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Nienke Hofstra, Wout Dullaert, Sander De Leeuw, Eirini Spiliotopoulou,

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Individual goals and social preferences in operational decisions

Individual goals and social preferences

Behavioural insights from transport planning

Nienke Hofstra and Wout Dullaert

*Department of Information, Logistics and Innovation,
Vrije Universiteit Amsterdam, Amsterdam, The Netherlands*

Sander De Leeuw

*Department of Information, Logistics and Innovation,
Vrije Universiteit Amsterdam, Amsterdam, The Netherlands, and
Nottingham Business School, Nottingham Trent University, Nottingham, UK, and*

Eirini Spiliotopoulou

*Department of Information, Logistics and Innovation, Vrije Universiteit Amsterdam,
Amsterdam, The Netherlands, and*

Department of Management, TiSEM, Tilburg University, Tilburg, The Netherlands

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Abstract

Purpose – The purpose of this paper is to develop propositions explaining the influence of individual goals and social preferences on human decision making in transport planning. The aim is to understand which individual goals and social preferences planners pursue and how these influence planners' decisions.

Design/methodology/approach – Propositions are developed based on investigation of decision making of transport planners in a Dutch logistics service provider using multiple data collection methods.

Findings – The study shows how decision making of transport planners is motivated by individual goals as well as social preferences for reciprocity and group identity.

Research limitations/implications – Further research including transaction data analysis is needed to triangulate findings and to strengthen conclusions. Propositions are developed to be tested in future research.

Practical implications – Results suggest that efforts to guide planners in their decision making should go beyond traditional (monetary) incentives and consider their individual goals and social preferences. Moreover, this study provides insight into why transport planners deviate from desired behaviour.

Originality/value – While individual decision making plays an essential role in operational planning, the factors influencing how individuals make operational planning decisions are not fully understood.

Keywords Decision making, Case study, Transport planning, Behavioural operations management, Social preferences

Paper type Research paper

1. Introduction

Humans play an important role in operational planning tasks such as production planning or transport planning (McKay and Wiers, 2006; Stefansson and Hagen, 2013). Although some aspects of planning tasks may be automated (e.g. through the use of planning software), the complexity of planning activities and related uncertainty requires human input to respond to events (Sanderson, 1989). Human judgment and decision making is



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required when, for instance, there is missing information, particular information is available to planners only (e.g. knowledge about certain future events), or there are sudden changes in actual conditions (McKay and Wiers, 2006; Morikawa and Takahashi, 2007). As such, human decision making plays an essential role in operational planning activities.

The importance of the human factor in planning is widely acknowledged (Fransoo *et al.*, 2011; McKay and Wiers, 2006). Research has focussed extensively on the development and improvement of software tools and mathematics therein to generate optimal plans (e.g. production plans, transport plans) (McKay and Wiers, 2006). Traditionally, such tools and techniques developed in operations management (OM) implicitly assume that human decision makers rationally optimise their behaviour towards a single (usually monetary) goal (Tokar, 2010). However, experimental findings on decision making show a discrepancy between behaviours predicted by OM models and actual behaviours of real decision makers (Bendoly *et al.*, 2006; Croson *et al.*, 2013; Gino and Pisano, 2008). Relatedly, research on the human role in planning is increasing (Fransoo *et al.*, 2011; McKay and Wiers, 2006). Researchers have considered different planning contexts such as production planning (recently, e.g. Bendul and Knollman, 2016; Larco *et al.*, 2013; Letmathe and Zielinski, 2016) and transport planning (Li *et al.*, 2012; Mesa-Arango and Ukkusuri, 2014).

Studies that focus on planner decision making have typically been investigating humans' cognitive processes associated with planning decisions. For example, studies have been exploring what happens when planners face increasingly complex decision problems (Fransoo and Wiers, 2006), how planners organise their time (Larco *et al.*, 2013) or planners' task performance under different software interfaces (Cegarra *et al.*, 2012). In addition to these cognitive factors that affect planner decision making, there are "softer" behavioural factors such as individual goals and social preferences (also referred to as social goals), and cultural norms which are known to affect decision making in operations (Loch and Wu, 2008). Research in (social) psychology and economics has shown that humans pursue individual goals other than monetary ones and have social preferences, which results in non-rational decision making (e.g. Kahneman and Tversky, 1979; Kenrick *et al.*, 2002). Yet, so far, research has not taken a social perspective to study human planning decisions. Understanding social aspects, besides cognitive aspects, is important for the development of efficient planning processes that incorporate human capabilities (MacCarthy *et al.*, 2001).

In order to address this literature gap and contribute to theory, this study specifically aims to explore the effect of individual goals and social preferences on operational planning decisions. This study focusses on transport planning, which entails arranging transportation services to move shipments between origins and destinations (Stefansson and Hagen, 2013). From a theoretical perspective, this type of planning is interesting to study for the following reasons. Given the competitive nature of the transport sector with transport generally being perceived as a commodity service that customers can easily source elsewhere, planning decisions typically have to be made under time pressure. Moreover, at logistics service providers (LSPs), the intra-firm relationships between planners are long-term, reciprocal and involve repeated interactions. Such a context evokes individual and social goals that planners pursue which may cause friction with the company's goals. Therefore, in this study, the aim is to identify what individual and social goals are pursued in this setting and how they affect subsequent planning choices. Thus, the research question is formulated as follows:

RQ1. What individual goals and social preferences do operational planners pursue and how do these influence planning decisions?

Propositions are developed based on an embedded case study that describes the individual goals and social preferences that influence the decision making of transport planners. From a theoretical standpoint, while research in the field of behavioural operations management (BOM) is increasing, this study is believed to be the first study to investigate individual

goals and social preferences in a planning context. This study aims to increase the understanding of the human factor in planning by complementing cognitive insights in human planning decisions with social insights. As the influence of social preferences on behaviour has been rarely studied in operations settings (Donohue and Siemsen, 2011; Urda and Loch, 2013), this study furthermore enhances existing literature on the effect of social preferences on behaviour in the field of OM. The propositions developed in this study not only provide an empirical basis for future research, but also aim to provide practical contributions. Survey results by Lieb (2008) indicate that LSPs identified Human Resources Management as a challenge. This paper analyses the factors influencing decision making by planners and also explains why planners deviate from expected or prescribed behaviour. By studying what motivates planners to make certain decisions, this study seeks to generate knowledge that will help managers better design their planning policies and procedures.

