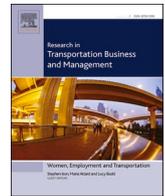




Contents lists available at ScienceDirect

Research in Transportation Business & Management

journal homepage: www.elsevier.com/locate/rtbm

Leadership strategies, management decisions and safety culture in road transport organizations

Katrine Grinerud^{a,*}, Wenche Kristin Aarseth^b, Rolf Robertsen^c^a Road Traffic Section, Business School, NORÐ University, Norway^b Market, Organization and Leadership, NORÐ University, Norway^c Road Traffic Section, Business School, NORÐ University, Norway

ARTICLE INFO

Keywords:

Heavy goods vehicle
Road safety
Safety culture
Leadership
Strategy

ABSTRACT

In Norway, approximately 688 people are injured each year in traffic accidents involving heavy goods vehicles (HGVs), and for every third road fatality there is an HGV involved. Norway has approximately 35% more fatalities per inhabitant resulting from accidents involving HGVs compared to the rest of Europe. These numbers suggest that interventions are needed to reduce road accidents involving HGVs in Norway. This paper contributes to the field of road transportation research by identifying how strategic management decisions can affect road transport organizations' ability to develop a good safety culture. Semi-structured interviews with 16 participants were conducted. The findings suggest that road transport organizations that choose a low-cost leadership strategy struggle to be profitable. Moreover, such strategies lead to high rivalry between organizations. Such rivalry makes it difficult to be profitable, hence there are fewer resources available to invest in building a good safety culture. In contrast, road transport organizations that choose a differentiation or focus leadership strategy are more likely to be profitable. As a consequence, they have more resources to invest in building a safety culture.

1. Introduction

Road traffic accidents rank as the eighth leading cause of death worldwide, accounting for 2.2% of all deaths globally. Every year, 1.35 million people are killed in traffic accidents, with an average of more than 3000 traffic deaths a day worldwide. In addition, 20 to 50 million people are injured or disabled in traffic accidents (World Health Organization, 2018). In Norway, a country with approximately six million people, several years of systematic work on road safety has led to a decrease in road accidents involving fatalities and severe injuries. In 1970, there were 570 fatalities and 4552 severe injuries caused by road traffic accidents. These numbers have decreased to 108 fatalities and 565 severe injuries in 2018 (Statistics Norway, 2020). However, compared to the rest of Europe, Norway has approximately 35% more fatalities per inhabitant from accidents involving heavy goods vehicles (HGVs) (Langeland & Phillips, 2016). On average, approximately 688 people are injured in traffic accidents involving HGVs each year, and for every third road fatality, there is an HGV involved (Langeland & Phillips, 2016). These numbers suggest that interventions are urgently needed to reduce road accidents involving HGVs in Norway (Ministry of Transport and Communications, 2017).

One challenge for managing the safety of HGVs is the increasing amount of domestic and international road transport in Norway. The national transport performance (million tons-km driven) by domestic road transport organizations has increased from 16,979.4 million tons-km in 2012 to 19,389.4 million tons-km in 2019 (Statistics Norway, 2021a). In addition, national transport performance by foreign road transport organizations has increased from 6984.9 million tons-km in 2021 to 8787.7 million tons-km in 2019 (Statistics Norway, 2021b).

The mere presence of HGVs in the road environment increases the potential for accidents with severe injuries. However, it is not to say that HGV drivers are solely to blame for these accidents. The scattered location of businesses and strong economic growth have contributed to the increased use of HGVs on roads, many of which have numerous bends and can be characterized as typical countryside roads - namely, narrow roads without separate driving lanes that are poorly suited for frequent HGV road transport (Langeland & Phillips, 2016). This can make safely transporting goods on roads challenging.

However, research has established that a good workplace safety culture in road transport organizations has the potential to reduce road crashes (Grytnes, Shibuya, Dyreborg, Grøn, & Cleal, 2016; Mooren, Grzebieta, Williamson, Olivier, & Friswell, 2014; Nævestad, Bjørnskau,

* Corresponding author.

E-mail addresses: katrine.grinerud@nord.no (K. Grinerud), Wenche.aarseth@nord.no (W.K. Aarseth), rolf.robertsen@nord.no (R. Robertsen).<https://doi.org/10.1016/j.rtbm.2021.100670>

Received 3 July 2020; Received in revised form 20 May 2021; Accepted 21 May 2021

2210-5395/© 2021 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

Hovi, & Phillips, 2014; Nævestad, Elvebakk, & Phillips, 2018; Nævestad, Hesjevoll, & Phillips, 2018; Nævestad, Phillips, & Elvebakk, 2015; Newnam, Warmerdam, Sheppard, Griffin, & Stevenson, 2017; Njå & Fjelltun, 2010). That notwithstanding, more focus is needed on the significance of safety culture for transport safety (Nævestad, Blom, & Phillips, 2020).

While previous research has highlighted the different types of leadership strategies organizations can implement to gain competitive advantages (Porter, 1992; Porter & Kramer, 2006; Reitsperger, Daniel, Tallman, & Chismar, 1993), as well as the different attributes they need to consider when developing a safety culture (Reason, 1998; Reason & Hobbs, 2017), no one has specifically addressed how leadership strategies support and/or constrain safety culture in road transport organizations. Thus, this paper aims to fill this knowledge gap by exploring existing road transport organizations' strategies. This paper contributes to the field of road transportation research by investigating how management prioritization and choice of strategies can affect profitability and safety in road transport, thereby addressing how management decisions can affect road transport organizations' ability to develop a good safety culture. Thus, the research question for this article is as follows: *Which leadership strategies support and/or constrain safety culture in road transport organizations?*

In the following paragraphs, an overview of the term *safety culture*, followed by a short presentation of *leadership* and *general strategy*, is given. Thereafter, a detailed explanation of *competitive strategies* and the different approaches that road transport organizations can implement to increase their competitive advantages are presented, followed by a presentation of the methods used in this paper, the results and a discussion. Finally, a conclusion is provided prior to a complete listing of all references.

1.1. Safety culture

Safety culture is a term used by many researchers, authors, and experts in different fields, with different definitions having been applied. Essentially, safety culture describes the underlying nature of an organization's approach to safety (Hughes, Newstead, Anund, Shu, & Falkmer, 2015), which is shaped by people within and outside the organization through organizational structures and social relationships (Şimşekoglu & Nordfjærn, 2017). Safety culture is a shared safety-relevant way of thinking and acting that is (re)created through the joint negotiation of people in social settings (Nævestad, Hesjevoll, & Phillips, 2018). As such, a safety culture is the product of individual and group values, attitudes, perceptions, competencies, and patterns of behavior that determine an organization's commitment to health and safety management and the style and proficiency of that management (Safety of Nuclear Installations in Li & Itoh, 2014).

In organizational safety culture a distinction is often made between functionalist (top-down) and interpretive (bottom-up) approaches (Glendon & Stanton, 2000; Grytnes et al., 2016). A functionalist approach assumes that organizational culture exists as an ideal to which organizations could aspire (Glendon & Stanton, 2000). Functionalist scholars tend to focus on formal aspects of organizational safety, namely structures, practices, controls and policies (Nævestad, Hesjevoll, & Phillips, 2018). An interpretive approach assumes that organizational culture is a complex phenomenon of social groupings with shared beliefs and values (Grytnes et al., 2016) comprising the beliefs, attitudes and values of the organization's employees regarding safety focus (Nævestad, Hesjevoll, & Phillips, 2018). In road transport organizations there is a need to consider both approaches to safety culture.

