Balancing enablers and constraints within organizational routines

A case-study of in-store goods flow at two IKEA stores in Europe

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Abstract

Title

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Background

Considering the importance of routine execution within firm replication, exploring the balance between organisational routine development in terms of variations and routine constraints of this variation, with the goal of allowing for improvements without deviating too far from the original routine that makes it a success.

Aim

Shed light onto how routine variations are managed in the face of the two extremes; no routine development at all and too much routine development.

Methodology

This qualitative case study was conducted within two IKEA stores, the iconic furniture retailer from Älmhult, Sweden. The in-store goods flow process was the platform for the study. The study involved participant observation, as well as 13 (semi-structured) interviews with IKEA co-workers on operational and managerial level to identify mechanism for balancing drift in organisational routines.

Findings

This study has developed a conceptual model visualizing a hierarchy of mechanisms composed by artifacts, embededdness and identity that IKEA stores use to curb drift in organisational routines.

Concepts

Organisational routines: the bundle of collective actions that make an organisation a success

Drift: The variation in execution of the routine from the routine blueprint

Enablers: Mechanisms allowing for routine drift

Constraints: Mechanisms curbing routine drift

Keywords: Organisational routines, drift, enablers, constraints

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- Fabio and Rico -

Table of Contents

Table of visual aids

Figures

1. Introduction

One finds limits by pushing them - Herbert A. Simon

An IKEA store in Europe, A typical Tuesday

Niklas is getting ready to replenish the home decoration department of an IKEA store. It's almost the end of his first week and he is slowly getting to know how it all works. With his safety boots on and him closing his reflective yellow safety vest, he is ready to go get into the action. As he gets onto the shopfloor, his first stop is the computer terminal. Picking up the prenotes - a printed list of all the items to come for that shift - he walks to the home decorations department. A couple of pallets are already stacked neatly in a row, ready for him to unpack.

He starts with the first pallet. Looking up the item on the prenote, he notices that the automated stock inventory system directs him to only take 7 of the 10 items on the pallet. The system wants him to send some items back - creating a reverse flow. This means giving the logistics co-workers more work, on top of their already limited window. Knowing that this extra handling of the good is inefficient and increases the chance for potential damages, he decides to have a look at the sales location of the item. The sales location is big and Niklas is confident that he can fit in all the items. However, with a bit of puzzling Niklas still has 2 of the 10 items left. He surely cannot send back only two items. He decides to put them in the next rack - a sales location for another product. To not obscure this product, Niklas puts the remaining two items behind the products already there.

As Niklas is arranging the items again, Lara, the goods flow manager steps up to him. *Niklas, watch out what you are doing there - placing those items somewhere else. Next time someone takes inventory of the original sales location, they will see two items missing. They will update the system - which ultimately means additional deliveries. This will impact the Sales and Service support team - they will take the rep for these costs - as if they did not keep a good track. Ultimately, these are costs for all of us, costs that we do not want.*

Niklas is puzzled. He is supposed to send back the pallet, but taking a whole storage area for a pallet with only 3 items on there - that's a waste of space - a waste of costs. However, filling up the sales location beyond its designated amount - as Niklas did - can clearly also result in additional cost. What is Lara supposed to do? The existing routine of filling a sales location does not seem to work efficiently. If Lara changes nothing - it creates a cost for logistics. If Lara allows Niklas to vary the routine - it means obscured products and angry Sales and

1

Service Support. Someone else is impacted by the routines of his co-workers in either case.

Lara starts to ponder; can she find a variation for the existing routine - one that clears the problem to a certain extend for Niklas - but not so much that the routine becomes something completely else - that she cannot let Niklas execute it anymore… and how to do this so that others are not negatively impacted? A dilemma indeed.

Abstracting from Niklas and Lara on the shop floor, routines (in this instance of refilling the sales location using the system and personal judgement) can be seen as storing experiential knowledge (Becker 2004), providing source of stability and predictability of action (Dionysiou and Tsoukas, 2013), but also adaptation of action into the specific context (D'Adderio 2008). Niklas knows that the pallets need to be cleared, that the sales locations need to be filled. He executes the procedure more or less the way he learned - yet he has to adapt his performance to the local context - a dilemma on filling a sales location.

Too much drift causes challenges
Continuing to abstract from the example, it becomes clear that there is a puzzle here. Allowing for routines to stretch without constraint - as Niklas intended - can cause problems. Especially when others depend on one's performance. Routines are thus not simple, individual performances.

Routines at organizational level are understood as a complex web of interlocking patterns and collective action (Feldman & Pentland, 2003; Dionysiou and Tsoukas, 2013), meant to reduce uncertainty (Becker, 2004; Dionysiou and Tsoukas, 2013) and to allow actors to predict each others behaviour for coordinating purposes. Whereas the logistics co-workers know to expect a potential reverse flow - they prefer not to have it - to leave the issue somewhere else.

If variance in routine arises to an extent that actors perceived uncertainty increases to an "undesirable " level (Weick, 1979 as in Dionysiou and Tsoukas, 2013), the routine as such can collapse (Zbaracki & Bergen, 2011), eventually creating damages at the overall organizational level. This is especially visible in firms that are replicating themselves. A little variation getting replicated continuously has the potential to evolve in a different routine altogether, thereby posing the risk of straying too far from the original routine that made the business a success (Winter and Szulanski, 2001).

As routines are conceived as the basic unit that foster organizational learning (Levitt and March 1988), a routine collapse could lead to a halt of organizational learning, thus threatening the viability of the firm in the long run (ibid).

On the other hand, no drift at all can also be a potential problem. The current routine in the example is not efficient (enough). Niklas can ignore the problem and strictly follow the rules - but the cost of this is that the routine does not evolve - potentially to a level whereby there would not even be a reverse flow, eliminating that cost too. When firms are able to control the agentic factor (Feldman 2000) to the extent that the actor performs exactly what the manual says, without human discretion of interfering with the routine, how can the routine evolve to a superior version of itself within the set context? No drift at all points to the direction of routines as static, fixed units, with no innovation or improvements; This is something that firms that want to stay relevant in the market cannot afford to do - becoming static and thus potentially obsolete.