The remainder of the paper is organised as follows. A review of relevant literature is performed in Section 2. The research design is explained in Section 3. Findings of the analysis are presented in Section 4. The results are discussed in Section 5, and conclusions are provided in section 6.

2. Literature review

This study focusses on the role of human behaviour in planning decision making. Studies on decision making in OM often conceptualise decision makers as rational agents (Gino and Pisano, 2008). They build on neoclassical economic theory (Loch and Wu, 2007) assuming decision makers are motivated by self-interest, behave consciously and deliberately and optimise a specified objective function (Donohue and Siemsen, 2011). As such, human behaviour is modelled in a way that optimises the individual goals which humans pursue (Croson *et al.*, 2013).

However, it has been acknowledged that humans have cognitive limitations and pursue goals other than maximising profit, resulting in decisions that deviate from rational choice (Bendoly *et al.*, 2006; Croson *et al.*, 2013; Gino and Pisano, 2008). In response thereto, the field of BOM emerged. BOM is defined as “the study of human behaviour and cognition and their impacts on operating systems and processes” (Gino and Pisano, 2008, p. 679), and it asserts that behavioural factors may influence decision making. Two important research domains that enrich knowledge and understanding in BOM are cognitive psychology and social psychology (Bendoly *et al.*, 2010; Gino and Pisano, 2008). In the following, concepts from these domains that are acknowledged to be important in OM settings are reviewed and relevant studies in the field of OM incorporating these concepts are briefly discussed. Given the focus of this study, particular attention is given to concepts from the domain of social psychology. For comprehensive reviews on BOM research, the interested reader is referred to, e.g. Bendoly *et al.* (2010) and Croson *et al.* (2013). A recent review of behavioural research in the related field of supply chain management can be found in Schorsch *et al.* (2017).

2.1 Bounded rationality of human decision makers

It has been acknowledged that humans have cognitive limitations, resulting in decisions that deviate from rational choice (Bendoly *et al.*, 2006; Gino and Pisano, 2008). This is the domain of cognitive psychology, which concerns the study of mental models underlying human decision making including the presence of decision-making biases and the use of heuristics in decision making stemming from humans’ cognitive limitations. Bounded rationality is the understanding that humans are limited in their ability to make decisions because their rationality is bounded by the amount of knowledge they have, their capacity to evaluate (consequences of) alternatives and their ability to cope with uncertainty (Simon, 2000). Several heuristics (rules of thumb used to cope with the information available for decision making) and biases (systematic errors in decision making) have been identified in the literature. Examples are the anchoring and adjustment heuristic (Tversky and Kahneman, 1974), the framing effect (Tversky and Kahneman, 1981) and

overconfidence (Brenner *et al.*, 1996). See e.g. Bendoly *et al.* (2010) and Gino and Pisano (2008) for extensive discussions on heuristics and biases that are relevant for OM research.

In the context of decision making with regard to planning, researchers observed that, although decision support tools have evolved with (the complexity of) practical planning tasks, these tools have only been used to a limited extent and that planners often use their own tools such as Excel sheets on the side (Fransoo *et al.*, 2011). Subsequently, a vast amount of research efforts have been undertaken to study human behaviour in planning and scheduling. These studies explore the cognitive task of planning and scheduling (e.g. McKay and Wiers, 2006; Fransoo *et al.*, 2011). Generally, the focus is on production/industry planning. Various textbooks have been published on this topic (e.g. Bendoly *et al.*, 2015; Fransoo *et al.*, 2011; Ruiz, 2015). Recent field studies differ from prior work on planning and scheduling by taking a process perspective to learn about planner behaviour in practice rather than taking a prescriptive approach and (mathematically) determining and describing how planners should behave (Fransoo and Wiers, 2006). For example, Wiers (1996) found differences in decision behaviour between production schedulers who perform the same decision task. Fransoo and Wiers (2006) observed that when planners face increased problem complexity, they increase the variety of actions that they take. De Snoo *et al.* (2011) describe the benefits of having schedulers work in proximity to operations functions. Larco *et al.* (2013) illustrated the *ad hoc* manner in which planners organise their time. Hoc *et al.* (2014) highlighted the value of having scheduling expertise in a timetabling task. Letmathe and Zielinski (2016) showed that feedback does not necessarily improve planner performance and that planners process feedback differently based on the type of feedback provided.

2.2 The role of individual goals in motivating decisions

Next to cognitive psychology, the understanding of BOM is furthermore enhanced via the domain of social psychology. This domain focusses on the study of humans' social behaviour, which includes how individuals relate to one another (Aronson *et al.*, 2004) and how emotions (Loch and Wu, 2007) and motivation may induce behaviour (Bendoly *et al.*, 2010, 2015). As a consequence, it is assumed that behaviour results from feeling an urge to do something, i.e. a motivation to act. The topic of human motivation is central in psychological research and researchers have proposed various theories to increase understanding of what drives motivation of individuals in organisational settings (Kanfer, 1990). One approach to human motivation is the goal-setting theory. The theory asserts that conscious human behaviour is regulated by one's goals or objectives (Locke and Latham, 2006). Goals influence behaviour by directing one's attention to the goal, mobilising effort to be put in attaining the goal, and encouraging persistence so that actions are focussed on achieving the goal (Locke and Latham, 2006).

It has been acknowledged that humans may deviate from normative OM models because they pursue different goals. For instance, humans are risk seeking when choices involve losses whereas they are risk averse when choices involve gains (Kahneman and Tversky, 1979). Therefore, it would be unrealistic to perceive humans as risk neutral decision makers. Furthermore, humans avoid feelings of regret that may arise if, in hindsight, it turns out that another choice would have been preferable (Connolly and Zeelenberg, 2002). Furthermore, human decision making involves a trade-off between decision quality and the amount of effort required (Beach and Mitchell, 1978; Payne, 1982). It has been suggested that the willingness to minimise effort is stronger than the willingness to minimise errors in decision making (Russo and Doshier in Payne, 1982). Since this can be detrimental to the quality of the decision, the benefits of correct decisions are evaluated against the cost of making that decision, usually effort and time required (Beach and Mitchell, 1978). The role of individual goals in decision making remains central (Bendoly *et al.*, 2010; Locke and Latham, 2006), although people may deviate from rational

choice, e.g. by having limited cognitive abilities and bounded willpower (Kahneman *et al.*, 1982). Therefore, analysing the individual goals planners pursue and how these goals influence planner decision making are central to this study.

