“You never get any feedback, positive or negative”* (AG1). According to the theory, this will negatively affect the reporting culture, by creating a negative feedback loop where guides see no improvement and therefore report less (Reason, 1997). Dekker (2003) and Reason (1997) argue that the employees’ motivation for reporting increases as they see results, creating a reporting culture. Respondent CG1 mentions frequent guide meetings throughout the season where information from reports is discussed, which contribute to a positive feedback loop. Company A mentions a desire for meetings but finds it challenging due to different starting times and the total workload. *“I hope the guides discuss these things together, but this season has been full of overtime, and that is not when you call people in to a big meeting”* (AM1).

In addition to incident reporting, most companies have a system for sharing updated safety information regarding conditions in the field. Respondents from companies B and C mention the use of online chat rooms and groups which provide a platform where guides and managers can continuously update each other with the newest information. Similarly, company D mentions an analog solution, in the form of a logbook. These platforms provide a channel where the newest information from the field is turned explicit and made available so it can be internalized to tacit knowledge for the other guides. *“We have a logbook where they write mostly about the conditions in the field but sometimes also if there is anything else that was out of the ordinary on the trip. This is quite nice to read in the morning, then you feel like you have an updated picture of the conditions in the field”* (DG1). This information, together with other relevant information, is also shared between the guides through a process of socialization

(Nonaka & Takeuchi, 1995), “*You meet nearly every day so then we talk about everything, like if we got stuck or where we drove or where we're going to drive and all those things so*” (BG1). This form of socialization is also described by Indreiten et al. (2018) and Rantala and Valkonen (2011) as a key contributor for sharing relevant information. This does not seem to be the case in company A due to differences in the starting times of the guides. “*At the expedition center you meet very few of your coworkers because you never work at the same time. You mostly work alone*” (AG1).

To discuss if the reporting of new information leads to organizational learning, we will use Nonaka and Takeuchi (1995)'s model. Based on the reporting systems and feedback mechanisms previously identified, we have seen that some companies (A, C) according to their respondents use formal reporting systems. This would be classified as externalization by Nonaka and Takeuchi (1995)'s definition. In this process the tacit knowledge from the guide is documented in a report as explicit knowledge and will become a part of the company's safety information system. In this way the information will be stored and made available for future changes or decisions. This is an advantage due to the high turnover and the Arctic operational context (Albrechtsen & Indreiten, 2021; Johannessen, 2022).

The other companies (B, D) used informal oral reporting according to the respondents. This would be classified as socialization by Nonaka and Takeuchi (1995)'s definition. In this process tacit knowledge is shared between coworkers. This learning process has been found to be important for safety management, but can make the company more vulnerable to a loss of knowledge due to high turnover (Johannessen, 2022; Rantala & Valkonen, 2011).

The reporting systems identified in this study facilitate both individual learning and organizational learning. In all companies there seems to be some degree of individual learning related to incidents and reporting. AG1 describes it as, “*Gives me experience-based learning. Not so much from the reporting, but from experiencing the situation*” (AG1). Experiencing an incident will naturally lead to new knowledge for the guide. This form of individual learning could be transformed into organizational learning by spreading it to coworkers through socialization. The first scenario is then socialization between the guides, where tacit knowledge is shared informally between coworkers (Nonaka & Takeuchi, 1995). The empirical data shows that all guides interviewed in this study (AG1, AG2, BG1, CG1, CG2, DG1) agree that they are influenced by information they get from other guides. This change in behavior due to information is a good example of socialization. This information often includes changes in the

conditions in field and shows that they actively learn from mistakes or problems, which would be classified as a safety–I approach (Hollnagel, 2018). In addition to this, some guides (CG1, CG2 and BG1) also mention the influence of information about new stops, stories, or ways to do things. “*A colleague told me how he made a lunch pit for the guest. I have done that so many times since then*” (CG1). Sharing this information about success stories, or “tips and tricks” could fit Hollnagel (2018)′s description of a safety–II approach.