In a sense, the balancing of both aspects can be referred to as the "replicator dilemma" (Winter and Szulanski, 2001), "*trading off the advantage of precision against those of learning and adaptation*" (March 1991 as in Winter and Szulanski 2001, p.737). If unbalanced, it will eventually lead to an outdated version of the routines, which can lead to underdevelopment of organizational learning, which is much needed in a dynamic environment (Levitt and March 1988), whereas if balanced, a superior routine could develop.

The question then becomes, how to balance these two extremes - preferably getting the best of both. Stability and efficiency from the core of the routine, yet the right amount of variation so that the routine can develop and become more efficient within the environment it is executed?

1.1 Problem Discussion

Based on the introduction above, it could be seen that the routine can vary, but still be recognisable as the ''same' routine. Lara saw Niklas working on a sales location he should not work on - yet still recognised the overall routine of replenishment of products. However as time passes, the routine can change and after a while, the current 'new' routine is different from the old 'original' routine. This is referred to as temporal replication (Winter, 2010). Next to this, there is also spatial replication (ibid), whereby a routine is replicated in a different location, which could entail different environmental factors affecting the routine.

As such, it becomes clear that routines can spin out of control. Organisations are performing a balancing act, restricting the routine on the one hand, and allowing for variation on the other hand. Yet how do the firms do this balancing act - the management of drift within organisational routines?

The rationale for this study within the academic world lies in the fact that the current literature sheds light on the existence of enablers of drift - being the various reasons for

which actors undertake different actions compared to what the manual prescribes - (Friesl and Larty, 2013; Feldman, 2000; Feldman and Pentland, 2003; Gupta, Hoopes and Knott, 2015; D'Adderio, 2014; Becker, 2004). However, the literature currently lacks an explanation of how such drift is curbed. Many enablers are identified, but the identification of constraints of drift is scant. As replication as strategy is not led by a cookie cutter method (copy and past manuals and routines across different locations), firms need to replicate a set of routines, yet adapting them to the new context (Winter and Szulanski, 2001; Gupta, Hoops and Knott, 2015). Despite firms deal with drift in routines when replicating, it has not yet been recognized by the academic literature. This presents an interesting puzzle that piques the interest of the authors; understanding to what extent the focal a firm is aware of the restraining and allowing of drift and how such drift is accounted for. The interest has been formulated in research questions, with the intention of finding out:

What mechanisms does a replicating firm use to both allow and constraint drift?

In order to add to the existing literature - therefore being able to answer these questions, the authors will do field research in a in-store goods flow setting of two IKEA stores, utilizing a combination of research methods; including participant observation, semi-structured interviews and the use of documents available.

Taking the information above into account, the aim of the thesis is to contribute to the understanding of the phenomenon of drift within the organizational routines strand of literature. Two domains characterize routines: the ostensive and performative aspect - combined known from here forth in this thesis as the 'duality of routines'. Here, the ostensive aspect is seen as how a routine is described, and where the performative aspect is about how it performed. The difference between the ostensive and the performative aspect is referred to as drift. In order to observe the drift between the ostensive and performative aspect in the duality of routines, the authors have received support to study the logistics setting of two stores within the world of Inter IKEA Systems B.V.

2. Literature review

An extensive body of literature has been written about routines and their roles. The focus of this chapter is to provide an overview of what - to the best knowledge of the authors - has been done that is relevant for the subject. The chapter starts by introducing routines and how they are seen as iterative cycles, after which paragraphs are dedicated to understanding potential influence of the direction of this iterative cycle. This will include amongst others the main ideas brought forward in literature: Agency, artifacts and other additional routines constituents that are identified by the research community.

Whereas routines were first considered to be a black box when accentuated by Nelson and Winter (1982), today, there are many perspectives on the phenomenon of routines. The study of routines can occur on various levels. The unit of analysis for this study is routines as processes, defined as *repetitive, recognizable patterns of action, involving multiple actors* (Becker, 2004; Nelson and Winter, 1982) and such definition has been used as the foundation of routine by many academic studies (Feldman and Pentland, 2003).

Functions of a routine

The same routines can take place in multiple settings; hence it has been argued that routines are distributed across space, or across organization (Becker, 2004; Winter, 2010). The scattered distribution of routine performance is not only seen from a geographical-physical perspective, but also due to the "dispersedness of knowledge" (Becker 2004), whereby the stock of knowledge of a routine needed for its execution is unevenly dispersed among actors with specialized expertise (Feldman and Pentland, 2003). Consequently, actors need to interact so to perform the routine.

The interaction linking different actors create a "*concatenation of procedural stored action*" (Cohen and Bacdayan, 1994 as in Dionysiou and Tsoukas 2013, p. 196) through interlocking patterns of behaviour, so that participants can anticipate each other responses (Dionysiou and Tsoukas, 2013) to deal with the dispersedness of knowledge which is a driver of uncertainty (Becker, 2004).

The collectiveness feature of a routine underlines the social dimension in which routines are embedded. Therefore, as the social dimension is composed by individuals potentially having diverging interests, goals, knowledge and influence over other actors (D'Adderio, 2014; Becker, 2004), the concept of political dimension (Friesl and Larty, 2013) is brought forward in the legitimisation process of particular routines. Routines can be a source of truce (Nelson and Winter, 1982) that allow participants to coordinate their action notwithstanding the conflict of actors' individual goals. The collective-social feature renders the

routine "*not a single pattern but, a set of possible patterns enabled and constrained by a variety of organizational, social, physical and cognitive structure*" (Feldman, 2000 p.613; Wright, 2016).