2.3 *The role of social preferences in motivating decisions*

Decision makers not only pursue individual goals but also have social preferences (Fehr and Fischbacher, 2002). Research in different areas has shown that social preferences, such as status-seeking, the preference for reciprocity or the desire to identify with peers are pursued as ends in themselves (Fehr and Fischbacher, 2003; Huberman *et al.*, 2004; Loch and Wu, 2008). The question of why humans interact with one another in a way that requires non-self-interested behaviour is fundamental in the social sciences (Fiske, 2002). Human behaviour in groups traces back to ancestral humans. The social preferences humans pursue today are part of the human mind and emanate from the social issues our ancestral humans faced in social life (Kenrick *et al.*, 2002). The social preferences are pursued to satisfy basic psychological needs.

Various social preferences are identified in the literature. For instance, when acting in groups, humans have a social preference for reciprocity. Reciprocity entails helping someone at a personal cost because one expects that the favour will be returned in the future (Fehr and Fischbacher, 2003; Loch *et al.*, 2006; Trivers, 1971). Upon receiving help, one may have feelings of thankfulness towards the helping person, which may generate an intrinsic motivation to return the favour (Fehr and Fischbacher, 2003), even without expecting that favour being returned in the future (Trivers, 1971). Acting in groups may lead to feelings of group identity among group members. Group identity refers to an individual's identification with a group (Loch *et al.*, 2006). One's desire to belong to a group traces back to ancestral humans who benefited from being part of a group (e.g. protection), making it essential, in terms of survival, to be part of a group (Kenrick *et al.*, 2002). Therefore, it is important to maintain (good) relationships with group members, e.g. by acting out of group interest (Loch *et al.*, 2006) and according to group norms (Chen, 2009). It has been shown that shared attitudes and norms can affect group members' decisions (Ellway, 2016). Humans may furthermore have a social preference for status. Status indicates an individual's position within a social hierarchy and is based on the value other group members attach to that individual (Pettit *et al.*, 2010). Social hierarchies are formed to solve competition without resorting to physical violence (Pettit *et al.*, 2010; Urda and Loch, 2013). Status is pursued "rationally" as it helps the individual obtain resources, but people also pursue status as an end in itself (Loch and Wu, 2008; Pettit *et al.*, 2010) and this may cause unproductive competition (Huberman *et al.*, 2004).

The study of social preferences has gained attention in OM research only recently (Urda and Loch, 2013). Examples are Liu *et al.* (2016), who studied the preference for fairness in a newsvendor setting. Katok and Pavlov (2013) found that the preference for fairness is an important factor explaining retailer behaviour in negotiation breakdowns. Urda and Loch (2013) explored how social preferences trigger emotions, which, in turn, motivate human behaviour. Because of the importance of social preferences in decision making and its limited attention in operations settings, social preferences that planners pursue and how these preferences influence decision making are a core focal point of this study.

3. Research method

3.1 *Case research*

The aim of this study is to gain an understanding of planner decision making, and in particular what individual goals and social preferences planners pursue and how they influence the decision process. Hence, at the start of the study, it was decided that the unit of analysis is the individual planner. An embedded case study research design is employed to achieve this study's objectives. Aside from the fact that this is a commonly used method to study individual

decision making in planning environments (McKay and Wiers, 2006), this approach is considered suitable for several other reasons. First, to the best of the researchers' knowledge, the social perspective has not yet been considered in studying planning tasks. It is unclear if and how individual goals and social preferences such as those identified in social psychological research also apply to planning decisions. Inductive approaches fit situations where there is lack of clarity about the applicability of existing knowledge to another setting (Eisenhardt and Graebner, 2007) and where variables, as well as linkages between them, need to be identified and explained (Yin, 2009). Second, to explore the role of goals and preferences in planning decisions, it is important to capture planners' perceptions and understanding in their natural environment (i.e. work context). Case study research enables the investigation of a phenomenon in its real-life context while retaining the meanings held by subjects (Gephart, 2004). Third, case research is particularly suitable for exploratory settings that focus on "how" questions (Yin, 2009). In sum, the case research method is used because it permits the study of a complex phenomenon in the field using observations, interviews and other data sources to develop a more profound understanding of individual behaviour in planning decisions.

3.2 Research context and sample

Purposeful sampling was used to select the company where planners are interviewed and observed. This selection process is used in qualitative research to deliberately choose participants because of their potential to provide information related to the research question (Maxwell, 2013). The operational planning context considered in this study is transport planning. Transport planning entails arranging transportation services to move shipments between origins and destinations (Stefansson and Hagen, 2013). Transport planning is selected not only because transport costs make up a large part of the total logistics costs of firms (approximately 50–60 per cent in 2014; Kille *et al.*, 2015; Wilson, 2015), but also because it is a theoretically interesting context to study for the following reasons. The competitive nature of the transport sector necessitates planners to make decisions quickly. Transport is generally perceived as a commodity service that can easily be sourced elsewhere; hence, planners often have to react instantaneously to transport requests from customers as they may otherwise run the risk that the shipment will be accepted by a competitor. Thus, planners often do not have time to rationally evaluate all choice options available to them. Particularly, social aspects play an important role in this planning context. At LSPs, planners have long-term, reciprocal relationships with other planners within the firm and interact repeatedly. These factors evoke individual and social goals that planners pursue which may cause friction with the company's goals. Therefore, in this study, the aim is to identify what individual and social goals are pursued in transport planning and how they affect subsequent planning choices.

This study examines transport planners that work at one of the largest family-owned LSPs in the Netherlands, which is hereafter referenced as MoveEx. In the following, the company and unit of analysis are described first. To investigate the role of individual goals and social preferences in planning decisions, this study focusses on a specific decision that planners have to make that involves fellow planners. This decision is referred to as internal forwarding and is described next. Thereafter, the research process is laid out in detail.

The key service provided by MoveEx is the arrangement of goods transport (with a special focus on dangerous goods) via road, rail, sea, air or an intermodal combination of these, mainly across Europe. The LSP also offers freight forwarding services, express services and warehousing services for a variety of goods, including FMCG, dangerous goods and refrigerated goods. Finally, MoveEx provides value-added services such as (re) packaging, assembly, invoicing, order management and customs formalities.

The unit of analysis in this study is the individual decision maker, the transport planner. Transport planners arrange transportation services to fulfil freight transportation requests from various customers. MoveEx does not own transportation assets and thus purchases

required capacity from carriers. As only 10 per cent of necessary transportation capacity is covered by long-term contracts (mainly with shipping and railroad companies), transport planners need to purchase the majority share of capacity on the spot market on a daily basis.