In the road transport industry, there are some challenges affecting the organizations' ability to develop a good safety culture, such as the framework conditions and fierce competition in the industry (Nævestad, Hesjevoll, & Phillips, 2018). Road transport organizations consist of several employees (drivers) working outside the physical boundaries of the workplace (Newnam & Goode, 2015). This limits the possibility of a

solely functionalist (top-down) approach because direct employer or supervisory control is limited (Huang et al., 2013). However, the drivers are often seen as individualists who are taking responsibility for their own work and are free to make own decisions (Grytnes et al., 2016). As a result, the drivers develop knowledge and skills that affect their possibility to influence the general safety work within the organization. In this sense, to develop a safety culture throughout all positions in the organization, all workers need to be aligned with the rest of the organization. This involves taking an interpretive approach (bottom-up) to building a good safety culture. Reason and Hobbs (2017) state that safety culture can only be improved if all members in the organization are included in the process and dedicated to improving safety.

In order to develop a good safety culture within an organization, the importance of the management's prioritization of safety is important, and this is well documented in the literature. Mooren, Grzebieta, et al. (2014) state that the management's commitment to safety can affect all levels of incident and injury risks. Newnam et al. (2017) highlight that effective safety leadership has a positive influence on supporting safe road transport. In a recent study (Nævestad, Elvebakk, & Phillips, 2018), management's commitment to safety is highlighted as a prerequisite for a road transport organization's safety work to succeed. Management must support the safety measures adopted by the organization and communicate that they are important to their employees. Otherwise, it is unlikely that the employees will turn the measures into everyday practices. In other words, if management's commitment to safety is low, employees are less likely to consider safety work important, thereby decreasing the organization's ability to improve safety as a whole.

A challenge for management to prioritize safety is seen when safety goals conflict with other organizational imperatives such as profitability (Newnam et al., 2017). In businesses where resources are low, as in the road transport industry, safety goals and profitability goals make competing demands (Rasmussen, 1997). Although building a good safety culture is resource demanding, so is ignoring it. An Australian study states that drivers of HGVs have one of the highest rates of serious occupational injury (Mooren et al., 2014). Seen together with the numbers from Norway, that for every third road fatality there is an HGV involved (Langeland & Phillips, 2016), it is clear that accidents are resource demanding for road transport organizations in terms of drivers being injured and unable to do their job, HGVs needing repairs, higher insurance claims, etc. A good safety culture within an organization is assumed to decrease such incidents and thereby increase road safety in general (Nævestad et al., 2020).

To develop a good safety culture, there are certain attributes an organization needs to consider. In particular, Reason and Hobbs (2017) emphasize that members of an organization must be aware of the hazards in their workplace and expect that people and equipment can fail. They must have collective mindfulness of the things that can go wrong. Such mindfulness could be a challenge when most of an organization's employees work outside the physical boundaries of the workplace. Research has shown that in order to create a safety culture, the culture must have five attributes: informed culture, just culture, reporting culture, flexible culture, and learning culture (Reason & Hobbs, 2017). *Informed culture* means that management and employees must have knowledge about the risk factors across the entire system. In the safety context, human, technical, organizational, and environmental factors can create a risk for safety. In road transport organizations, this means that management and employees must be aware of risk factors, not only within the boundaries of the workplace but also on the road and at loading/unloading sites. *Just culture* means that it is acceptable to experience failure yet crucial to report errors and near mistakes so that the organization can learn from them. *Reporting culture* refers to the need to report errors and near mistakes. Indeed, since most of road transport organizations' work is done outside the physical boundaries of the workplace, organizational members must trust each other to report errors and near mistakes in order to manage the risk factors. When organizations are aware of why, where, and when risk factors occur, they can

change routines/guidelines and possibly avoid those areas/times where and when risks occur. Finally, a safety culture consists of a *flexible culture*, which refers to learning from errors and near mistakes so that the whole system can be improved instead of focusing on standalone fixes. It is essential that every member of the organization learn from such errors and mistakes – *learning culture* (Reason & Hobbs, 2017).

1.2. Leadership and general strategy

Leadership and strategy are key factors that influence an organization's ability to compete in a market. To execute leadership, at least three social conditions must exist: (1) there must be a group of two or more people; (2) the group must work on a common task; and (3) group members must have differentiated responsibilities (i.e., members must have different duties) (Stogdill, 1950). All of these conditions are present in road transport organizations (and in all other organizations), and the leader is the person who is differentiated from other organizational members by his or her influence over goal setting and goal achievement for the organization (Stogdill, 1950). Therefore, leadership can be defined as “the process of influencing an organization in its efforts towards achieving an aim or goal” (Johnson, Whittington, Scholes, Angwin, & Regnér, 2011).

However, in the road transport industry, workers' performance is often difficult to see because drivers work outside the physical boundaries of their organizations. This limited visibility makes executing leadership challenging in these organizations (Zohar & Luria, 2005) because management must lead workers and implement any needed changes from afar.

Nevertheless, the leaders of such organizations must make decisions regarding the direction they want to go, which affects employees working both inside and outside the physical boundaries of the workplace. For road transport organizations, such decisions could include how they recruit their customers, how they educate their drivers, how they prioritize safety work, and so forth. Together, these decisions shape an organization's overall strategy.

Strategy has been defined in several ways throughout the years. One definition describes strategy as “the long-term direction of an organization” (Johnson et al., 2011), and another describes it as “the determination of the long-run goals and objectives of an enterprise and the adoption of courses of action and the allocation of resource necessary for carrying out these goals” (A. Chandler in Johnson et al., 2011). In this paper, these definitions can be seen as the general definition of strategy, but a more precise definition of competitive strategy (as presented in the next section) is useful for answering this paper's specific research question.

1.3. Competitive strategy approaches

In this study, where the aim is to explore how different strategy choices influence road transport organizations' ability to build a safety culture, Porter's definition of strategy is relevant. Porter claims that business decisions are only strategic if they involve doing something different than one's competitors: “Competitive strategy is about being different. It means deliberately choosing a different set of activities to deliver a unique mix of value” (M. Porter in Johnson et al., 2011).

Porter (1992) emphasizes that organizations' strategic choices play an important role in their ability to be competitive in markets—that is, to be profitable. Organizations can be competitive in markets (i.e., develop a competitive advantage) by taking one of two main approaches: a low-cost strategy or a differentiation strategy. For the low-cost approach, organizations recruit customers by delivering a product or service at the lowest possible cost, whereas for the differentiation approach, they offer a product or service with especially high quality (Reitsperger et al., 1993). These two approaches to developing a competitive advantage leads to three different generic strategies to achieve above-average results in an industry: low-cost leadership,

differentiation leadership, and focus leadership (Porter, 1992) (Table 1).

When a road transport organization chooses low-cost leadership as a long-term strategy, the organization focuses on achieving the lowest production costs in its industry (Porter, 1992). An example of achieving this in the road transport industry is using equipment and vehicles over a longer period of time and/or carrying out the road transport of goods for the lowest price. If the organization succeeds in achieving and maintaining the lowest costs, it will receive above-average results and be the cost leader in the industry. However, the pitfall is whether the organization's customers perceive its service or product as comparable with those of other organizations. If not, the organization may have to lower its price well below average to win customers. The strategic logic underlying low-cost leadership usually means that only one organization can be the cost leader in an industry. In the road transport industry, several organizations compete to obtain this position. Thus, the high rivalry between road transport organizations leads to low profitability for the entire industry in both the short and long term (Porter, 1992). This low profitability can make it difficult for these organizations to prioritize safety work within their organizations. Indeed, small road transport organizations are particularly susceptible to this risk given their limited resources (Nævestad, Elvebakk, & Phillips, 2018) Without enough resources (e.g., skilled and motivated drivers, competitive equipment, assets, etc.), it could be difficult for these organizations to invest in building a better safety culture.

Reason and Hobbs (2017) state that a good safety culture drives an organization toward safety goals regardless of commercial pressure and that management has a strong influence on prioritizing safety. However, inadequate resources can have a significant impact on this prioritization. Specifically, when many workers work outside the physical boundaries of road transport organizations, safety management is much more challenging because the cost of technology to monitor workers' behavior in such “remote contexts” is rather high. As a result, many organizations do not invest in safety but instead focus on productivity and efficiency (Zohar & Luria, 2005).