Routines are also conceived as a conveyor of stability and change (Feldman, 2000; Feldman and Pentland 2003) enhance coordination (Nelson and Winter, 1982), economize on cognitive resources, reduce uncertainty and act as a tool for storing organizational knowledge (Levitt and March, 1988).

Contrary to the idea of routine being a mindless activity (Cohen, 2007), such as not drawing substantial cognitive resources (Becker, 2004), the field of research is recognizing routines as effortful accomplishment (Feldman, 2000; Feldman, 2003; D'Adderio, 2014; Dionysiou and Tsoukas, 2013; Friesl and Larty, 2013). The proponents of the second position see the routines as dynamic, defined as a "*patterning work, emergent accomplishment (*Feldman, 2000 p.613*), never fully achieved* (Tsoukas and Chia, 2002 as in D'Adderio, 2014 p.1347)*, as work in progress rather than finished products*" (Feldman, 2000 p.613)*.*

Such view is the result of studies on endogenous change within the routine and related dynamics taking place, such as the interaction of the ostensive and performative level of a routine, which will be dealt with in the next section. As a consequence, this places a critical role to the micro level (actor) and his cognitive, effortful involvement (Feldman, 2000; Feldman, 2003; D'Adderio, 2014; Dionysiou and Tsoukas, 2013) in enacting routines.

2.1 Routines as iterative constructs

Ostensive and performative duality of routines
Feldman and Pentland (2003) are utilising in their paper Latour's (1986, as in Feldman and Pentland, 2003) terminology of 'ostensive' and 'performative'. Applied by routine theorists to the concept of routines in a different way than was intended by Latour (Wright, 2016) the terms ostensive and performative have come to be significant terms to showcase the duality of routines; routines as a descriptive/narrative - in other words, routine as the structure - and routines as the act of performing them, and the potential agency involved. When these two do not overlap, drift occurs.

This duality of structure and agency as the cause for drift has received attention from Feldman (2000) who describes the organizational routines as a source of continuous change, relying on the idea that routines are effortful accomplishments - thereby giving the actor a choice from a range of possible options, with the possibility of the range shifting to constrain or open up possibilities. In similar vein, this agentic discretion has been extended by Feldman and Pentland (2003) and they expand their view: With each participant's understanding of the ostensive part being subjective, it follows that is likely that there are different

views about how the routine should be executed; As the performative aspect is done by people according to their understanding of the ostensive part, it can be argued that '*the performative aspect of routines can best be understood as inherently improvisational*' (Feldman and Pentland 2003 p.102). In other words, the performative part is enacted by people who have a different understanding, as their point of view is different. Since the routine is repeated - and is historically path-dependent - small changes due to diversity in the ostensive understanding lead to variances in performance, which in turn comes back to lead to bigger differences in the ostensive aspect, in short, incrementality of change (Weick, 1990; Levitt and March 1988 as in Becker, 2004).

What makes the routine also creates the drift

Subsequent research delves into this further, such as D'Adderio (2008), putting forth the idea of performativity of routines. Here, agentic influence in the routine is recognised, yet D'adderio shows that the ostensive part (embedded into artifacts like rules and procedures) is influenced heavily by forthcoming performative parts - using a theoretical framework to describe this. The framework presents that there is a continuous iterative process of framing (selective retention) of a routine, after which the routine is performed, which may lead - due to the agentic character of the actor - to a different enactment of the routine (variation), thereby affecting the artifacts (the ostensive understanding embedded in documents), that in the first place guided the execution of the routine. When the routine is performed again, the new adapted/new view on the artifacts influences the routine again, whereby the actor may choose again to ignore the given boundaries, thereby diverging from the guidelines which influence the guides as to what is accepted. This does not make procedures and rules useless, as artifacts maintain, enforce and are the starting point of the routine. Merely, "*Artifact-embedded SOPs and rules thus do not simply describe, do not often prescribe, mostly they are performed*" (D'Adderio, 2008 p.784). With the variety of actors in the routine process, each of them is competing to impose their performativity on the process, through the outcome in changing rules and procedures as a result of their performativity. In this, artifacts are therefore seen as the result of a (often divergent) performance of an actor. The artifact is therefore at the centre (starting point performance), but it is also at the outset (result of performance)(ibid).

Routine drift is therefore the result of repetition of the routine - yet plainly said - with a different input, thus resulting in a different outcome. The repetition that creates the routine thus also creates the drift, making it hard to say where one routine begins and another iteration of the routine ends. The output of one is the input for another. Therefore, a common ostensive understanding - input so to say - is influential in the routine.

Sharing a common ostensive understanding

Research identifies social interaction as a way that participants build a shared common understanding of the ostensive aspect of the routine.
Feldman (2000), Feldman and Pentland (2003) and D'Adderio (2008) describe the routine as an interaction and sequential processes between the performative and the ostensive level. However, Dionysiou and Tsoukas (2013) illustrate how such two levels '*mutually constitute each other*' (Ibid). They build on the lens of symbolic interaction by Mead, whereby "*people act on bases of meaning, arising from social interaction*" (ibid. p.186); meaning is (re)created, shared, maintained and changed through social dynamic processes.

The process of routine (re)creation starts with perceived uncertainty that affect the cycles of interaction (ostensive level) that participants undertake, so to manage novelty to a workable level (Weick, 1987 in Dionysiou and Tsoukas (2013)). Then, participants enact the interaction through role-taking (performative level), to 'develop a joint understanding, taking into account others' role, aligning action as collective accomplishment' (Dionysiou and Tsoukas, 2013). As different cycles are performed and experience accumulates, participants "*abstract and generalize actions that have been jointly and intersubjectively established*" (Ibid, p.191), so that it is possible to organize conduct in accordance with "*mutually consistent behavioral expectations*" (Ibid, p.192). Hence, through the interaction process, the ostensive level (interaction) contributes to the creation of a "*shared schemata*" that enables "*coordination of joint activities, align interpretation and favour expectation about appropriateness of action*" (ibid.).