The focus in this study is on internal forwarding decisions that transport planners have to make. In MoveEx, the planning department consists of business units (BUs) that each organise transport for a specific country or region. Planners work in specific BUs. Management wants planners to forward transport requests to the BU that organises transport for the specific country (i.e. wants planners to forward internally). For instance, a request for transport of a container from the Netherlands to Spain should be forwarded to the BU Spain. The reason for this requirement is that sending freight transport requests to the designated BUs (forwarding internally) increases their freight volumes and provides opportunities for consolidation. Consolidation can lead to better vehicle capacity utilisation (compared with transporting lower freight volumes), a more profitable bundling of transport requests forwarded to carriers and, ultimately, cost savings for the firm as a whole (Ülkü, 2009).

Nevertheless, management indicated that in practice MoveEx planners do not always forward internally. The aim was to study the decision making process of the transport planner and explore individual reasoning to forward internally – or not to do so. This study differs from work on (horizontal) collaboration in transportation (Buijs *et al.*, 2016; Buijs and Wortmann, 2014). Prior work mainly studies the process of collaboration but does not explore the role of individual transport planner behaviour in decision making.

To better understand the internal forwarding decision, several informal conversations with managers and a formal discussion meeting with planners about internal forwarding took place. Results indicated that planners have different attitudes pertaining to internal forwarding. Insights obtained from these results enabled development of the research instruments (see Section 3.3) to collect data from planners to understand their internal forwarding decisions. In total, 13 planners were interviewed, 6 of whom were observed prior to being interviewed. The observations were important as they enabled social interactions and seeing what planners actually do, which helped to better understand the (social) context and dynamics therein (Meredith, 1998). The sample consists of a variety of planners differing in terms of age, tenure on the job (0.7 up to 21 years), total years of work experience in logistics (0.7 years through close to 40 years), BU they work for, and the location at which they work.

3.3 Data sources and research instruments

Multiple data sources were used to improve data reliability, to triangulate findings (Voss *et al.*, 2002) and to gain a rich understanding of the context being studied. Data were gathered using interviews, observations, informal conversations and company documents. To enhance data validity and reliability detailed interview protocols were used (Appendix) as research instrument (Yin, 2009). Below, details are provided on each data source and the data instruments used, and Table I provides a summary of the collected data.

3.3.1 Interviews. In total, 13 in-depth, structured interviews were held with transport planners in order to gain an understanding of why planners take certain decisions. A detailed interview protocol was used. The protocol utilised broader, more general, open-ended questions related to transport planning and internal forwarding rather than questions directly related to individual goals and social preferences. For instance, planners were asked what they think internal forwarding entails, how they deal with this during their work, when and why planners choose to forward internally, and what they think about internal forwarding. The use of these broader questions was important to retain the exploratory nature of the study (i.e. observing and asking questions about what is going on). To gain a more in-depth understanding of the factors that influence internal forwarding

Data source	Specifications	Insight
Structured, in-depth interviews with planners	13 interviews with planners Detailed interview protocol Recorded and transcribed afterwards	Reasons to pursue internal commitment
Semi-structured in-depth interviews with BU managers and senior management	3 interviews with managers Semi-structured interview protocol Recorded and transcribed afterwards Analysis verified with interviewees and follow-up questions asked after interviews	Company goals and strategy, policies and procedures, work methods
Observations	6 planners Approx. 2 hr prior to the interviews Detailed observation protocol	Planner work methods
Company documents	Task descriptions Work manuals Performance evaluation sheets	Tasks of planners, daily jobs, procedures, aspects related to decision making
Other	Site visits Informal discussions	Company goals, policies and procedures, work setting and atmosphere, planners tasks

Table I.
Schematic overview of data sources used

decisions, follow-up questions were asked and planners were prompted to give practical examples. To improve credibility of the data, interviewees were asked for confirmation on correctness of researchers' interpretation. The interviews were recorded and transcribed.

Additionally, to provide additional contextual insight (on e.g. procedures, working methods, what policies regarding internal forwarding are applied and why), three in-depth semi-structured group interviews were done with BU managers and senior managers both before and amidst the structured interviews. This set-up enabled discussion among multiple interviewees, which proved valuable to gain an understanding of company goals, procedures regarding internal forwarding and different perspectives on why (or why not) to pursue internal forwarding. The analysis of these group interviews was discussed with some individual group interview members to verify interpretations and seek clarifications. This improved the validity of the findings. These interviews were also recorded and transcribed.

3.3.2 Observations. Six planners were observed for approximately two hours each prior to the interviews, using observation protocols. A protocol was also used prior to the observations to describe the work setting (e.g. what does the room look like, how many people work there). The protocol used during the observations allowed for making notes and tracking of what the planner did. Directly after the observations, a protocol was used to structure observer thoughts and impressions on, for example, the working method of the planner (e.g. quick, intuitive, independent, multi-tasking) and the working space (e.g. noisy or quiet, tidy or messy). These observations led to increased insight into what planners did and how they did it. This method was designed to complement the asking of "why" questions during the interviews.

3.3.3 Company documents, site visits and informal conversations. Company documents on job descriptions (work) manuals and performance evaluation sheets were studied. Additionally, various site visits and informal conversations with planners, BU managers and senior managers took place to further increase understanding of the research context.

3.4 Data analysis

Atlas software was used to code and analyse the interview transcripts. As suggested by Miles and Huberman (1994), data need to be organised into categories in order to make

it manageable. Accordingly, a three-step coding process was used, as suggested by Corbin and Strauss (1990). In the first round (open coding) descriptive codes were assigned to pieces of text. These codes are the reasons why planners would (not) forward internally. These reasons have been explicitly investigated in the interviews. Examples of these codes are “meeting customer service objectives”, “limited time available”, “loyalty to the company” and “doing someone a favour”. Codes were furthermore developed to characterise the work context and thereby to better understand the context of the reasons for forwarding internally. For example, limited time available is important because of work pressure experienced by the planners. Planners therefore often need to make decisions very quickly.