By choosing differentiation as its long-term leadership strategy, an organization seeks to excel in the industry in which it operates (Porter, 1992). The organization seeks to gain a competitive advantage by incorporating highly desirable and sought-after attributes into its product or service. Such attributes can involve the level of service the organization provides, its delivery systems, and so forth. While the means for differentiation are distinct for each industry, the strategic logic underlying the differentiation strategy demands that organizations differentiate themselves on attributes their competitors overlook or ignore.

Today, the pressure for organizations to incorporate sustainability principles and objectives into their policies and activities is mounting (Aarseth, Ahola, Aaltonen, Økland, & Andersen, 2017), and increasingly more road transport organizations are concerned with this matter. Using more environmentally friendly equipment and vehicles (e.g., electric HGVs and cargo bicycles) is an example of a strategic differentiation decision in the road transport industry. However, in order to succeed with such a differentiation strategy, the costs of delivering unique attributes must not exceed the differentiation costs, and customers must perceive the organization's offering as something truly unique. Otherwise, the organization will not be able to charge more for the product or

Table 1
Approaches and generic strategies.

Approaches	Generic Strategies	Competitive advantage
Low-cost Strategy	Low-cost leadership	Compete in the market by delivering a product or a service at the lowest possible cost
Differentiation Strategy	Differentiation leadership	Compete in the market by offering something unique/special
	Focus leadership	Compete in the market by focusing and specializing on a certain aspect

service than competitors (Porter, 1992). As an example, focus on safety could be a differentiator that makes an organization excel in the industry.

The last generic strategy is focus. By choosing focus as its long-term leadership strategy, an organization seeks to compete in a small area (Porter, 1992). The organization chooses a small segment or a group of customers within an industry and aligns its strategy toward this segment or group. Transporting dangerous goods is one example of this strategy in the road transport industry. Road transport organizations that carry dangerous goods must have special equipment, vehicles, and competence to do so, and they direct their resources toward this segment (i.e., dangerous goods). By doing so, they compete in a smaller market than those competitors that do not have a focus strategy, thus increasing their likelihood of achieving higher profitability and having more resources available for investing in safety. The focus strategy has two variants such that road transport organizations can choose to seek cost-related benefits or differentiatial benefits within their specific segments or groups. Most industries have different segments, and some segments have special demands, like transporting dangerous goods. These demands provide opportunities for choosing a focus strategy (Porter, 1992).

Porter (1992) emphasizes that an organization must choose between these three strategies. They are inconsistent with each other and cannot be combined. Organizations that engage in all three (or even two) strategies will not succeed in becoming profitable and will consequently have fewer resources to invest in safety and safety work. Hence they will not gain a competitive advantage as they will fail to compete with organizations that have implemented just one of these strategies (Porter, 1992).

However, there are some counterarguments to Porter's (1992) argument about these three strategies being inconsistent with each other. For example, Reitsperger et al. (1993) state that none of the firms in their study used a single-focus strategy aligning with Porter's model. Similarly, Hill (1988) states that pursuing differentiation could be a way to achieve a low-cost position in an industry. Further, some industries do not have one unique low-cost position, so it is possible to pursue both low-cost and differentiation and still be profitable. Both Reitsperger et al.'s (1993) and Hill's (1988) view can be recognized in some road transport organizations as some organizations do not focus on one single strategy. Instead, they carry out different types of transport assignments and build different types of expertise within their organizations, leading them to be profitable.

Regardless of the strategy used, organizational size could play a role in the development of a safety culture. On one hand, it could be argued that it is easier for larger organizations to prioritize safety as they are more competitive and have more resources to invest in safety (Nævestad et al., 2015). However, this claim presupposes managers' and employees' commitment to safety, which earlier research suggests is a prerequisite for organizations' safety work to succeed (Li & Itoh, 2014; Nævestad, Elvebakk, & Phillips, 2018; Newnam & Oxley, 2016; Reason, 1998). On the other hand, it could be argued that smaller companies have an easier time connecting with their employees and thus have more success implementing safety work even though these organizations often have fewer resources available (Nævestad et al., 2015; Newnam, Lewis, & Watson, 2012).

2. Method

The following section describes the research design, research participants, data collection, and data analysis method used in this paper.

2.1. Design

This study is qualitative and takes a constructivist approach as its ontological position. Research has shown that the reality of a phenomenon under study is affected by the context and the people connected to this reality (Jacobsen, 2005; Postholm & Jacobsen, 2018). For this

study, this means that management and employees in the road transport industry are affected by their circumstances and that their reality is in constant change, for example, from new government regulations, changing demands from their customers, and shifting economic status. In other words, "reality as it actually is" changes and develops over time (Bryman, 2016). Therefore, the findings from this study present an image of the reality in this industry seems at this moment in time, but they do not try to explain this reality as absolute (Bryman, 2016).

This study takes a hermeneutic epistemological approach. This approach was chosen because the aim of the study was to gain insight into participants' own experiences and meanings of the phenomena and because the researchers described and interpreted these experiences and meanings in the context of the phenomena (Fejes & Thornberg, 2009).

Data was collected through semi-structured interviews with participants from both road transport organizations and the government. This data-collection method was chosen because the study seeks to get in-depth knowledge about how leadership strategies affect safety and safety culture in road transport organizations. To obtain such knowledge, it is essential to gain insights into the experiences and meanings of people who are familiar with the phenomena (Langdridge & Hagger-Johnson, 2009).

2.2. Study participants and recruitment

Participants were recruited through a combination of convenience sampling, purposive sampling, and snowball sampling (Bryman, 2016). A *convenience sample* is simply available by chance to researchers. In this study, several participants were recruited through a member organization for owners of road transport organizations. Thereafter, *purposive sampling* was conducted by choosing participants who were relevant to the research question. Participants were chosen based on two explicit inclusion criteria: to be chosen, the individual (1) had to be a leader of a road transport organizations that carried goods with vehicles with a total weight capacity above 7500 kg and (2) had to have at least one driver as an employee. Finally, participants were selected through *snowball sampling*. Participants who were involved in the study recommended new participants who were included because of their expertise regarding the research question (Bryman, 2016). These individuals included employees of the Norwegian Public Road Administration (NPRA), Norwegian Police, and organizations with high credibility in the road transport industry as well as researchers/authors in the road transport field. Employees of NPRA were included as participants in this study because of their extensive knowledge of laws and regulations regulating the road transport industry. Also, NPRA employees, as well as police officers, meet numerous of HGV drivers and road transport organizations through their supervisor and control tasks e.g., in traffic controls along the road and in controls of road transport organizations. This gives these participants knowledge and experience of the road transport industry that were of value for this study.

In total, the sample included 16 participants (Table 2), of whom nine were leaders of road transport organizations and seven were experts in the field. All participation was voluntary, and all the interviewees agreed to participate after being told about the project and reminded that they were able to withdraw at any time. The study was approved by the Norwegian Centre for Research Data (NSD).

2.3. Procedure and data collection

The study is limited to interviewing participants in road transport organizations situated in the middle part of Norway. This group of participants was chosen due to the high number of road transport organizations in this area and travel-related challenges for the research team. By geographically narrowing the research area, it was possible to conduct the interviews in four months. In addition to the interviewees from the road transport organizations, interviews with experts in the field were conducted. Most of these expert interviews were conducted

Table 2
Participants.