2.2 Influencing the individual ostensive understanding

Despite people striving to have a shared common understanding of the ostensive aspect of the routine, there are a variety of factors that create a challenge to achieving this goal. When a routine is executed by more than one actor, there is the possibility of actors' having different ostensive understandings, coming forth out of the different beliefs, values and assumptions of the actors involved. Next to this, during the execution of the routine - the enactment - the ostensive understanding of the actors can change, influencing the routine execution.
Finally, interactions and interpretations of embedded ostensive understandings of routines (e.g. manuals or software), referred to as artifacts, also change the ostensive understanding.

The present paragraph will show how these factors ultimately, to a certain degree, influence the individual's understanding of the ostensive aspect of the routine - which will ultimately result in a different execution of the routine from person to person. The actor thus influences not only the ostensive understanding, but also

performative - the execution of the routine and the ostensive understanding that follows out of this. A more indepth understanding will be nurtured through the following paragraph. Due to the interdependencies between the factors that challenge a common understanding of a routine, the argumentation of the variables will be unfolded in three main macro parts: Agency, Enactment, and Artifacts. As shall become apparent, these parts are affected by the actor of the routine - and not only the ostensive aspect of the actor. The studies of routines in the performative aspect recognize the crucial role of the actor (Becker, 2004; Feldman, 2000; Feldman and Pentland, 2003). When combined with the collective-social-interlocking features of the routine, the performative aspect gives rise to potential evolutions and variations of routine - leading to a multitude of ostensive understandings among the actors of the routine. In other words:

"Actors simultaneously draw from the past (habit, prior experiences, interpretive schemes), the present (situation-at-hand, resources and artifacts available), and the future (projections, expectations, norms that inform ongoing practice) to inform their current practice" (Emirbayer and Mische, 1998 as in Howard-Grenville, 2005, p.627).

Agency and Subjectivity

The major contribution of Feldman and Pentland (2003) is the introduction of agency in the performance of routine, which brings forward the subjectivity dimension as a way of actors to "energize" the routine. Moreover, the subjectivity allows actors to understand and make sense of the objective dimension through individual actor lenses. Assuming that subjectivity of actors play a key role in execution, then the interpretation of routines can be considered as a subset of subjectivity.

Actors' different interpretation, arising from interaction has been dealt with by Feldman and Pentland (2003) and Dionysiou and Tsoukas (2013). Interaction processes expose actors to a variance of information and preference, which produces a specific set of outcomes. The result of the interaction may have unintended result, leading to increased perceived uncertainty where participant develop consequent different interpretation (Feldman and Pentland 2003), which creates the possibility of resisting expectation and doing otherwise.

Subjectivity and interpretation are influenced by the actors' prior knowledge, attitudes and values (Friesl and Larty, 2013; Baden-Fuller and Winter, 2007). Moreover, when making decisions actors take into account prior experience as outlined by Becker (2004), hence supporting the argument of path-dependency of routine.

From the individual micro level perspective, preferences play a critical part in shaping the subjectivity domain of actors (D'Adderio, 2014). As preferences are rarely stable and their constitution is dynamically constituted through interaction (Dionysiou and Tsoukas, 2013), actors shape the performance of routine in ways

that are deemed *'desirable and appropriate'* (Feldman and Pentland 2003) through a process of adjustment and improvisation. Hence overestimating the importance of ostensive part leads managers to underestimate what people do to make the routine work, whereby the elements of desirableness and appropriateness is dependent on the actors to integrate it in the ostensive part (ibid).

Therefore, a variety of factors influence interpretation and understanding that an individual has of the ostensive aspect. The actor themselves influence this understanding through acting - as such creating an interplay between agency and the subjectivity of the agent.

Drift is also influenced by the role of uncertainty, that defines the "raison d'etre" of interaction and modes of interaction. As claimed by Dionysiou and Tsoukas (2013), actors engage themselves to reduce uncertainty - conceived as novelty- to a manageable level for collective coordination purposes, and to predict the future through anticipated expected participant's behaviour.

However, the interaction process is an iterative one, where new uncertainty and novelty is constantly arising and re-processed by members. As new uncertainty shapes new interaction, it also affects the role-taking (performative aspect) undertaken by actors and the jointly created meanings (ostensive) arising from actors engagement. Therefore, uncertainty can be seen as one of the variables implicitly creating drift since it influences the ostensive and performative domain of the agents. Even when actors have a shared understanding of the situation, they may still fail to align their action (Dionysiou and Tsoukas, 2013). Such drift is caused by a *"loose connection between individual shared schemata"* (ibid p.196), which in turn is affected by the frequency of interaction.

Artifacts

Whereas agentic influence has long been seen as the only explanation for ostensive and performative differences, lately, there are more, namely artifacts. Artifacts have long had arguments that would fall in either side of the spectrum. Artifacts seen as the prescriptive type, which influence and constrain action (Howard-Grenville, 2005), and arguments for artifacts as being descriptive, whereby they were shapeable entities that depended on agentic discretion to be utilized in the process or not (D'Adderio, 2011). Yet, in her paper, D'Adderio (2011) puts forward a theory whereby artifacts are positioned in the middle of the routine - showing how agency and artifacts both influence together the course of a routine.

Artifacts understanding have evolved from serving as external memory (Nelson and Winter, 1982), termed cognitive artifacts (such as SOPS and rules) and that are spread out, distributed over space, to the idea of artifacts as inscriptions:

artifacts being *front-loaded with habits, intentions, and rationales held by the agencies by which they have been created, adopted, and adapted"* (D'Adderio, 2011, p.207). Artifacts are thus not 'untouched' - they come in the form as the result of adaptation and being adapted to. Connected to this is that artifacts embody knowledge and actions which the agent has stretched over its own cognitive capability and the cognitive artifacts. "*Views and objectives do not simply reside in the actors mind but are also embedded in - or delegated to artifacts* (ibid., p.213).