Respondents in company B and C mention socialization between guide and the manager has been a major source of individual learning, in addition to socialization between the guides. BG1, BM1, DG1 and DM1 all mention discussion as part of their oral reporting systems to strongly facilitate individual learning, “*I feel like I learned a lot from discussing trying to figure out if there are signs I should have seen earlier, or anything else I could have done to avoid the incident*” (DG1). DM1 says, “*I get feedback that tells me if guides, routines, and equipment is working. Maybe some updated routines, but as I said it is mostly learning for the guides*” (DM1). This statement shows that even if organizational learning is possible and sometimes present, individual learning is the main goal of these discussions. Companies with a formal reporting system will better facilitate externalization than companies with an informal reporting approach. Companies with a formal reporting system will have a safety information system as described in figure 2 (Kjellén & Albrechtsen, 2017), where information is gathered, processed, stored, and made available for future decision making. A effective safety information system will also be beneficial for the companies by preventing loss of information due to high turnover. Companies with an informal reporting system will mostly spread the knowledge through socialization which makes it harder to use this information actively in their safety management system to improve current rules and routines since the information is not made explicit and stored.

After establishing organizational learning, we must discuss how this information improves company safety. To do this, we must separate between lessons learned and lessons implemented (Sydnes et al., 2021). In other words, we want to discuss how the information is acted upon to change rules and regulations. We see that respondents from all companies mention that the use of new knowledge is changing the way they operate, because it is affecting their procedures and rules. This is a process of continuous improvements, seeking to “do the same thing better” - a process that suggests single loop learning (Argyris & Schön, 1997). Examples of this from the empirical data could be CG1 explaining changes in parking routines due to reports, or CG2 mentioning implementing new tools to improve the routines for checking the sea ice.

Notably, there is little evidence in the empirical data that suggests double loop learning so this will have to be further investigated in another study. These two types of learning are not contrary to each other or mutually exclusive, and a company is believed to be best served by having a combination of the two (Argyris & Schön, 1997). One explanation to the lack of double loop learning could be the ambiguity in the legislation and no set standard for companies' safety management systems. This might decrease the potential for double loop learning since this often is a result of a comprehensive investigation which might not be done due to limited organizational capacity. Based On my personal experience from the industry I would mention that my impression is that accident investigations are not extensive enough, and mainly focus on continuous improvement to avoid repetition. A more extensive accident investigation as described by Kjellén and Albrechtsen (2017) might better facilitate double loop learning.

The companies' safety rules and procedures can be seen as a barrier to prevent a deviation in the same way as training and certification (Reason, 1997). Rules and procedures should be dynamic, meaning they need to be monitored and altered based on new information the company gets from their experience feedback (Dekker, 2003; Hale & Borys, 2013a; Kjellén & Albrechtsen, 2017). When developing new rules and routines there are two common models: Model 1 is described as a top-down approach, where rules are developed on the tactical level and imposed on the workers. Model 2 is described as a bottom-up approach where the employees' knowledge and experiences are used (Hale & Borys, 2013a, 2013b). Most companies (A, C and D) welcome the guides to suggest changes based on their experience and new data which gives a continuous improvement. Company B, however, explains that they do not have fixed routines but focus on having experienced guides and giving them the freedom to do things their own way (BM1). This form of dynamic rules goes hand in hand with Røkenes and Andersen (2019) 's traditional approach to safety on guided tours. In companies A and D, it is more up to the guide to suggest changes, whereas in company C they utilize monthly meetings and seminars, "*we talk about it in the seminar and meetings, if there are any suggestions to changes before the season*" (CM1). This suggests that the companies in this study all have a form of bottom-up (model 2) approach to developing new rules and routines (Hale & Borys, 2013a), where experience knowledge from the sharp end (operational level) is valued and actively used for improvements. One explanation for this can be that even in companies with formal reporting systems there seems to be a high degree of informal communication in addition to the formal systems. This socialization plays an important part in the safety management of the companies, which is in accordance with the findings of both

Indreiten et al. (2018) and Rantala and Valkonen (2011). Another factor that might affect this is the small size of the companies, which in turn might limit their organizational capacity. A company of maximum 20 employees is relatively small compared to the scale that some of these theories are developed for and will facilitate socialization to a higher degree since this allows for regular interactions between the employees regardless of their hierarchical level. This bottom up approach might not contribute sufficiently to the double loop learning, when there is an absence of larger incidents.