In the second round (axial coding), descriptive codes were analysed and interpreted to group them into higher-level concepts (i.e. the individual goals and social preferences). To this end, the coded interview data were compared with concepts identified in the literature to analyse which underlying goals and preferences may explain the reasoning used by planners in their decision making. For example, a planner explained that he thought it is normal to forward internally. This is part of the code “group norm” because literature shows that confirming to group norms may occur when people feel part of a group (Chen, 2009). Furthermore, during the analysis of the interviews, remarks from which it became clear that the planner feels (s)he is part of the firm, which may contribute to his/her motivation to forward internally, were coded with “group interest”. Attention was also given to whether a planner talks about “we”/“us” rather than “I”. Such data were grouped under the higher-level concept “group identity”. Other quotes were analysed in a similar way.

In the third round (selective coding), codes were further detailed. Based on the resulting coding scheme, the data were analysed for patterns, similarities and differences (Voss *et al.*, 2002). For each higher-level concept, the arguments used by planners in their decision making were compared and analysed, and propositions were developed. Table II contains sample quotes that illustrate “group interest” and “group norm” as reasons to forward internally to illustrate the grouping of quotes and associated codes. Both are grouped under the social preference “group identity”.

To assess the reliability of the results of the coding process, the reproducibility of the coding results is evaluated. This implies “[...] evaluating whether a coding instrument, serving as common instructions to different observers of the same set of phenomena, yields the same data within a tolerable margin of error” (Hayes and Krippendorff, 2007, p. 78).

Quote	Code	Higher-level concept
“We have different Business Units within the firm. [...] And we try to bundle freight within the firm. It is very easy for a branch of us in Amsterdam to book transport to France at a competitor. But in order to generate the volume, to make something of your service, we need to plan everything at a central point. [...] So it is important that [internal forwarding] happens”	Group interest	Group identity
“You have to make sure products go from A to B. How [products are transported] has to be determined by the [responsible] planner. That’s his job, he knows more about it and can make a cheaper plan. That’s the good thing about internal forwarding”		
“I entered an organization where it is usual to first look internally [to see whether you can forward the shipment to another BU] and to look externally [plan it yourself] only when there are no possibilities [to forward the transport request to another BU]”	Norm	
“How I perceive it is that you need to involve your colleagues [in planning]. They are specialized in it and they are good at it. This is what their daily job is. So we give them the shipment”		

Table II.
Coding example with
exemplary quotes for
the social goal of
group identity

Therefore, the level of agreement among different researchers is assessed. The first researcher conducted the full coding process as described above. Then, two other researchers individually coded the pieces of text that contained possible reasons (not) to forward internally by indicating what reason – if any – they inferred from the quotes using the coding scheme developed by the first researcher. To determine reliability, Krippendorff's α is computed because it can handle the nominal data (codes) that are compared across coders (researchers), it can be used to compare codes of more than two coders, and is more reliable than other measures such as Fleiss κ (see Krippendorff (2004) for a comparison of reliability measures). The results indicate that $\alpha = 0.7011$, which is above the minimum level of agreement required (Krippendorff, 2004).

4. Findings

In this section, the study findings are presented by discussing reasons why planners would (not) forward internally. As considered good practice in qualitative research (Yin, 2009), an explanation for planner decision making is supported by illustrative, representative quotes from interviewees. In Section 5, these results are related to theory in order to identify the individual goals and social preferences that may serve as motivational mechanisms underlying the reasons discussed here. Related propositions are formulated.

4.1 Effort minimisation

The study finds that internal forwarding is often a decision that saves time and effort. Various planners explained that time and effort savings are a reason for them to forward internally. As became clear during observations, transport planners work under high pressure in a workspace that is, at times, noisy and busy. Planners have their own desk with a computer and telephone, and most desks also hold stacks of papers. Phones ring constantly and planners are continually talking with each other and on the move. Planners also receive numerous e-mail messages and phone calls to which they must respond immediately. They must also field questions from colleagues, insert orders and transport plans into the IT system, print orders, invoices, etc. It was observed that planners need to multitask (e.g. read an e-mail while answering a phone call) and often make decisions based on intuition (e.g. not doing specific calculations but making a rough estimate). As a result, planners are under constant pressure to work fast and efficiently: they have little time to take decisions. This work pressure is illustrated by the following quote from a BU manager:

You have to switch quickly. [...] We also explain this to the planners, who provide transport rates [to (potential) clients]: do not think too long, don't search, don't puzzle over things. Be quick and make sure you are the specialist. [...] Do not spend hours on it because then you lose €50 margin on the assignment [because the client already went to another service provider].

Working in such an environment can be stressful, as is explained by another BU manager's comment:

Planning is highly stressful. People ask you for information all the time: clients, carriers, drivers, someone at the counter in the office. Often, it is very busy. You have many e-mails to respond to.

The planners at the different BUs are considered to be specialists with up-to-date knowledge of the market and economic conditions, and a wide network of contacts with carriers and other LSPs. Therefore, they are assumed to need little time and effort to make the best (most cost-efficient) transportation plans. The following quote by a BU manager illustrates this:

For instance, you have a planner who serves Ireland, let's say for the sake of argument, who has to pre-haul a shipment from Spain and doesn't know exactly who to call. He may know some carriers from Spain; but it is well-known that his colleague from Spain can always find the best way [to transport the shipment]. [...] Incidentally, in the winter, when there are a lot of trucks, the Ireland

planner could easily find a cheap solution [to transport the shipment]; but during the summer he will struggle, and he knows that. At the same time, the specialist can provide that service the whole year round.

To summarise, various planners view forwarding internally as an effort-saving choice. In order to cope with the intense workload and time pressure that they typically face, planners need to make decisions quickly with minimum effort. Not forwarding internally typically requires more effort and time as planners need to arrange transport for an area that is not within the planner's area of expertise. This generally motivates them to forward internally.

4.2 *Output maximisation*

Planners explain that they forward internally because the associated time and effort savings enable them to plan other shipments (compared to planning shipments which are not within the scope of their BU). The following planner quote illustrates this argument:

It [forwarding a shipment] could cost me €25 more, but it also means spending less time on planning that shipment. The time saved can be used to plan other shipments [that are your designated task]. In this way, you can work much faster. It just saves a lot of work when you send it [a shipment which is not your task to plan] to another [the designated] Business Unit. In concrete terms, time is money.

In contrast, another planner used the opposite argumentation when describing instances where he had a difficult shipment at hand. In the following quote, he suggests that planning a shipment himself costs him less time and effort than forwarding it to a designated BU:

In the end, when something goes wrong or when I have questions or my client asks me questions, then I have to ask those questions to my colleague, and my colleague, in turn, asks it to the carrier. Meanwhile I could just as easily have done it myself; then I know everything a lot faster.