This leads to artifacts not merely being categorised as descriptive or prescriptive, but more towards artifacts as available in a certain outcome - the outcome of the interactions and shaping by agents. The infusion of the notion of 'affordance' (Gibson, 1979 in D'Adderio, 2011), implies that the artifact can be seen as porposing merely an option – an option to be used by the actor for support, or not used at all. However, D'Adderio (ibid) includes 'Actor-Network Theory' - that propagates that knowledge and actions engage other entities, human and non-human and, as such, also artifacts. Continuing on this concept, D'Adderio (ibid) builds up the idea that, when different agents are struggling to dominate their view on the routine (as per the performativity idea), they use specific artifacts (shaped by interactions) to gain additional leverage for their view. "*Artifacts, in the case of routines, can include procedures as well as a wide range of objects, tools, and technologies that can be harnessed to actualize their course or 'make them happen'…*" (Ibid., p.220).

Embedded Artifacts

In embedded-artifacts (such as rules and procedures captured) in technology, the focus is more on the constraint that artifacts such as software create, simply due to their functionality and facilitation in a particular manner. Whereas the power of agentic discretion is emphasized in the literature, the potentials opportunities for drift are in practice not, unlike theory, infinite. *"Once embedded in artifacts, skills and tacit knowledge (Latour, 1992) rules (Hutchins, 1991; Preda, 2000) and procedures (D'Adderio, 2003; Hatherly et al., 2007) tend to become more stable and durable"* ([authors in original] D'Adderio 2011, p.215*)*. D'Adderio (2008; 2011) uses arguments to support this. First, it is argued that the embedded constraints become part of a user's habits. Also, with artifacts like software being able to influence what can be done and what is accepted by others in the organisation, the organisational relationships - social control if it were - do not encourage doing things different - drifting. Another reason is that software aids in the visualisation of information for a multitude of people - thereby making it easier to spot deviation and monitor compliance. Finally, it is mentioned that, in the event actors are determined to bypass the software, the required resources, such as skills, are often not available.

It appears that the artifacts constrain drift to the *'Power of Default'* [of the current setting]*…. will prevent adaptation and customization* (ibid., p.774), despite the theoretical possibility for agentic discretion. Yet, artifacts can, in conjunction with

an agent, aid in dominating a view and can therefore be also be seen as an enabler, not necessarily leaning towards constraining.

As such, artifacts do not determine the routine, but they influence, participate and constitute a key role in shaping information and classifying it towards the preference of certain agencies, in which they will use it to organize according to their views. *"Some agencements are more, and some less, able to enroll people and materials and therefore are more or less successful"* (ibid. p.787). With varying performances by different agencies, a power struggle for successful existence of a view is not merely influenced by the actors, but also by the artifacts that are available to propagate this view and the agencements making use of the artifacts. This struggle often does not lead to one actor being able to force one world view completely over the other, rather, a degree of compromise will exist, thereby taking parts of both views to construct a world. The struggling agencies will therefore influence whether a routine will remain as it is or whether it will deviate - taking on other elements of a different world - and thus - together with artifacts, influence whether the routine will drift or not (D'Adderio, 2011).

Enactment

The body of literature that sees routines as mindful and effortful accomplishment conceives routines as being "enacted" (D'Adderio, 2008; 2014; Friesl and Larty, 2013; Feldman 2000; Feldman and Pentland, 2003). The ostensive understanding of an actor can change during the process of the routine - during the enactment of the routine. The enactment concept stems from the internal dynamic of routine as described by Feldman (2000), whereby an idea produces action, the action produces outcome, and outcome produces ideas. The dynamicity of the process arises when the fit within the processes parts (idea, action, outcome, idea) is not always tight. As actions can generate small variances in the outcome, such variance in the outcome will influence the idea about the action, which will again influence the outcome, and so on.

As actors experience the drift, such as the difference in outcomes and ideas, they can undertake different approaches: repairing a routine that did not produce intended outcome, expanding a routine for new available opportunities, or striving in seeking further improvements in the routine (Feldman, 2000).

Additionally, Feldman and Pentland (2003) introduce a concept called "selective retention" that describes how the performative level affects the ostensive one from the perspective of the actor's routine enactment. This process consists of several phases; creation through repetition, the maintenance, and modification where actors choose to deviate, that will in turn affect which aspects of routine will be again integrated into ostensive aspect.

Hence, routines are considered as "grammar" that allow members to produce a variety of result. (Feldman, 2000), whereby actors have the ability to choose

(Becker, 2004) and alter the available repertoire of activities (Feldman and Pentland, 2003).

According to Howard-Grenville (2005) enactment can also alter social expectations together with the interpretation of the artifacts, thereby impacting subsequent routine enactments.

The difference in performative and ostensive domain takes place "incrementally" where one or few components of routine change at a time (Becker, 2004), in response to feedback about outcomes which is based on the previous state of routine (Levitt and March, 1988).

Enactment takes place as a result of the aspiration level (Becker, 2004) of the organization, which is composed by individuals. Drift can potentially be seen by the different aspiration levels of actors that entail different triggers in problemistic search (Cyert and March, 1963 as in Becker, 2004).

Hence, the enactment and resulting variance in performative/ostensive domains can be represented by the misalignment between actors with diverging subjective interest in terms of aspiration (Becker 2004), desirableness and appropriateness of action (D'Adderio, 2008; D'Adderio, 2014; Feldman, 2000; Feldman and Pentland, 2003).

2.3 Take aways

As can be read in the gathered literature, the academic world recognises the existence of variation within routines. Literature focuses mostly on enablers of drift, whereas constrainers of drift are more difficult to pinpoint.

An overview of the main concepts, categorised by enablers and constraints of drift, have been summarised for convenience purposes in table 1. From the literature it appears that is has not been clearly identified through what mechanisms constraints are limiting routine variation. The upcoming chapter will elaborate on the research done with the goal to clarify how these enablers and constraints balance routine variation.