5.2.1 Summary RQ2

Learning is mentioned as the main goal for reporting by respondents from all four companies included in this study. We have seen that some companies focus more on individual learning, rooted in Traditional Norwegian outdoor education (Røkenes & Andersen, 2019), whilst others focus on organizational learning, rooted in modern organizational safety theory (Reason, 1997). Companies utilize the same mechanisms for reporting information and feedback.

Organizational learning is initiated by two main mechanisms, socialization, and externalization. We see that companies carrying out a formal written reporting system favor externalization, and companies using an informal oral reporting system favor socialization. In addition, we have seen that socialization of the guides in informal arenas (like the morning coffee) is an important mechanism for sharing new and relevant information. All operational-level respondents said they are affected by the information shared during this informal chat before trips.

Organizational learning is implemented through updated routines and rules, suggesting mostly single loop learning. There seems to be an absence of double loop learning which might be explained by multiple factors like i.e., limited organizational capacity. All companies welcome the guides' opinions. Whilst some companies actively seek those through meetings and seminars, others have an open-door policy where the guides themselves must bring their suggestions to the manager. This suggests that a bottom-up approach for rule development is common in the industry, regardless of the company size.

6 Conclusion

To conclude the findings in this study I will provide a conclusion for each of the two research questions before presenting the conclusion for the main research topic.

What systems for reporting are utilized by the companies to gather information from the guides?

Based on the four companies that participated in this study we have identified some different approaches to reporting in the industry. This is as expected considering that this study has included companies of quite varied sizes, and that the industry is loosely regulated. The companies in this study have multiple reporting systems, within each company, to report different information like accidents or conditions in the field. Two main approaches to reporting incidents were identified based on Anderson and Narus (1984)'s definition, formal written reports, and informal oral reports. Formal written reports are more common in the larger companies and are carried out using paper-based or online solutions. A transition to online solutions has been mentioned by multiple companies as a way of lowering the resources needed to handle reports, and a way of using the reports more actively in their safety management. The companies utilizing a formal written report are also more proactive and include near misses in their reporting systems, which again increases the company's knowledge considerably. Information gathered are stored in a safety information system, and made available for future decision making (Kjellén & Albrechtsen, 2017). Storing information in a safety information system will also counteract the loss of knowledge due to high turnover. Informal oral reports are used in the smaller companies in this study. These companies also have a reactive approach to reporting and do not include near misses, which in turn might limit the potential for organizational learning in these companies. These companies will also be more vulnerable to a loss of knowledge due to high turnover since they do not store their information in a safety information system.

In addition to incident reporting, we found that the companies in this study have other systems as well, both formal and informal, to report updated safety information (conditions in the field) utilizing logbooks or online chats. This information is also shared between the guides in informal arenas like the morning coffee. This process was mentioned in all companies where the guides started their working day at the same time and is believed to be valuable for the company's safety.

How do companies use information from reporting to improve safety?

Respondents from all companies list learning as their main goal of reporting. Again, we find two main approaches used by the 4 companies. Companies with a formal written reporting system focus on organizational learning and facilitate externalization. This in turn stores the information in a safety information systems and makes it available for the development of new rules and routines. This approach is rooted in modern safety theory (Reason, 1997). Companies with an informal oral reporting system focus on individual learning and favor organizational learning through socialization. This approach is common in the traditional Norwegian outdoor education (Røkenes & Andersen, 2019). This implies that the companies focusing on individual learning store their information in the minds of the guides and managers, and in this way might be more vulnerable to loss of knowledge due to high turnover. The companies focusing on organizational learning will on the other hand formalize this knowledge in a safety information system which stores the relevant information until needed.

In addition, we have found that socialization between guides in informal arenas (like the morning coffee) is important for learning and sharing information. All respondents from the operational level have said that they will use the information shared by coworkers in the morning for planning their trip.