This planner was responsible for certain accounts only. In this situation, the planner remains point of contact irrespective of who actually arranges transportation services for the shipment. Passing on information to the client would necessitate the involvement of the planner who is point of contact, and would therefore require extra time and effort. In such instances, not forwarding internally may save time and effort.

4.3 *Helping each other*

This study finds that planners are generally willing to forward internally but that they may become reluctant to forward shipments to colleagues if they never receive a shipment in return. One planner explained:

Then [if some colleague never forwards you a shipment] you are not eager to help him out either, no. [...] This is still person-to-person work. If you don't like someone, or someone doesn't like you, then there won't be any collaboration.

Some planners explained that not receiving shipments from other planners sometimes even leads to internal conflicts. One planner said that he several times had the experience of not receiving shipments that should have been forwarded to him and then added:

Then, you get a discussion. [...] Then you get internal conflicts. They [colleagues from other BUs] give you lame excuses [for not forwarding shipments internally]. Thus, the responsible BUs should organize those transports, and not someone else.

The study results suggest that planners may decide to forward internally because they expect to also receive shipments from their colleagues. However, another planner explained that he decides to forward internally merely to help out his colleagues (i.e. without

considering a returned shipment). By forwarding shipments to a dedicated BU, the freight volumes of that BU increases, enabling the colleague running that BU to make more cost-efficient transport plans (through freight consolidation). This is exemplified by the following quote by a planner from the BU for Italy:

Then [when a shipment with destination Sweden comes in] I always give that shipment to my colleagues organizing shipments for Sweden. That is internal forwarding; the extra revenue that they then can generate. [...] When you receive something for another Business Unit, you have to share it. You could book it at another firm but your colleague has space left, volume which you can offer him [...] [...] You help your colleague with it, which may not always be beneficial for your own Business Unit, but it makes a difference whether your colleague keeps some margin on his container or purchases transport capacity with a loss.

Interestingly, some planners perceive that they are being helpful by not forwarding shipments if these shipments are considered to be difficult planning tasks. Difficulties in planning tasks could relate to, e.g. characteristics of the shipment (refrigerated products, hazardous materials), the shipper being a demanding client or the shipment destination. Some of these complexities are explained in the following quote:

Some things [shipments] are difficult. Shipments like transport requests to Germany, the Ruhr area, are easy because hundreds of trucks drive there. But [going to] rural areas in Germany or the Czech Republic, and on top of that refrigerated transport, those are challenges.

One planner indicated that he does not want to inflict his colleagues with difficult shipments and therefore sometimes decides to plan such shipments himself, even though doing so lies outside the scope of their BU. He argued as follows:

Maybe you do not forward a shipment to help your colleague, if you know that the planning will be a long-running issue [...] In this way, you keep the complaints at bay.

To summarise, there is some indication that the expectation of receiving a shipment in return is a consideration in internal forwarding decisions. However, planners indicate that they forward shipments to help their colleagues without explicitly considering returned favours. Moreover, in view of helping colleagues, planners may decide not to forward internally.

4.4 *Group norms*

By and large, planners were observed to perceive internal forwarding as the norm. This is illustrated by the following quote:

I entered an organization where it is usual to first look internally [to see whether you can forward the shipment to another BU] and to look externally [plan it yourself] only when there are no possibilities [to forward the transport request to another BU].

Several planners stated that they adhere to internal forwarding because they perceive that it is common practice to do so within the planning department. In other words, they make decisions which they think are in line with the prevailing norm within the planning department. This is furthermore exemplified by the following quote:

How I perceive it is that you need to involve your colleagues [in planning]. They are specialised in it and they are good at it. This is what their daily job is. So we give them the shipment.

4.5 *Group interest*

Planners also defend internal forwarding on the basis that they increase the potential to consolidate freight, which is perceived to be a benefit to the whole planning department.

The following quote is an example of a planner considering the group interest in his planning decisions:

We have different Business Units within the firm. [...] And we try to keep freight within the club. It is very easy for a branch of us in Amsterdam to outsource transport to France to a competitor. But in order to generate the volume, to make something of your service, we need to plan everything at a central point. If at some moment in time you have two partial shipments, and you can fill a truck with them, but your colleague gives one part to a carrier, then you will be ripping yourself off. So it is important that [internal forwarding] happens.

Additionally, one planner explained that in view of the firm's best interest she sometimes decides not to forward internally. When searching on the market for freight rates, it is possible that a planner comes across a carrier offering lower freight rates than those offered by contracted carriers. If the LSP were to start using the cheaper carrier, it could lead to cost savings that would benefit the planning department, hence, the firm as a whole. One planner said that she felt a duty to refrain from forwarding internally at times in order to access cheaper carriers (cheaper than the ones the firm currently uses):

Over the years, I have gained enough experience to know whom to hire for which request. And of course I have to – I am obliged to – see whether I can use other carriers [...] to move the goods as cheaply as possible.

During the interview, this planner revealed a belief that the prevailing norm is to make cost-efficient transport plans (rather than to forward internally, *per se*). As a result, at times, this planner chooses not to forward internally.

5. Discussion

In this section, it is explained how decision making in transport planning may be driven by underlying goals and preferences by linking the reasons (not) to forward internally presented in Section 4 to theory. Based on the resulting insights, propositions for further research are developed.

5.1 Individual goals

The findings presented above indicate that transport planners pursue a variety of individual goals, which affect their internal forwarding choices in different ways. First, the findings showed that planners focus on minimising their time and efforts in making internal forwarding decisions. Second, planners focus on maximising their own output and can be motivated to forward as well as not to forward internally, dependent on anticipated time and effort savings. The analysis revealed that internal forwarding decisions that are fuelled by the aim to minimise efforts and time spent enable planners to increase their own productivity. For example, humans take into account the amount of effort required when making choices (Beach and Mitchell, 1978; Payne, 1982). Decision makers compare benefits of certain decisions with the cost associated with making these decisions, which is usually the effort and time required (Beach and Mitchell, 1978). This study indicates that effort and time required may indeed be a consideration in internal forwarding decisions. Time/effort required to plan a shipment depends on two things: whether the shipment falls within the planner's BU (that is, domain of expertise); and the characteristics of the shipment itself. In this study, forwarding internally is generally perceived as the time/effort saving choice because planners are considered to be specialists in their BU. However, results also indicate that planners may decide not to forward internally when this is perceived to be the time/effort saving choice. In summary, based on these results the following propositions are formulated:

- P1. Planners take into account planning time and effort when making planning decisions.
- P2. Planners make planning decisions seeking to maximise their productivity.