Table 1: An overview of identified enablers and constraints

Enablers	Constraint
Agency (Feldman and Pentland, 2003)	Artifacts (D'Adderio, 2008, 2011, 2014)
Interaction (Feldman, 2000; Feldman and Pentland, 2003; D' Adderio, 2008; Dionysiou and Tsoukas 2013)	Collectivity (Nelson and Winter, 1982; Feldman and Pentland, 2003; Dionysiou and Tsoukas, 2013)
Social expectation (Howard-Grenville, 2005)	
Uncertainty (Dionysiou and Tsoukas, 2013)	
Enactment (D'Adderio, 2008; Friesl and Larty, 2013, Feldman, 2000; Feldman and Pentland, 2003)	
Role taking (Dionysiou and Tsoukas, 2013)	
Preference, desirableness and appropriateness, (Feldman and Pentland, 2003; D'Adderio, 2014)	
Agentic discretion and influence (Feldman and Pentland, 2003; D'Adderio, 2008)	
Subjective understanding and aspiration (Feldman and Pentland, 2003)	
Selective variation (D'Adderio, 2008) and retention (Feldman and Pentland, 2003)	
Incrementality of change (Becker, 2004)	
Prior knowledge and experience, attitudes and values (Friesl and Larty, 2013; Baden-Fuller and Winter, 2007; Becker, 2004)	

3. How was the study conducted

What mechanisms does a replicating firm use to both allow and constraint drift?

The function of the current chapter is to give insight into how the study was conducted, how the results were analysed and how theory is consequently developed.

Setting and participants

The availability of two different research locations within the IKEA world proved to be a unique opportunity for organisational routines study. IKEA, as a chain organisation, is constantly replicating routines as part of its expansion process.

Both visited stores have a rather uncommon layout, whereby the warehouse is split between a main and auxiliary warehouse. This means that the store is inclined to adapt the existing routines more often compared to common store layout, as the working situation slightly varies. This provided for an interesting research setting. By using a case study method, the authors had the possibility to gain unique access to data and participants, (Yin, 2013), combined with the ability of finding pattern deviation not available from other method (Berg, 2004). Moreover, a case study enables researchers in generating theory onto what already exists, by observing detail that allows an understanding of organisational mechanisms (Bryman and Bell, 2015).

As the need of the authors is to identify the rise of drift, intended as the variance in performance from the ostensive understanding of a routine, then it is of critical importance to observe the performative aspect in order to strengthen the internal validity of the present research (Howard-Grenville, 2005). The rationale behind the need of in-depth research into the performative aspect is that, by focusing merely on the ostensive description, the research would not adequately explain variability within routines (Wright, 2016). Moreover, a study purely focused on the ostensive domain would entail a level of analysis that may not take into account the *"everyday action"* of actors, which is found to be one of the variables affecting the variance in routine performance.

As Feldman (2000) claims, the performative aspect has often been overlooked by researchers, since routines as generative mechanisms are *"difficult or impossible to observe"* (Pentland et al., 2010 in Wright, 2016, p.150). An additional barrier to the study, is that routines are an abstract representation that is described by the researcher, rather than a tangible and visible physical phenomenon (Wright, 2016).

Notwithstanding the difficulties highlighted by Wright (2016), the authors chose participant observations and semi-structured interviews to deal with the complexity of what the study entails. Having received full support from the stores, the researchers were able to conduct participant observations over a total of nine days (store A: seven days, store B: two days), with interactions with a total of 13 IKEA co-workers on the shop floor. By using the 'peripheral membership role' approach, the "*researchers observe and interact closely enough with members to establish an insider's identity, without participating in those activities constituting the core of group membership*" (Merriam and Tisdell 2015, p.125), thus the goal was to describe and provide a holistic understanding of the setting, providing a "written photograph" of the research context (Erlandson et al., 1993). Additionally, the author equipped themselves with daily field notes during participant observation, interviews, and general tours around the IKEA store, together to the memoing activity, which is used t*o "clarify...sort and extend ideas.... record crucial quotations or phrases"* (Douglas, 2003, p.5).

The phenomena under observation were the ensemble of the logistic routines being part of the goods flow process in the store. The choice of in-store logistics as the research field was driven by different factors. First of all, logistics processes involve many actors, from forklift drivers, replenishment co-workers to sales people and communication and interior designers. This created an interlocking aspect in the observed routines. Also, these routines persist over time, hence becoming a pattern of action that can be physically observed repetitively.

Merriam and Tisdell (2015) state that "*purposeful sampling is based on the assumption that the investigator wants to discover and understand and gain insight and therefore must select a sample from which the most can be learned*" (Ibid., p77). This is echoed by Patton (2002, in Merriam and Tisdell, 2015): *"The logic and power of purposeful sampling lies in selecting information-rich cases for study in depth. Information rich cases are those from which one can learn a great deal about issues of central importance to the purpose of the enquiry..."* (ibid., p.78). As such, our sample consisted of IKEA co-workers and managers most of them in one way or another connected to logistics - experts on their subject.

Semi-structured interviews were held with a total of 13 IKEA co-workers, of which a total of eight participants occupied senior management positions. Of the total 13 interviews, eight interviews were held in the period between Tuesday 12 April and Monday 18 April 2016 in store A. Most participants had considerable experience in the IKEA world, with current management having risen through the ranks – peaking at 10-13 years of experience. The other five interviews were held during the period between Monday, 9 May to Wednesday to 11 May 2016 in store

B. Here, participants ranged from fresh-on-the-job (less than one year of experience) to people with over 30 years of experience in the IKEA world. An overview of the store facts, as well as the research facts can be observed in table 2. The interviews were performed in parallel with observation, so to fit with the schedule of co-workers and managers. The iterative process between interviews and observation enabled the researchers to gain a deeper understanding on which operational issue to focus, and to adjust the questions when interviews occurred. Gaining knowledge on the shop floor level allowed the authors to use examples during the interview, so to use it as a discussion platform.