Participants	Position	Gender	Numbers of drivers employed	Expertise
Participant A	Leader	Male	< 10	
Participant B	Leader	Male	< 10	
Participant C	Leader	Male	> 60	
Participant D	Leader	Female	30	
Participant E	Leader	Male	35	
Participant F	Leader	Male	< 30	
Participant G	Leader	Male	15	
Participant H	Leader	Male	> 90	
Participant I	Leader	Male	> 100	
Participant J	COO	Male		Transport regulations
Participant K	Governmental department leader	Male		Crime in transportation
Participant L	Author	Male		Transport regulations
Participant M	Senior advisor governmental position	Male		Transport regulations
Participant N	Police officer	Male		Transport laws and regulations
Participant O	Police officer	Male		Transport laws and regulations

outside the mentioned geographical boundaries because these individuals' workplaces were in other locations.

The interviews were mainly carried out by two or three researchers in face-to-face settings. Each interview lasted for 45–60 min, and each was recorded and transcribed. A semi-structured interview guide was used, so it was possible to cover similar themes across the different interviewees. The semi-structured interview guide included different topics, but in this study, only topics dealing with the companies' leadership strategies are included. After interviewing 13 participants, little new information connected to the study's research question was obtained. However, three more interviews were conducted to ensure that assumption was correct.

2.4. Measures

A semi-structured interview guide consisting of open questions was developed prior to the interviews. Questions were primarily formulated to answer the study's research question—*What leadership strategies support and/or constrain a safety culture in road transport organizations?* However, the first questions were about making the interviewees comfortable in the interview setting (Jacobsen, 2005) by allowing them to talk freely about their organizations and their interest in the topic. During the entire interview, the researchers concentrated on allowing the interviewees to talk, only interrupting if there were follow-up questions. An example of the interview questions is presented in Table 3.

2.5. Analysis

Data analysis was conducted in accordance with Braun and Clarke (2006) thematic analysis. The analysis was conducted in several phases. The first phase involved becoming familiar with the dataset, while the second phase included generating initial codes. These codes identified features of the data that appeared interesting and could be assessed in a

Table 3
Example interview questions.

Open question	Follow-up question
Can you tell us about your organization?	What type of customers do you have? What type of transport do you carry out? What are the factors that constrain and/or support your safety work?
Which factors affect your workdays?	How do regulations/laws/systems affect your workdays?
How do you perceive the safety culture in your organization?	How can you work to create a better safety culture?
How do you maintain your drivers' competence and skills?	Do you provide your drivers with more education than what is mandatory?

meaningful way in relation to the phenomena (Braun & Clarke, 2006). In this phase, the researchers continuously looked for patterns to organize the dataset in order to answer the research question. For example, the researchers highlighted when the participants talked about their relationships with customers and then sorted these instances into one category (i.e., one code). The third phase was conducted after finalizing the initial coding. This phase involved sorting the different codes into potential themes and collating all the relevant coded data within the themes. The goal was to group codes into themes such that the themes captured something important in relation to the research question (Braun & Clarke, 2006). For example, quotes regarding road transport organizations' relationships with customers was categorized into sub-themes like "customers recruited by offering the lowest price" and "customers recruited by offering a specialized form of transport." These themes were identified in a theoretical (deductive) way, meaning that the analysis was driven by the motivation to gain knowledge about the organizations' possible leadership strategies and how these strategies affect safety and safety culture within the organizations. Further, the themes were identified on a latent (or interpretive) level, meaning that the researchers sought to identify the underlying ideas and assumptions of the data. Thus, for latent thematic analysis, themes are developed through interpretation (Braun & Clarke, 2006). The fourth phase involved refining the themes, which entailed aggregating several sub-themes into four main themes.

An example of the analysis process is illustrated in Table 4. The list of codes is not exhaustive.

The analysis resulted in the following main themes: (1) Strategies for road transport assignment, (2) strategies for personnel, (3) strategies for equipment selection, and 4) strategies for legality. A complete

Table 4
Overview of the analysis process.

Main themes	Sub-themes	Codes (examples)
Strategies for road transport assignments	Recruit customers by offering the lowest price	Good communication with customers
	Recruit customers by specializing and being innovative	Long-term contracts Few/many customers
Strategies for personnel	Education and training	Education is looked at as a cost
	Safety management system	Education looked at as an asset Seldom provide systematic education and training Management does (not) follow up on driver behavior New/old vehicles
Strategies for equipment selection	Vehicles	
Strategies for legality	Customized equipment for cargo	
	Following laws and regulations	Willingness to take chances
	Perceptions about control systems (e.g., governmental systems)	

presentation of the results is provided in Section 3.0.

3. Results

The empirics shows that there are some main factors that can support and/or constrain the development of a good safety culture in road transport organizations. These factors are influenced by choices the management makes for different decisions—that is, their strategic choices. In the following, the interview data is presented. The statements presented solely sum up the meanings of the participants of this study. An overview of the main- and sub themes are presented in Table 5.

3.1. Strategies for road transport assignments

The participants in this study highlighted that to work toward a better safety culture within road transport organizations, resources (e.g., skilled and motivated drivers, assets to invest in courses/education, up-to-date vehicles and equipment, etc.) must be available. It was stated that these resources are only available if organizations are profitable. The participants agreed upon that the type of road transport assignment an organization has is important in this regard. It is stated that there are two main ways of recruiting customers to get road transport assignments: 1) by offering the lowest price and 2) by specializing and being innovative.

3.1.1. Recruiting customers by offering the lowest price

Several of the participants explained that they recruit customers by offering the lowest price. Most of these road transport organizations are in competition with other road transport organizations to get transport assignments—namely, driving tenders. The organization that offers to execute an assignment for less money, wins the tender. As one interviewee noted, “If you don’t calculate the absolute lowest cost you can, you will not get the tender, and you are out of business” (Interviewee B).

The empirics show that organizations that compete for such tenders are typically involved in long-distance road transport, asphalt paving, or snow plowing. Some of the participants highlighted that industry newcomers need customers and that competing in such tenders often provides them with customers to start their business. These newcomers often have few HGVs and less equipment, which means they can offer a low price to execute transport assignments. It was stated that this practice could make it difficult for existing road transport organizations to win such tenders.

All participants involved in long-distance road transport highlighted the challenge of competing with foreign road transport organizations to get transport assignments. Foreign road transport organizations often offer lower prices to get assignments, and Norwegian road transport organizations must match these offers.

Regarding transport assignments like asphalt paving or snow plowing, the participants again stated that organizations that offer the lowest price generally get assignments. The entities that order such assignments are often price-sensitive county councils or municipalities. As one of the interviewees put it, “The state, county council, or municipality is often the principal, and they chase their expenses. They do that independently

Table 5
Overview of main- and sub themes.

Main Theme	Sub theme
1) Strategies for road transport assignments	Recruiting customers by offering the lowest price Recruiting customers by specializing and being innovative
2) Strategies for personnel	Education and training Safety management systems
3) Strategies for equipment selection	
4) Strategies for legality	

even if it affects safety” (Interviewee C). The participants, especially the experts, also stated that there are plenty of road transport organizations that are willing to take assignments even if doing so brings low earnings, so this action is rather stable.

Another challenge the participants mentioned is that organizations that compete for driving tenders are often the last link in a road transport chain. This means that for each transport assignment, there is a principal that has a contract with a customer but hires sub-contractors to carry out the actual transport. It was stated that this practice leads to very low profitability for the sub-contractors as they are the last ones in the road transport chain. For example, one participant stated, “There have been some challenges when we have driven for transport centrals. The central takes a provision of the assignment and doesn’t care if we earn money or not on the transport” (Interviewee B).

3.1.2. Recruiting customers by specializing and being innovative

Some of the participants are very selective in which customers they want in their portfolio. They highlighted the importance of customers who are willing to pay for safety and quality and acknowledge their drivers. For example, one interviewee explained, “We have decided to not execute some specific road transport assignments, for example, the transport of salmon. That kind of transport puts too much pressure on our drivers” (Interviewee H). It was stated that transporting salmon in Norway often requires long-distance driving and time pressure as the transport must make it to the airport by a certain time to load the salmon on board an aircraft for export. It was also highlighted that by not carrying out such road transport assignments, the organizations avoid competition with foreign road transport organizations, which most of the interviewees stated is a major cause of low earnings in the industry.