5.2 Social preferences

Analysis of the results presented in Section 4 suggests there are two social preferences that may be underlying planners' decision making: reciprocity and group identity. They are discussed in turn.

5.2.1 Reciprocity. The study shows evidence that planners take into account the likelihood of receiving a shipment in return when they decide on forwarding a shipment to a particular colleague. This may be explained by the social preference for reciprocity. Humans are known to help each other, incurring costs (e.g. money, effort, time) without immediately receiving anything in return (Loch *et al.*, 2006). One explanation for such altruistic behaviour is reciprocity: the expectation of receiving a return favour at a later point in time (Fehr and Fischbacher, 2003; Loch *et al.*, 2006; Trivers, 1971). This reciprocity even occurs when there is no guarantee that a favour will be returned as people tend to derive intrinsic rewards from mutual cooperation (Fehr and Fischbacher, 2003). In the context of transport planning, it is also observed that if there is no reciprocation, i.e. one never receives a shipment from a colleague, this may motivate a transport planner to no longer forward shipments to that colleague.

Results furthermore suggest that generally transport planners make decisions about internal forwarding such that, in their perception, they are most helpful to their colleagues. This may imply the choice to forward or not to forward internally, depending on the situation. The fact that most transport planners do not seem to explicitly consider returned favours (i.e. returned shipments to them) may be explained by the research context. Cooperation can stabilise when people cooperating are interdependent, when cooperation creates value (i.e. helping is beneficial), when co-operators meet each other frequently, and when the co-operators can identify, remember and punish free riders (Fehr and Fischbacher, 2003). The transport planners observed are colleagues, they know each other personally and they interact frequently over longer periods of time. It is easily noticed (and thus remembered) if someone never reciprocates. Summarizing, based on the above findings, the following proposition is developed:

P3. Planners offer planning related favours to colleagues if they expect them to be returned.

5.2.2 Group identity. The findings indicate that planners make internal forwarding decisions that they think are best in line with the prevailing norm within the planning department and/or are in the best interest of the planning department. These reasons may be traced to the planners' social preference for group identity. Group identity refers to an individual's desire to belong to and associate with a group (Loch *et al.*, 2006). Individuals generally hold more positive feelings for others in the same group (Loch *et al.*, 2006) and want to maintain relationships with them, help them and do them favours (Chen and Li, 2009). Moreover, group identity can motivate individuals to conform to group norms (Chen, 2009) and to put group interest above own interest (Loch *et al.*, 2006). This behaviour was also observed in this research as described above. It was also observed that that if one has a different understanding of what is the norm or the firm's best interest, this may result in different choice outcomes. In summary, based on these findings, the following proposition is formulated:

P4. Planners seek to make planning decisions that are in line with their perception of the prevailing planning norm.

5.3 Can the same goals and preferences lead to different choices?

The results indicate that individual goals and social preferences identified in prior research may also affect choices in transport planning tasks. In fact, the analysis revealed that not all individual goals and social preferences occur equally frequently. In 31 per cent of the

interviews, planners quoted reasons related to individual goals driving internal forwarding decisions. These percentages are 15 per cent for reciprocity and 77 per cent for group identity, respectively.

The results also show that individual goals and social preferences can motivate planners differently dependent on the situation, leading to different choice outcomes. In the particular decision under study, individual goals and social preferences can be achieved by forwarding and by not forwarding a shipment. The findings show that generally speaking, forwarding is a time- and effort-saving choice. Planners are considered specialists in the domain of their BU and therefore planning shipments within their area of expertise requires less time/effort compared to those outside the scope of their BU. The specialists are thus better able to plan shipments in their domain efficiently and effectively than other planners, and thus are able to achieve their individual goals of increasing output or minimising effort. However, in case of a shipment that is difficult (to plan), the effort/time-saving choice may be to not forward the shipment. Depending on shipment characteristics, e.g. when it is expected that additional communication with their customer is required, planners may consider planning the shipment themselves as the time-saving choice since they are the point of contact for the customer. Moreover, it is perceived that in general, one helps colleagues by forwarding shipments to the designated BU because the additional freight at the colleague's BU generates more consolidation options and the opportunities to make more cost-efficient transport plans. However, when the shipment is difficult to plan, planners may not want to inflict a difficult task on their colleagues and therefore aim to be helpful by not forwarding that shipment. This illustrates that whether a particular decision achieves the intended goal is situation/shipment dependent. Furthermore, in the pursuit of group identity, one may strive to make decisions in line with the group norm or interest (Chen and Li, 2009; Loch *et al.*, 2006). However, the interpretation of what is the group norm or what is in the best interest of the group may differ between people. For example, a planner may be able to find a cheaper solution for a shipment in her own network than a colleague is able to do and thus decide to plan the shipment herself rather than to forward internally. The result may be interpreted as a contribution to the best interest of the planning department, hence, company (i.e. profit). As a result, even though their goals may be similar, planners can make different decisions depending on their interpretation of the group norm or their understanding of the group's best interest. We propose the following hypothesis:

- P5.* Individual goals and social preferences can motivate planners differently, leading to different choice outcomes.

6. Conclusions

Humans play an important role in operational planning tasks. The importance of the human factor in planning is widely acknowledged. In particular, research has focussed extensively on how cognitive aspects affect operational planning decisions. This study has taken a different perspective by exploring the role of individual goals and social preferences in operational planning decisions. More specifically, the study focussed on one transport planning decision (internal forwarding), identified the reasoning used in making this decision, and identified and analysed underlying goals that may motivate planner choices. Based on this study's findings, propositions were developed in Section 5.

6.1 Practical implications

The study results elicit several findings that have implications for managers. Our research shows that transport planners are all driven by their individual goals and social preferences, which may affect their decision making. As such, it is a misconception to think that

(monetary) incentives suffice in order to motivate employees to make choices that comply with company or department goals. Moreover, the finding that similar individual goals and social preferences can motivate planners differently leading to different decisions indicates that it is important to understand the motivational mechanisms underlying decision-making processes. This is necessary for better-targeted interventions.