Semi-structured interviews allowed for the conversation to go into directions that the researchers were unaware of, whilst allowing respondents the possibility of speaking freely in order to gain unexpected information (Saunders, Lewis & Thornhill, 2009). Semi structured interviews gave new insights which served as the direction for further probing, by shifting and asking additional questions (Saunders et al., 2009) due to the limited knowledge that was available on forehand.
The various participants are occupied with different responsibilities, ranging from management activities such as general store management, (financial and commercial activity) planning and auditing to operational activities such as warehouse management, replenishment of the store and customer support and service.

Table 2: Store and research facts

Store facts	Store A	Store B	Difference in % (rounded)
Store size	27 500 m²	18 000 m²	−53%
Turnover (ratio for anonymity)	57 000 000 €	75 000 000 €	−50%
Average volume handling	56 200 cm³	69 000 cm³	−23%
Number of coworkers	254	340	−33%
Opening / Years	2000	1977	-
Distribution centres	Dortmund, Wels	Almhult, Dortmund, Torsvik	-
Product range	9500 products	9200 products	−3%
External warehouse as separate unit.	Yes	Yes	-
Research facts			**Total**
N. of days spent at the store for participant observation	7	2	9
N. of interviews per store	8	5	13
N. of interviews senior management positions (Commercial team)	4	4	8
N. of interviews Coworkers at shop floor level	4	1	5

Data Collection

The same method was used in store A as in store B.

The majority of interviews in store A with management took place in the meeting room, whereas the majority of interviews with those in operations took place on the respective warehouse/shop floor – within their work environment so to capture the tacitness of their action. The same method was used in store B - a room as setting for the management interviews and the shop floor for interviews with other co-workers. Such approach is claimed to be effective when the subject of the study is the day to day routine of actors (Schensul and LeCompte, 1999), that calls for a deep exploration of people's interaction, such as observing nonverbal expression of feelings, communication patterns, and checking the length of time spent in the various activities (Schmuck, 1997).

Through an evolving understanding of the business of the researchers, the questions in the interviews became more focused on specific points as time passed. Being directly in the work setting allowed for many things to be demonstrated, which made it easier for the interviewee to show – thereby providing more detailed understanding for the interviewers. A variety of notes, artifacts and visual material was acquired, which immediately after the session would be reviewed and finalized in a digital document for further processing.

All interviews took place within the bound of IKEA property, with participants generally being interviewed once. This process was part of the larger method of participant observation, whereby all observation participants were observed more than once. During this process the researchers worked in tandem. One person would be primarily engaged in the interview – conversing yet also observing so be able to inquire more specifically. The second researcher would note the interview and would make additional observations. This allowed for validating the understanding that the researchers had on a topic (Eisenhardt, 1989) – with the occasional return to a participant for clarification on a given perspective. The participant observation would manifest itself in practice by following a co-worker who was executing a routine and inquiring about what they were doing, why they did it according to this and what their understanding was of the way the routine was supposed to be executed. The procedure to gather data can be referred as to the "within-case approach" meaning a full immersion, feeling acquisition of the setting, and identification of significant statements from individuals (Ayres, Kavanaugh & Knafl, 2003) so to improve the richness of the data set through participant observation.

Additionally, artifacts were then sought to substantiate the ostensive understanding. This ranged from publicly available items such as job descriptions in vacancies to internal items describing ways of executing the respective routines.

Analysis

The first step to begin an accurate and meaningful analysis is to review field notes, interviews, transcript and relevant documents, by "overreading" (Ayres et al., 2003), whereby the researcher looks for meaning that is "*implicit rather than explicit in the interview text*" (Ibid., p.876), by identifying actors' repetitions, omissions, evasions and contradictions.

Thus, interviews and field notes undertook a process of digitalization, whereby recorded tapes were converted into text. Following, colour and pattern coding approach was performed on the transcribed interviews and field notes. The researcher compared the individual statements with the ones of every participant, by decontextualizing the units of meaning through coding and sorting, while paying attention to recurring patterns and commonalities.

Screening for recurring themes enabled researchers to build a database of observation and categories, so to construct a holistic representation of the work environment at the IKEA store in store A. Then, the across-case approach was used, where categories are first identified and developed in core categories (Douglas, 2003), to further "*reintegrate them into themes combining units of like meaning*" (Ayres et al., 2003, p.872).

From there on, every routine observed was filled into an Excel spreadsheet column. On the horizontal axis, categorizes were listed, such as how the routine is described or mentioned in manual, how the routine is performed, the consequence of performance variance and the rationale behind it.

Even though the first digitization proved to be useful for a preliminary understanding of the gathered material, such approach produced a great amount of different pieces related in a non-structured way. In order to streamline how different routines belong to one specific process or within-it, the researchers categorized each routine with an alphabetic letter that would respect the goods flow sequential process.

Once performed such categorization, a spreadsheet alphabetic sorting function (A to Z) clustered routines belonging to the same process together, but still showing the sequential-logic link of good flow process.

A total of 29 routine variation examples emerged from the sorting process. Following, the authors of the paper chose to focus specifically on ten examples, to provide the reader with an in depth explanation of the focal phenomenon. The choice of the selected examples was driven by the richness of data and availability of pictures and actors´ quotes related to the examples.

Due to the wealth of data, and the related complexity in creating a theoretical model, the researchers used systematic combining through abductive process. Starting out gathering data in store A and analysing it - the improved understanding was then - about two weeks later, used in store B. The choice of such approach reflects the need of reorienting analytical framework when confronted with the empirical world, since "*empirical fieldwork, and case analysis evolve simultaneously*" (Dubois and Gadde, 2002, p.554). Moreover, the continuous iteration between theory, sources and analysis, not only potentially reveal new dimension of the research problem, but also proves to be a powerful tool for generating and refining existing theory (Ibid). The case, together with theory iterations is claimed by Dubois and Gadde (2002) on a continuous "evolving" phase, thus the research design has the goal of shaping it as a platform for discussion. The abductive approach is closer to the inductive, grounded theory approach (Dubois and Gadde, 2002) where theory is systematically generated from data, and emerges from it (Douglas, 2003). An overview of the methods used, the author and the rationale of usage can be found in table 3.