The interviewees stated that instead of competing to get assignments by offering the lowest bid, they compete on other criteria, such as specialization, innovative solutions, and high-quality driving and delivery. They prioritize carrying out specific types of road transport assignments. An example provided by the participants are organizations that are specialized in only transporting dangerous goods. Such transport demands special HGVs, equipment, and competence, which these road transport organizations provide. By specializing within this field, organizations have a limited number of customers (e.g., customers in the oil business). It was stated that these types of customers are generally very concerned with safety and have a good safety culture within their own organizations. Therefore, they also tend to apply their safety focus when their goods are being transported. It was specifically highlighted that such customers put demands on how road transport organizations carry out transport assignments. As one of the experts noted, “We seldom find errors in the transport of dangerous goods. This is because the big oil and gas firms demand quality from the ones who execute the transport” (Interviewee M).

Other road transport organizations recruit customers with innovative thinking and solutions. For instance, some of the participants are testing electric HGVs and bicycles. These participants highlighted their concerns about environmental issues and wanted to contribute to more environmentally friendly road transport. Also, some participants highlighted the importance of specializing in different transport assignments in order to have work throughout the year. For example, one interviewee said, “We carry out transport of fuel (dangerous goods), food, and different kinds of waste” (Interviewee H).

It was highlighted that, because their organization carry out different types of road transport assignments, drivers can switch between different transport assignments. The participants highlighted this ability to switch assignments as a big advantage because drivers do not become bored and seldom quit their jobs. This was assumed to make it easier to build a safety culture within the organization because there are seldom new drivers to train.

Further, the participants that were recruiting customers by specializing and being innovative highlighted the importance of customer relationships, especially having an open dialog with customers outlining

that deliveries and travel/work times must maintain safety. The participants particularly emphasized strong communication and trust with customers. For example, one participant explained, “We have transported our clients’ goods for 25–60 years. Our contracts are good, and we have trustful relationships with our clients” (Interviewee D).

Overall, a common factor amongst participants that were representing road transport organizations that recruit customers by specialization and innovative solutions is that they can turn down assignments that are not profitable.

3.2. Strategies for personnel

The importance of stable employees on long-term contracts were stated as essential for building a safety culture within road transport organizations. Related to this strategic decision, some of the participants highlighted the importance of education and training and following up with driver behavior as crucial factors in this matter.

3.2.1. Education and training

It is stated by some of the participants that road transport organizations that experience time pressure and low earnings often experience challenges with offering systematic education and training above what is mandated by regulations.¹ With regard to mandatory training every 5 years it was highlighted that this was not enough. That additional and more frequent personnel meetings being internal, or external, and containing theoretical or practical courses should also be provided. Since the content of such meetings were suggested to be both theoretical and or practical, both regulatory issues and culture development knowledge could be combined. By regulatory issues the participants refer to gaining knowledge about new laws and regulations, internal guidelines on loading and unloading routines or but not least customer management. By culture development participants refer to developing a uniform understanding of the organization, challenges and internal practices. All of which were mentioned to develop a good safety culture.

Education and training were often viewed as expensive and time consuming, thus many road transport organizations do not prioritize these activities given their lack of resources. For instance, one interviewee explained, “I don’t have any system for education and training. I take it little at a time. Maybe not so good at this. I see that I could have done things differently, but we haven’t had any accidents in many years, only small things” (Interviewee G).

Some interviewees stated that the mandatory education every driver must receive every five years is enough to maintain competence. However, other interviewees stated that systematic and frequent education is not only important for safety; it also motivates employees and leads to closer relationships between employees. In such cases, the barrier for employees to reach out to each other for advice and help is lowered. One interviewee said it like this: “It has to do with attitude. The seriousness in what we are working with. I always say, without education and training, everything will stop” (Interviewee I).

Some participants also mentioned that by prioritizing education and training, organizations will get the best drivers, and the best drivers know how to solve difficult challenges and when to stop driving if circumstances demands for it. It was highlighted that such behavior tends to lead to fewer near misses and accidents, and that organizations that prioritize educating their drivers regularly experience lower costs for repairs and maintenance on vehicles and equipment. As one interviewee

put it, “The driver is the boss. If he/she says that the transport cannot be executed according to plan, we listen” (Interviewee I).

Several participants stated the importance of giving the drivers responsibility and trusting that they are competent to make the right decisions. However, it was also stated that in order to have such trust, management must be sure drivers have the competence and skills required.

3.2.2. Safety management systems

Several of this study’s participants stated that road transport organizations that are concerned about safety in road transport are also generally concerned about becoming more systematic and certified. They find it important to certify their organizations according to industry standards. For instance, one interviewee said, “We are ISO certified according to four standards: quality, environment, work-place safety, and traffic safety. It is a lot of work to stay certified, but it is not more than we have to” (Interviewee I).

Participants in smaller road transport organizations stated that it can be too resource demanding to become certified according to ISO standards. However, they are still aware of the importance of using systems to monitor their performance, and they find monitoring driver behavior to be helpful in their safety work. One interviewee explained his organization’s approach: “We use Dynafleet and Scaniafleet active. We follow up on driver behavior and organize regular meetings with the drivers to discuss the results from the fleet system. This is seen as a positive thing by the drivers” (Interviewee D). In addition to fleet systems, there was also widespread use of systems that register deviations in driving, loading, and unloading routines.

3.3. Strategies for equipment selection

As stated above, personnel strategy is of importance when it comes to recruiting and keeping employees. In addition, the participants emphasized that the choice of equipment also influences the attractiveness of organizations. In a road transport market that lacks drivers, it is difficult to find competent drivers. The interviewees stated that in addition to providing education and training, road transport organizations must provide drivers with the best equipment. As one participant put it, “By letting the drivers choose their favorite vehicle, get new tires every autumn, and get the right equipment to do the job, I get satisfied drivers who take care of it all like it was their own” (Interviewee A). The participants further explained that providing new vehicles and customized equipment contributes to motivating drivers and that motivated drivers tend to stay with the organization.

Some interviewees stated that serious buyers of road transport services set demands on what kind of equipment road transport organizations must provide. For instance, some customers set demands that all vehicles must be equipped with systems that do not allow the driver to start the vehicle if he/she has been drinking alcohol. Further, some require that all vehicles have cruise control, anti-lock brakes, lane-keeping assistance, and so forth, while others also set demands on how much a vehicle can pollute. Some participants stated that all of these demands often are mandatory, and if a road transport organization does not fulfill these demands, it will not get transport assignments from these customers.

3.4. Strategies for legality

The participants agree that the road transport industry generally has low profitability. It is stated that, to survive as an organization in this pressed market, some are willing to “bend” rules and regulations set by the government. One interviewee said it like this, “On average, long-distance road transport has a net income result around 3–5%. So, if they can come up with some smart things to do to save some money and get a competitive advantage over their competitors, some will do that. For example, work longer hours or overload the vehicle” (Interviewee

¹ Directive 2003/59/EC of the European Parliament and of the Council of 15 July 2003 on the initial qualification and periodic training of drivers of certain road vehicles for the carriage of goods or passengers, demands that drivers must undergo 35 h of training every fifth year. The content of the training are both theoretical and practical. Hereby, amongst other, training in driving time and rest period, loading/unloading of cargo, accident preparedness and safe/optimal driving.

K).

According to some of the experts, the chance of being caught breaking the rules is small, especially if the road transport assignment is mainly local driving. One interviewee mentioned timber transport as an example. Often such transport is carried out locally on small roads with a weight limit. Organizations that overload their vehicles on these roads can carry more each trip and consequently make more money than those that adhere to the load limit.

Few interviewees from the road transport organizations were willing to talk about their own practice in this matter. However, all the experts in the field commented on this practice and spoke about it as a big challenge for safety.