The lessons learned from organizational learning are implemented through continuous improvement of routines and rules. This suggests that single loop learning is the most common form of learning in these companies (Argyris & Schön, 1997). There seem to be a lack of double loop learning among the companies participating in this study, which might be explained by multiple factors (i.e., limited organizational capacity or ambiguous legislation). Continuous improvement of routines and rules is motivating the workers to report by showing clear results of reporting (Reason, 1997). A positive feedback loop showing this relationship between reporting and improvement has been identified in some of the companies. Rule development is done by using a bottom-up approach, which utilizes the information gathered in the operational level, and guides are welcome to contribute (Hale & Borys, 2013a). This approach was mentioned by respondents from all companies.

How is reporting used to increase the knowledge of safety in companies operating guided snowmobile tours on Svalbard?

Based on the four companies represented in this study we have identified different systems for reporting. Formal written reporting and informal oral reporting have been found to be used to report incidents. In addition we found that updated information from the field is shared among the guides during social interactions, and for some companies through written systems (i.e., logbook, online chat). This study identified two different approaches for using the information from the reporting systems among the four companies participating in this study. Companies either focus on individual or organizational learning. These both facilitate improvement through continuous improvement, although there are some differences. While individual learning is good for the guide, it does not store the new knowledge within the company (Kjellén & Albrechtsen, 2017). Organizational learning and especially externalization, makes it possible to store data in a safety information system, and thereby making it available to everyone in the company. This will also help combat loss of knowledge due to high turnover (Nonaka & Takeuchi, 1995). Actively gathering information in a safety information system and sharing it at the operational level will also help combat some of the challenges related to the Arctic operational context (Albrechtsen & Indreiten, 2021). Information gathered is implemented through continuous improvement, suggesting mostly single loop learning. Rule development is done by using a bottom-up approach.

Based on the results of this study, we see that there is room for improvement in the industry to better collect and use the experience knowledge from the operational level to improve safety. Local companies seem to be aware of this issue and have started a local safety forum in cooperation with Arctic Safety Center. This forum seeks to facilitate sharing knowledge from multiple companies to improve the industry's overall safety. Sharing knowledge and establishing common reporting systems to combine the data from all members has been discussed in the initial meeting in November 2022 (M. Indreiten, e-post, 29. November 2022). This will benefit the whole industry, but companies with a focus on organizational learning and a well-developed safety information system might easier utilize this information in their own safety management system.

6.1 Further Research

This study is limited to four companies operating guided snowmobile trips on Svalbard, and one should not generalize based on the results of this study. Guided snowmobile trips are just one part of the industry, and I would expect there to be differences in other parts of the industry

(i.e., dog sledding, expedition cruises). It could be interesting to see if other parts of the industry show the same trends considering these might be affected by other laws (i.e., Maritime law).

It could also be interesting to see how the suggested cooperation through the local safety forum would affect the industry once it has been implemented. The combination of explicit knowledge from multiple companies can be seen as what Nonaka and Takeuchi (1995) classify as Combination. This could make more knowledge available for all participants and could improve safety throughout the industry.

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8 Appendix

8.1 Appendix A: NSD document

Vil du delta i forskningsprosjektet uønskede hendelser i turistbransjen?

Dette er et spørsmål til deg om å delta i et forskningsprosjekt hvor formålet er å kartlegge hvordan uønskede hendelser rapporteres og hvordan denne informasjonen brukes videre. I dette skrivet gir vi deg informasjon om målene for prosjektet og hva deltakelse vil innebære for deg.

Formål

Forskningsprosjektet er en del av en master oppgave ved Universitetet i Tromsø, Institutt for Teknologi

Formålet på prosjektet er å undersøke hvordan Turistbedrifter velger å behandle uønskede hendelser i sin bedrift. Det er også ønskelig å kartlegge hvordan informasjonen som samles inn behandles og om denne informasjonen brukes videre av selskapet eller guidene.

Hvem er ansvarlig for forskningsprosjektet?

Universitetet i Tromsø, Institutt for Teknologi og sikkerhet er ansvarlig for prosjektet.

Hvorfor får du spørsmål om å delta?

For å få best mulig data grunnlag vil en rekke av bedrifter i Longyearbyen bli spurt om og delta. Det er ønskelig med en Guide og en med ansvar for selskapets HMS fra hver bedrift. Du har blitt rekruttert fordi du faller innenfor en av disse to kategoriene.

Hva innebærer det for deg å delta?