This study's results indicate that planners pursue individual goals (strive to increase their output and/or seek to minimise effort and time needed for planning activities). Therefore, first, planning systems should be designed such that the choice that aligns best with firm or department's goals is the time- and effort-saving choice. Second, this study's results indicate that to achieve desired goals, it is insufficient to create an environment in which reciprocity and group identity are shared as important values. It is important to create a common understanding of how planners would best help each other, of what planners consider to be the norm and of what is ultimately in the best interest of the planning department. Clear communication to planners about their tasks and responsibilities (including guidelines) should be available in order to have social preferences work towards the planning department's goals as much as possible, even though it may seem at first sight that not adhering to such goals leads to favourable outcomes. For example, if the aim is to forward internally, the department may discourage helping behaviour by indicating that this is a short-term solution only. Such undesired helping behaviour happens when not forwarding a shipment to the designated BU so that a planner does not impose a difficult task on a colleague.

6.2 Theoretical implications

This study investigated the role of individual goals and social preferences in operational planning decision making, which complements insights from previous research on the role of cognitive aspects in operational planning decisions. By exploring the context and the rationale behind planning decisions, this study contributes to the field of decision making in operations by moving beyond spotting how decisions deviate from a benchmark, in this case the firm's rules, to exploring the decision-making processes and highlighting the importance of individual goals and social preferences. By formulating propositions, this study provides an empirical basis for future research on the role of social preferences in planning. Such research is necessary in order to develop efficient planning processes that incorporate human decision makers (MacCarthy *et al.*, 2001).

This study shows that the same individual goals or social preferences can lead to different choices which may even result in non-compliant behaviour. An important implication is that studies on decision making in planning contexts explicitly need to consider behaviour at the individual level. This is in line with recent findings that aggregate demand planning decisions in operations (e.g. ordering decisions) may not adequately describe the heterogeneity of individual decision makers (Lau *et al.*, 2014; Moritz *et al.*, 2013). Furthermore, existing studies on (horizontal) collaboration in transport typically abstract from the individual, implicitly assuming that the actual decision makers work towards the goal of collaboration. Future research should consider possible consequences of individual behaviour when designing such strategies and policies.

The findings furthermore indicate that there is consistency in how individual goals motivate transport planner choices to forward – or not to forward – internally. It seems that planners assess contextual factors (e.g. shipment characteristics, workload) in the same way when deciding to forward internally vs when not. However, there seems to be individual heterogeneity in how the same social preferences motivate planner choices. Future research can explore personality traits that may influence the interpretation of social norms and individual goals, such as risk preferences, social value orientation and regulatory focus. These factors have been shown to play a role in other operations related contexts, such as

ordering decisions and order picking (De Véricourt *et al.*, 2013; de Vries *et al.*, 2016). This will allow for better-targeted interventions to counteract undesirable choices and enhance company performance.

Individual
goals and
social
preferences

6.3 Limitations

This study has limitations. The analysis conducted in this study is based on qualitative data. Although efforts were made to reduce observer effects (socially desirable answers/behaviour) through, e.g. verifying observations and interpretations at different hierarchical levels, one way to strengthen conclusions would be to triangulate the qualitative findings with transaction data to further control for observer effects. Another way to strengthen conclusions would be to conduct a survey or experiment to test the propositions developed in this study.

Furthermore, the study also revealed that planners more often make internal forwarding decisions based on group identity related reasons than based on others. This shows that there may be a difference in relative importance of individual goals and social preferences when it comes to transport planning decision making. Future research may therefore investigate the relative importance of individual goals and social preferences, as well as the effectiveness of identified interventions (such as non-monetary incentive schemes), in a controlled laboratory setting.

Last, this study focussed on decision making in an intra-organisational setting. In terms of individual goals and social preferences that play a role in decision making, such settings may be different from inter-organisational settings because there decision makers are competitors rather than colleagues. Future research could focus on individual goals and social preferences that play a role in decision making in such inter-organisational settings.

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Further reading

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Appendix

Interview protocol

Interviewee	
Date	
Location <i>city + street</i>	

Individual
goals and
social
preferences

Introduction

First of all, I want to thank you for your time. In this interview I will ask you a couple of regular questions about your work experience, your working methods, about how your performance within Movex is being evaluated, and about internal commitment. The purpose of this research is to understand how client managers and expeditors work, how they make decisions and how they deal with and think about internal commitment without judging about this.

The interview consists of several parts. In the first part I would like to ask some questions about how you deal with internal commitment in practice. Then, I would like to discuss the performance evaluation of client managers and expeditors at Movex. Finally, I would like to talk about the policies regarding internal commitment and what your opinion is on these policies.

I would like to record the interview so that I can listen to the interview afterwards when I didn't completely understand an answer. Only I can listen to the recording.

During this research I talk with various people at Movex. The answers you give, will be combined with the answers that others give. In hindsight it won't be traceable which answers you gave. Therefore, you can answer honestly. If you cannot or won't give an answer, you can indicate this. Is this clear?

Do you mind if I record the interview?

Do you have any other questions before we start?

Then we start with the interview.

(1) Work experience

How long have you been working at Movex?	
At which locations did you work? How long?	
Have you had other functions at Movex? If so, which? And how long?	
How long have you been working in the logistics sector? How long have you been working as a logistics planner?	

(2) "Internal forwarding"

- a) What do you think internal forwarding means?
- b) How do you deal with internal forwarding during your work? Why?
- c) When do you choose to forward shipments internally with a colleague expedient, that is: when do you think it is appropriate to bundle loads within the internal network of Movex? Why?
- d) When would you choose not to bundle shipments within the internal network of Movex, that is: when would you decide not to give shipments to your colleague expedient? Why?

(2) Client manager evaluation

- e) What are you evaluated on? That is; on the basis of which criteria is your performance measured?
- f) What do you need to do in order to receive a positive evaluation on these criteria?

(3) Policies regarding "internal forwarding"

- g) Which rules are communicated to you about internal forwarding?
- h) How were these rules/policies communicated to you?
- i) Are these rules/policies written or unwritten? That is; are these rules written on paper or are these only oral agreements?
- j) What do these rules/policies entail for you in practice?
- k) What do you personally think about internal forwarding and the rules and policies regarding this? Why?
- l) What do you personally think is the best policy regarding internal forwarding for your business unit? Why?
- m) What do you personally think is the best policy regarding internal forwarding for Movex as a whole? Why?

Ending

- n) Are there any issues regarding your daily work and/or internal forwarding that we did not yet discuss and that you would like to add?
- o) Do you have any other remarks or questions?

Then, I would like to thank you for your time and end the interview.

Corresponding author

Nienke Hofstra can be contacted at: n.hofstra@vu.nl

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