4. Discussion

This study's aim was to examine which leadership strategies support and/or constrain safety culture in road transport organizations. After analyzing the data using thematic analysis (Braun & Clarke, 2006), four final themes were uncovered: 1) strategies for road transport assignments, 2) strategies for personnel, 3) strategies for equipment selection, and 4) strategies for legality.

The empirics in this study shows that there are different ways road transport organizations get their transport assignments: I) by recruiting customers to transport their goods for a lower price than other road transport organizations, II) by specializing in certain types of road transport or III) by focusing on certain niche markets in the industry.

Road transport organizations that operate in markets in which competition revolves around offering the lowest price tend to struggle to be profitable. Porter (1992) emphasizes that only one organization can be the lowest-cost provider in a market. However, in the road transport industry, several organizations compete against each other to win assignments by providing the lowest price/bid. This competition often leads to high rivalry between organizations, thus threatening the profitability of the entire industry. Indeed, such rivalry has arisen in certain markets in the road transport industry (e.g., in long-distance driving, asphalt paving, and snow plowing). These are markets where the competition is high. There are many providers, both domestic and international road transport organizations, competing on the same assignments.

As a consequence of not being profitable, it seems challenging to develop a good safety culture within the organization. This is because the struggle of being profitable competes with safety goals (Newnam et al., 2017). Instead of having resources available to invest in developing a good safety culture, resources must be spent on getting new assignments. This could constrain developing a good safety culture as building one demands that resources are invested, both in the short and long term. For example, having a clear and concise strategy regarding investments in equipment is difficult when resources are low. Hence, equipment and vehicles are used for a longer period of time, resulting in road transportation without sufficient equipment/vehicles. Moreover, low profitability tempts road transport organizations and their drivers to take chances regarding legality, for example, by overloading their

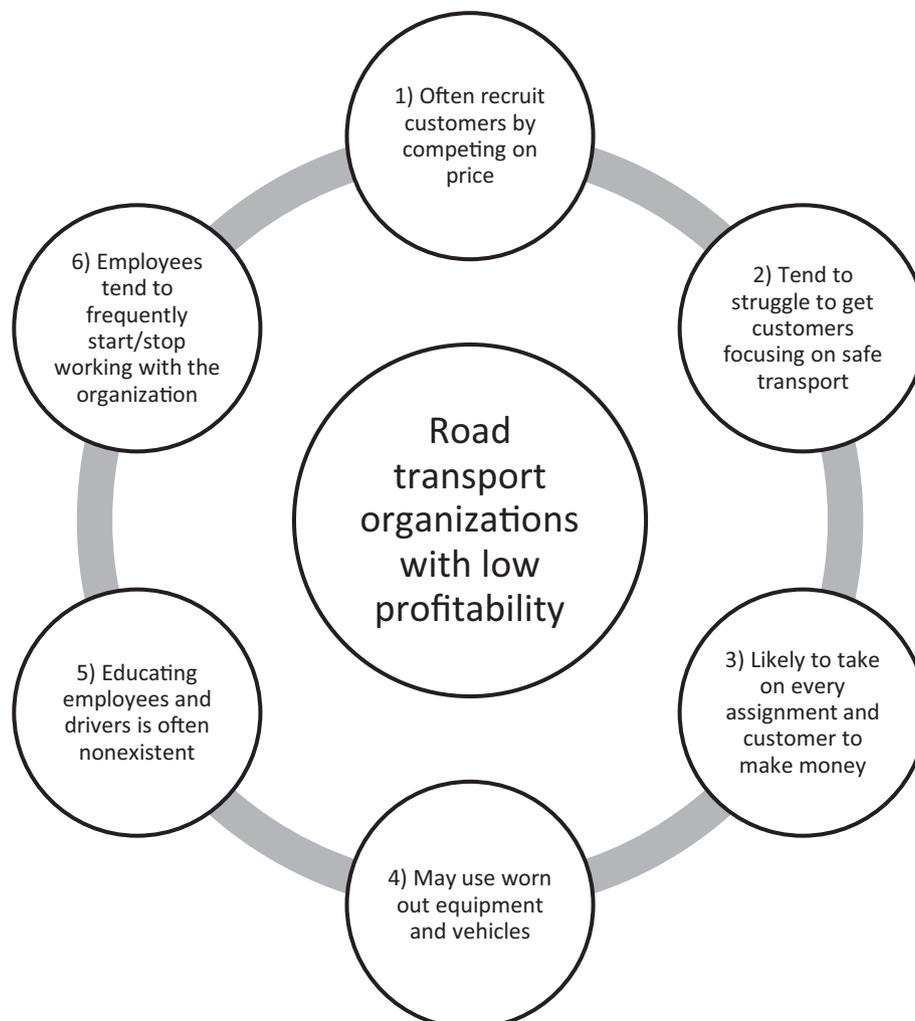


Fig. 1. Negative spiral for road transport organizations with low profitability.

vehicles and driving too many hours in order to make more profit. In this sense, low profitability is likely to capture a road transport organization in a negative spiral regarding developing a good safety culture. An example of such spiral is shown in Fig. 1.

Road transport organizations that deliberately try to differentiate themselves to gain a special position in their market are more likely to be profitable and hence have resources to invest toward developing a good safety culture, such as those that specialize in certain types of road transport or focus on certain niche markets in the industry. In this study, the participants that claim they have a unique market position tend to choose their road transport assignments and customers wisely. Instead of competing with a low-cost strategy, they focus on different niche markets in the industry, including transport assignments that require special equipment and competence (e.g., the transportation of dangerous goods, heavy steel for special operations, timber, cranes, etc.). The participants explained that even though this kind of transportation demands greater investments in equipment and drivers, the organizations who take on such investments are typically more profitable. Porter (1992) emphasizes that for an organization to succeed with a differentiation strategy, it must differentiate itself on attributes its competitors ignore or neglect. Such differentiation may seem like a challenge in road transport, as the aim is to simply move something from one place to another. However, one way an organization can differentiate itself in the transportation industry is by becoming an expert in a special type of road transport. Another way is to invest in innovative solutions and offer customers something unique, such as transport with

electric vehicles or bicycles in urban areas. This type of differentiation is likely to be even more important in the future when more organizations incorporate sustainable principles and objectives into their practices (Aarseth et al., 2017).

Another reason road transport organizations with differentiation and focus strategies are more profitable could be their customers' attitude. This study's participants noted that customers of organizations that implement these strategies tend to demand safety in the transportation of their goods. Therefore, they are willing to pay more to have their goods safely transported by drivers who are educated and equipment that is suitable. This is in accordance with a recent study, stating that buyers of road transport services are an important actor for safer and more sustainable road transport (Grinerud, Sætren, & Aarseth, 2020). In this sense, a profitable road transport organization often creates a positive spiral regarding developing a good safety culture. An example of such spiral is shown in Fig. 2.