Hvis du velger å delta i prosjektet, innebærer det gjennomføring av et intervju. Det vil ta deg ca. 45 minutter. Det vil bli gjort opptak av intervjuet.

Intervjuet vil inneholde spørsmål om rutiner for avviksbehandling, oppfølging av avvik og hvordan denne informasjonen brukes av deg og av selskapet du er ansatt hos.

Ditt navn eller annen personalia vil ikke brukes i oppgaven, kun dine svar under intervjuet.

Det er frivillig å delta

Det er frivillig å delta i prosjektet. Hvis du velger å delta, kan du når som helst trekke samtykket tilbake uten å oppgi noen grunn. Alle dine personopplysninger vil da bli slettet. Det vil ikke ha noen negative konsekvenser for deg hvis du ikke vil delta eller senere velger å trekke deg.

Ditt personvern – hvordan vi oppbevarer og bruker dine opplysninger

Vi vil bare bruke opplysningene om deg til formålene vi har fortalt om i dette skrivet. Vi behandler opplysningene konfidensielt og i samsvar med personvernregelverket.

Opptakene vil lagres på serveren (OneDrive) hos Universitetet i Tromsø. Kun Are Kristoffer Sydnes (veileder) og Stig Magnus Lunde (Student) vil ha tilgang til lydfilene.

Hva skjer med opplysningene dine når vi avslutter forskningsprosjektet?

Opplysningene anonymiseres når prosjektet avsluttes/oppgaven er godkjent, noe som etter planen er juni 2023. Opptakene vil slettes ved prosjektslutt.

Dine rettigheter

Så lenge du kan identifiseres i datamaterialet, har du rett til:

- innsyn i hvilke personopplysninger som er registrert om deg, og å få utlevert en kopi av opplysningene,
- å få rettet personopplysninger om deg,
- å få slettet personopplysninger om deg, og
- å sende klage til Datatilsynet om behandlingen av dine personopplysninger.

Hva gir oss rett til å behandle personopplysninger om deg?

Vi behandler opplysninger om deg basert på ditt samtykke.

På oppdrag fra Universitetet i Tromsø, Institutt for Teknologi og sikkerhet har NSD – Norsk senter for forskningsdata AS vurdert at behandlingen av personopplysninger i dette prosjektet er i samsvar med personvernregelverket.

Hvor kan jeg finne ut mer?

Hvis du har spørsmål til studien, eller ønsker å benytte deg av dine rettigheter, ta kontakt med:

- Universitetet i Tromsø, Institutt for Teknologi og sikkerhet ved Are Kristoffer Sydnes (Veileder, til: 77660328, Are.sydnes@uit.no) og Stig Magnus Lunde (Student, slu034@uit.no)
- Vårt personvernombud Joakim Bakkevold (TLF.777646322, Personvernombud@uit.no)

Hvis du har spørsmål knyttet til NSD sin vurdering av prosjektet, kan du ta kontakt med:

- NSD – Norsk senter for forskningsdata AS på epost (personverntjenester@nsd.no) eller på telefon: 55 58 21 17.

Med vennlig hilsen

Are Kristoffer Sydnes
(Forsker/veileder)

Stig Magnus Lunde
(Student)

Samtykkeerklæring

Jeg har mottatt og forstått informasjon om prosjektet [*sett inn tittel*], og har fått anledning til å stille spørsmål. Jeg samtykker til å delta i et intervju, og er klar over at det vil bli gjort opptak under intervjuet.

Jeg samtykker til at mine opplysninger behandles frem til prosjektet er avsluttet

(Signert av prosjektdeltaker)

8.2 Appendix B: Interview guide (Nature Guide)

Intervjuguide Guide

- Introdusere Meg
- Kort Beskrive formålet med oppgaven
- Informere om opptak + NSD skjema
- Informere om og ikke bruke Navn på selskap eller andre ansatte

Generelt:

1. hvilken utdanning / erfaring har du fra Guide yrket?
 - a. Utdanning? SGO? ANG
 - b. Antall år som guide
2. Kan du fortelle kort om hvilken type turer du guider?
3. Har du noen andre arbeidsoppgaver i selskapet utover arbeidet som Guide?

FS1: rapporteres uønskede hendelser, og hvordan gjøres dette?