In addition to which leadership strategies road transport organization chose to recruit customers, this study highlights the importance of leadership strategies regarding personnel. In a recent study by Nævestad et al. (2020) it is stated that the work to develop a good safety culture starts immediately when people are hired. It is essential to communicate the norms that apply in the organization and involve employees in the process of building a good safety culture. This is in accordance with several of the participants in this current study. They highlight the importance of investing in the employees, both in terms of organized and un-organized communication, education, and training. As for

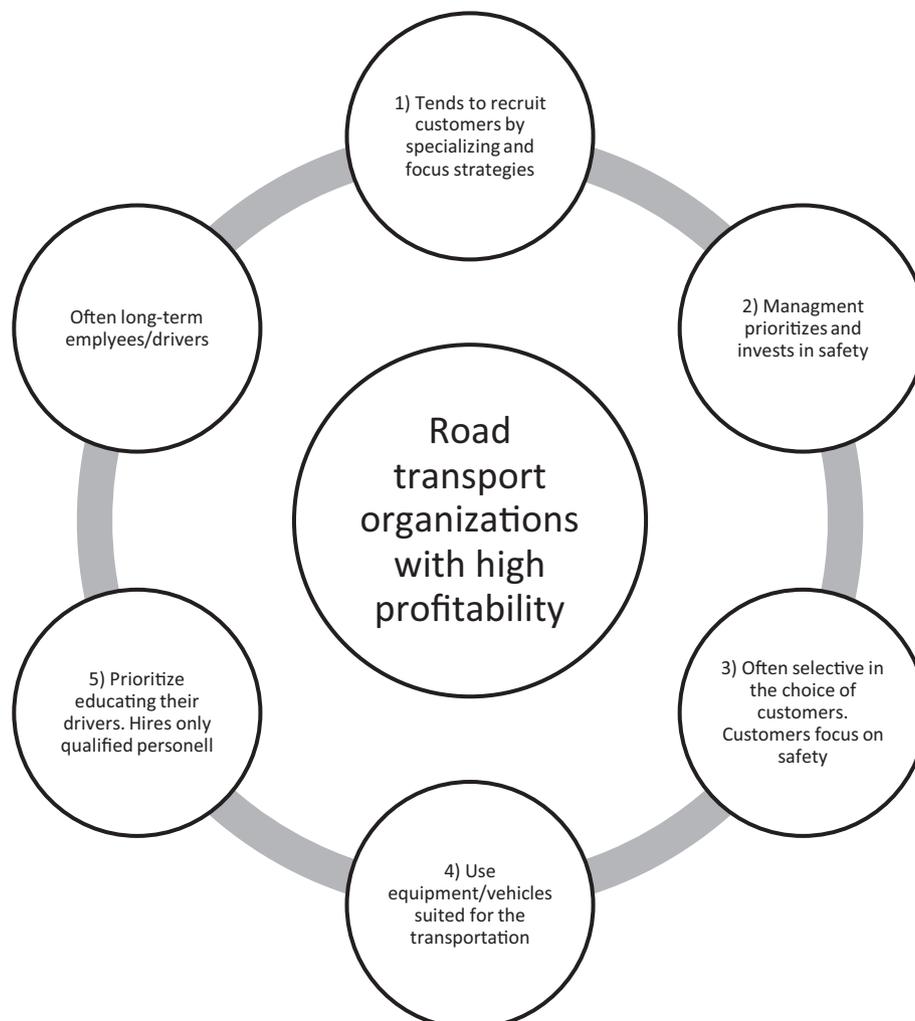


Fig. 2. Positive spiral for road transport organizations with high profitability.

organized communication, safety management systems are highlighted as an example. Safety management systems are seen as important because it allows management (and the driver) to gain insight into driver behavior and provides possibilities to implement the right measures in the right place. This could contribute to developing a learning culture, which Reason and Hobbs (2017) emphasize as a key attribute of a good safety culture. As for organized education and training, regular frequent meetings/courses (both theoretical and practical) are viewed as a motivating factor to keep employees (drivers) employed. It is highlighted as important to have long-term employees in order to develop a good safety culture in the organization. Frequent education/training are also considered attractive to recruit new employees. Joint discussions about risk awareness between management and employees are also considered important. In general, the management's commitment to safety is critical to developing a good safety culture (Newnam et al., 2017). This current study's participants highlight the importance of applying both a top-down and bottom-up approach to developing safety culture; it is just as crucial that the management has knowledge about the employees' (drivers) everyday challenges as it is for employees (drivers) to know about managements' everyday challenges. Reason and Hobbs (2017) emphasize that such discussions create an informed culture, another key attribute of a good safety culture.

4.1. Limitations

While this study provides insights into how strategic choices affect safety culture in road transport organizations, it also has some limitations. The study's participants are mainly from the middle part of Norway. We chose these participants because of the high number of road transport organizations in this area and their willingness to contribute to the study. We acknowledge that the results could have been different if the participants were from other areas of Norway or from another country. However, the road transport industry throughout Norway is experiencing the same challenges, so we decided to concentrate on participants from the middle part of Norway.

This study's results mostly focus on processes that are in road transport organizations' external environment (e.g., how the management recruit customers and employees) while the theoretical framing of strategy and safety culture mainly emphasizes intra-organizational processes. It could be a limitation of the study that the theoretical framework does not focus more on the processes in the organization's external environment. However, it is the assumption that intra-organizational processes (e.g., management's decisions) are affected by the organizations' external environment that lies behind this rationale.

It can also be a limitation of the study that only management level and experts in the field are participants. It could be the case that some arguments would be different if drivers were included as participants. However, the aim of the study was to discover which leadership strategies support and/or constrain safety culture in road transport organizations. Therefore, the focus has been on the management level and experts in the field: the management level because they make the choices and decide on organizations strategy, and experts in the field because they could shed light on the management's decisions.

5. Conclusion

The aim of this study is to answer the following research question: *Which leadership strategies support and/or constrain safety culture in road transport organizations?*

After analyzing the empirics, four main categories were uncovered. These categories entail how road transport organizations recruit their customers and get transport assignments, choose their personnel, select equipment, and perceive laws and regulations. These categories ultimately reveal how road transport organizations prioritize and make decisions—that is, how they *set their strategies*.

By choosing a low-cost leadership strategy (Porter, 1992) - in this context, recruiting customers by offering the lowest price - road transport organizations struggle to be profitable. More specifically, this strategy leads to high rivalry between organizations, which makes it difficult to be profitable and hence have resources available to invest in developing a good safety culture. Indeed, any available resources are likely to be used to get new assignments, not to develop a good safety culture. As such, it is reasonable to argue that in the road transport industry, a low-cost leadership strategy constrains organizations' ability to develop a good safety culture.

Road transport organizations that implement a differentiation or focus leadership strategy (Porter, 1992) compete in their market by specializing in specific transport assignments or by being innovative and offering something unique to their customers. They do not compete on the lowest bid, and therefore earn more profit that can be directed toward safety (e.g., investing in their employees). Their customers also set demands, including safety demands, that they must fulfill to get assignments. These factors lead these organizations to prioritize buying new equipment, educate their drivers, and meet customer demands. Hence, by choosing one of these strategies, organizations have the potential to become profitable and can thus focus more on developing a good safety culture.

It may seem like customers can push for road transport organizations to develop a good safety culture. Customers that include road transport in their own product chains are more likely to believe that safe road transport costs money. That is, by starting to include the actual transport of their goods in their production chains, customers are likely to begin choosing their transport organizations with more concern. Indeed, while there will always be both serious and unserious road transport organizations, to decrease the number of unserious organizations, customers must be aware of their social responsibility in safe road transport. Thus, further research should focus on road transport customers' responsibility in this matter.

Author agreement

First author, Katrine Grinerud, state, on behalf of all authors, that all authors have seen and approved the final version of the manuscript being submitted. Grinerud warrant that the article is the authors' original work, hasn't received prior publication and isn't under consideration for publication elsewhere.

Declaration of interest

None.

Acknowledgments

We would like to acknowledge our participants contribution to this study. We would also like to acknowledge the comments of the two anonymous reviewers, which made for a stronger and more comprehensive paper.

References

- Aarseth, W., Ahola, T., Aaltonen, K., Økland, A., & Andersen, B. (2017). Project sustainability strategies: A systematic literature review. *International Journal of Project Management*, 35(6), 1071–1083.
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101.
- Bryman, A. (2016). *Social research methods*. Oxford university press.
- Fejes, A., & Thornberg, R. (2009). *Handbok i kvalitativ analys [Handbook in Qualitative Analysis]: Liber*.
- Glendon, A. I., & Stanton, N. A. (2000). Perspectives on safety culture. *Safety Science*, 34(1–3), 193–214.
- Grinerud, K., Sætren, G. B., & Aarseth, W. K. (2020). Buyers of road transport services: sustainability and safety responsibility?. In *Paper presented at the the 30th European safety and reliability conference and the 15th probabilistic safety Assessment and safety conference, Venice, Italy*.