4. hva slags uønskede hendelser skjer på turene?
5. hva gjør du etter noe slikt har hendt på en tur?
 - a. rapporteres det?
 - i. Hva kan du fortelle om systemet for rapportering i din bedrift?
 - ii. Er systemet intuitivt? Muntlig? Skriftlig? Tar det lang tid?
 - b. Hva skal til for at du rapporterer?
 - i. Reporteres det alltid?
 - ii. Hvilken type hendelser rapporteres?
 - iii. Må det være en viss konsekvens for og rapportere?
6. hva opplever du er formålet med rapporteringen?
7. Snakker du med andre om slike hendelser på jobb?
 - a. Deler dere erfaringer mellom guidene?
 - b. Når? Hvor?
 - c. Utenfor jobb?
8. Snakker dere om slike hendelser:
 - a. Facebook chat/gruppe
 - b. Kaffepause
 - c. Annet?

FS2 Hvordan behandles avvikene som rapporteres?

9. Hvis du informert om et avvik, hva skjer da videre?
 - a. Får du tilbakemelding?
 - i. Lukkes avviket?
 - b. Ser du noen effekt av Rapporteringen?
10. Snakker ledelsen med Guidene om Avvik?
 - a. Dine avvik?
 - b. Andres Avvik (oppsummering på møter eller lignende?)

FS3 tilegner bedriftene eller guiden seg ny kunnskap basert på rapportering?

11. Påvirker det dine beslutninger om andre forteller om hendelser på sine turer?
 - a. På hvilken måte?
12. får du utbytte av og rapportere avvik?
 - a. Lærer du noe?
 - b. Bruker du den erfaringen videre?
13. får du utbytte av og snakke med andre om avvik?
 - a. Ledelsen?
 - b. Andre Guider?
14. Opplever du at selskapet lærer av rapportene?
15. Deltar guidene i arbeidet med nye rutiner eller annet sikkerhetsarbeid?
 - a. Gjøres det endringer basert på rapporter?
 - b. Kan du være med og påvirke rutinene i selskapet?
 - i. Oppmuntrer selskapet til dette?

8.3 Appendix C: Interview guide (HSE manager)

Intervjuguide HMS Ansvarlig?

Generelt:

1. hvilken utdannelse / erfaring har du?
2. hvor mange guider pleier dere og ha på en normal vintersesong?
3. Hvor mange gjester pleier dere og ha på en normal vintersesong?
4. Kan du kort fortelle om turprogrammet dere har vinterstid?

FS1: hvordan rapporteres uønskede hendelser?

5. Rapporterer dere uønskede hendelser?
6. Hvordan rapporterer dere uønskede hendelser?
7. Hvordan går man frem for å rapportere?
 - a. Hvilke systemer har dere for dette? Muntlig/skriftlig/uformelt
 - b. Har dere en person som mottar slike rapporter eller er det et delt ansvar?
8. Hva er målet med å rapportere uønskede hendelser?
9. Opplever du at alle Hendelser blir rapportert?
 - a. Rapportering kultur
10. Hvilken type hendelser rapporterer dere?
 - a. Alvorlighetsgrad
11. blir slike hendelser snakket om på andre arenaer?

FS2 Hvordan behandles avvikene som rapporteres?

12. Når du mottar en avviksmelding, hva skjer så videre?
 - a. Hvordan følges avvikene opp?
13. Får du hentet ut noe verdifullt av rapportene?
 - a. Hva brukes dette til?
14. Får guiden noen tilbakemelding?

FS3 tilegner bedriftene eller guiden seg ny kunnskap basert på rapportering?

15. Bidrar Rapportene til Læring i selskapet?
 - a. For guide
 - b. For selskap

16. Hvordan bruker dere Avvik i sikkerhetsarbeidet? (Nye rutiner, risikoanalyse?)

17. Snakker dere med guidene om uønskede hendelser?
 - a. På møter?

18. Hvilken verdi har dette arbeidet for selskapet?
 - a. Brukes dette til revidering av prosedyrer/ analyser osv.?

19. Hvem er involvert i prosessen med revidering av:
 - a. Prosedyrer / rutiner?
 - b. Risikoanalysene?