- Grytnes, R., Shibuya, H., Dyreborg, J., Grøn, S., & Cleal, B. (2016). Too individualistic for safety culture? Non-traffic related work safety among heavy goods vehicle drivers. *Transportation Research Part F: Psychology and Behaviour*, 40, 145–155. <https://doi.org/10.1016/j.trf.2016.04.012>.
- Hill, C. W. (1988). Differentiation versus low cost or differentiation and low cost: A contingency framework. *Academy of Management Review*, 13(3), 401–412.
- Huang, Y.-H., Zohar, D., Robertson, M. M., Garabet, A., Lee, J., & Murphy, L. A. (2013). Development and validation of safety climate scales for lone workers using truck drivers as exemplar. *Transportation Research Part F: Traffic Psychology and Behaviour*, 17, 5–19.
- Hughes, B. P., Newstead, S., Anund, A., Shu, C. C., & Falkmer, T. (2015). A review of models relevant to road safety. *Accident Analysis and Prevention*, 74, 250–270. <https://doi.org/10.1016/j.aap.2014.06.003>.
- Jacobsen, D. I. (2005). *Hyvordan gjennomføre undersøkelser?: innføring i samfunnsvitenskapelig metode [How to do research?: introduction to social research methods]*. 2. Høyskoleforlaget Kristiansand.
- Johnson, G., Whittington, R., Scholes, K., Angwin, D., & Regnér, P. (2011). *Exploring strategy: Financial times prentice hall*.
- Langdridge, D., & Hagger-Johnson, G. (2009). *Introduction to research methods and data analysis in psychology: Pearson education*.
- Langeland, P. A., & Phillips, R. O. (2016). *Tunge kjøretøy og trafikkulykker [Heavy vehicles and traffic accidents]* [TØI Report 1494/2016]. Retrieved from <https://www.toi.no/getfile.php?mmfileid=43094>.
- Li, Y., & Itoh, K. (2014). Safety climate in trucking industry and its effects on safety outcomes. *Cognition, Technology & Work*, 16(2), 131–142. <https://doi.org/10.1007/s10111-013-0252-0>.
- Ministry of Transport and Communications. (2017). Meld.St.33 National transport plan 2018–2029. Retrieved from <https://www.regjeringen.no/en/dokumenter/meld.-st.-33-20162017/id2546287/>.
- Mooren, L., Grzebieta, R., Williamson, A., Olivier, J., & Friswell, R. (2014). Safety management for heavy vehicle transport: A review of the literature. *Safety Science*, 62(C), 79–89. <https://doi.org/10.1016/j.ssci.2013.08.001>.
- Mooren, L., Williamson, A., Friswell, R., Olivier, J., Grzebieta, R., & Magableh, F. (2014). What are the differences in management characteristics of heavy vehicle operators with high insurance claims versus low insurance claims? *Safety Science*, 70(C), 327–338. <https://doi.org/10.1016/j.ssci.2014.07.007>.
- Nævestad, T.-O., Bjørnskau, T., Hovi, I. B., & Phillips, R. O. (2014). Safety outcomes of internationalization of domestic road haulage: A review of the literature. *Transport Reviews*, 34(6), 1–19. <https://doi.org/10.1080/01441647.2014.981883>.
- Nævestad, T.-O., Blom, J., & Phillips, R. O. (2020). Safety culture, safety management and accident risk in trucking companies. *Transportation Research Part F: Traffic Psychology and Behaviour*, 73, 325–347.
- Nævestad, T.-O., Elvebakk, B., & Phillips, R. O. (2018). The safety ladder: Developing an evidence-based safety management strategy for small road transport companies. *Transport Reviews*, 38(3), 372–393. <https://doi.org/10.1080/01441647.2017.1349207>.
- Nævestad, T.-O., Hesjevoll, I. S., & Phillips, R. O. (2018). How can we improve safety culture in transport organizations? A review of interventions, effects and influencing factors. *Transportation Research Part F: Psychology and Behaviour*, 54, 28–46. <https://doi.org/10.1016/j.trf.2018.01.002>.
- Nævestad, T.-O., Phillips, R. O., & Elvebakk, B. (2015). Traffic accidents triggered by drivers at work – A survey and analysis of contributing factors. *Transportation Research Part F: Psychology and Behaviour*, 34, 94–107. <https://doi.org/10.1016/j.trf.2015.07.024>.
- Newnam, S., & Goode, N. (2015). Do not blame the driver: A systems analysis of the causes of road freight crashes. *Accident Analysis & Prevention*, 76, 141–151.
- Newnam, S., Lewis, I., & Watson, B. (2012). Occupational driver safety: Conceptualising a leadership-based intervention to improve safe driving performance. *Accident Analysis & Prevention*, 45, 29–38.
- Newnam, S., & Oxley, J. (2016). A program in safety management for the occupational driver: Conceptual development and implementation case study. *Safety Science*, 84, 238–244. <https://doi.org/10.1016/j.ssci.2015.12.020>.
- Newnam, S., Warmerdam, A., Sheppard, D., Griffin, M., & Stevenson, M. (2017). Do management practices support or constrain safe driving behaviour? A multi-level investigation in a sample of occupational drivers. *Accident Analysis and Prevention*, 102, 101–109. <https://doi.org/10.1016/j.aap.2017.02.007>.
- Njå, O., & Fjellunt, S. H. (2010). Managers' attitudes towards safety measures in the commercial road transport sector. *Safety Science*, 48(8), 1073–1080. <https://doi.org/10.1016/j.ssci.2010.02.005>.
- Porter, M. E. (1992). *Konkurrans fortrinn [competitive advantages]*. Norway: Tano.
- Porter, M. E., & Kramer, M. R. (2006). The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 84(12), 78–92.
- Postholm, M. B., & Jacobsen, D. I. (2018). *Forskningsmetode for masterstudenter i lærerutdanningen [research method for master students in teaching education]*. Cappelen Damm akademisk.
- Rasmussen, J. (1997). Risk management in a dynamic society: A modelling problem. *Safety Science*, 27(2), 183–213.
- Reason, J. (1998). Achieving a safe culture: Theory and practice. *Work and Stress*, 12(3), 293–306.
- Reason, J., & Hobbs, A. (2017). *Managing maintenance error: A practical guide*.
- Reitsperger, W. D., Daniel, S. J., Tallman, S. B., & Chismar, W. G. (1993). *Product quality and cost leadership: Compatible strategies?* (pp. 7–21) MIR: Management International Review.
- Şimşekoglu, Ö., & Nordfjærn, T. (2017). The role of safety culture/climate and social cognitive factors for driving behaviors of Turkish professional drivers transporting petroleum products. *Journal of Risk Research*, 20(5), 650–663.
- Statistics Norway. (2020). Trafikkulykker med personskade [Traffic Accidents with human injuries]. Retrieved from <https://www.ssb.no/transport-og-reiseliv/statistikk/vtu>.
- Statistics Norway. (2021a). Godstransport med lastebil [Carriage of goods by lorry]. Retrieved from <https://www.ssb.no/en/statbank/table/03650/tableViewLayout1/>.
- Statistics Norway. (2021b). Godstransport med utenlandske lastebiler i Norge [Road goods transport by foreign lorries in Norway]. Retrieved from <https://www.ssb.no/statbank/table/06803>.
- Stogdill, R. M. (1950). Leadership, membership and organization. *Psychological Bulletin*, 47(1), 1.
- World Health Organization. (2018). *Global status report on road safety 2018: Summary* (Retrieved from).
- Zohar, D., & Luria, G. (2005). A multilevel model of safety climate: Cross-level relationships between organization and group-level climates. *Journal of Applied Psychology*, 90(4), 616.