Table 3: Research method and authors

Method	*Rationale*	*Author*
Case study	Gain unique access to data, find pattern deviation, generate theory	Yin (2013); Berg (2004); Bryman & Bell (2015)
Purposeful sampling	Gather relevant information from the experts	Merriam & Tisdell, (2015)
Semi structured interviews	Recorded to focus on words, to leave respondents to speak freely and reveal unexpected information to redirect research	Douglas (2003); Saunders, Lewis & Thornill (2009)
Within and across-case data collection	Full immersion and acquisition of setting, creating core categories	Ayres, Kavanaugh & Knafl (2003)
Participant observation	Observe performative aspect in every-day action, to provide holistic understanding, exploration of people's' interaction, observation of non verbal expression or feeling and communication pattern	Howard Howard-Grenville (2005); Schensul &Le Compte (1999); Erlandson et al. (1993); Schmuck, (1997); Dewalt and Dewalt (2011)
Abductive analysis	simultaneous evolution of empirical fieldwork and analysis, to refine and generate theory and discover new dimension of research problem	Dubois & Gadde (2002)

Ethical considerations

Participants have been made anonymous for the sake of protection. Furthermore, proprietary data belonging to participants or Inter-Ikea Systems B.V. has either been generalized or left out. The foremost objective was to research to the extent that maximized validity within the given limitations without disadvantaging parties. All participants were made aware of the research and its purpose, with all participants consenting to being interviewed/observed.

Validity

Like any research, there are certain limitations to the research. The first and foremost constrained was the time-frame. Nine days may by some not be considered enough to do field-research.
From this, it follows that generalisability of the results can be a point of discussion. Another connected limitation is that the researchers, who have had the goal to gain insight and knowledge in all there is to know, have not been able to do this, despite best intentions. One after all does not know what one does not know.

However, to improve these odds, the authors took measurements. As an abductive approach was used, conclusions drawn from empirical findings could be confirmed after being analysed. This aided the validity of the findings. In this process a multiple methods were used to validate data. First, triangulation was used whenever possible so to verify information. Triangulation is defined as "*the use of multiple methods, multiple sources of data, multiple investigators or multiple theories to confirm emerging findings*" (Merriam and Tisdell, 2015, p.215).
Furthermore, member checking has been employed when possible. This entailed checking respondents validity; "*You solicit feedback on your emerging findings from some of the people that you interviewed...ruling out the possibility of misinterpreting the meaning of what participants say and do and the perspective of identifying your own biases and misunderstanding of what you observed* (ibid, p.217). Next to this, as more and more data was gathered, the novelty of the data uncovered was not always that same. Similar things were heard over and over, responding to the adequate engagement of the data collected: "*The data and emerging findings must feel saturated: that is, you begin to see or hear the same things over and over again, and no new information surfaces as you collect more data.* (ibid, p.219). Next to that, due to the abductive approach, understanding was built and verified through the constant interaction between data analysis and data gathering.

Limitations

Despite the benefit of using a qualitative case study approach to explore routines drift in a real life setting, the authors of this paper are aware of the limitations that entail this type of study. First of all, data gathering and sampling was performed in only two stores of the IKEA group. As participant observations were conducted with the peripheral membership role approach, the "*level of the information revealed is controlled by the group members being investigated*" (Merriam and Tisdell, 2015 p.124). As a consequence, the generalisability of the findings might be impacted. Yet, those two stores under study show common features in terms of store layout, organisational structures, mechanism and culture. Moreover, the store managers interviewed showcased that operational issues are common in all IKEA stores. Such knowledge is developed through job rotation, as store managers change store location every three or four years according to internal IKEA policies. Choosing a research method entails tradeoffs and inevitably exposes the research itself to some weaknesses. However, blending different methods in sampling and analysis processes reduced the risk for authors' biased interpretation.

4. Empirical data

The previous chapter described the method through which the data was obtained. This chapter will analyse the data with the function of providing the base for chapter 5 that shortens the distance to a potential answer to the research question. The structure for this chapter is as follows. Firstly, an overview of the IKEA Group and IKEA itself is given, after which the chapter zooms in on the respective IKEA stores visited for the research. Following this, a narrative, constructed by the authors of the paper after immersion in the field research, will be used as a frame in which the routine variation examples will be placed in.

The IKEA world

A IKEA Store as seen from the outside

IKEA is a global firm in the home furnishing retail sector, originating from Älmhult, Sweden. As made famous by Ingvar Kamprad, who started from in 1943 with a small store, IKEA has grown international and a highly recognized name in the furniture industry, revolutionizing many homes by providing affordable and stylish furniture and accessories.

IKEA spent around 30 years, from 1942 to 1972 developing its business model before expanding abroad. The first international procurement experience took place in poland in 1961, due to a boycottage from swedish producers (Dahlvig, 2011).

When opening a new unit, the store can choose among 4 different types of layouts, respecting the following section sizes as observed in table 4:

Table 4: Dimensions per section of a store

Sections	Dimension
Showroom area	~ 6-7 000 m², with 40-45 room settings
Market hall	~ 6 500 m²
Self service	~ 3-4 00 m²
Warehouse	Up to 9 000 m²
Restaurant	~ 1 000 m²

Source: IKEA commercial team, personal communication, 2016

The standardisation of layout supports a global common store planning (CSP), which creates furnishing solution that are standardised. CSP serves as an implementation tool for new store opening (China, India), while already existing stores can adapt the solutions to their respective markets (Jonsson, A., & Foss, N. J. 2011)

With an average store size of 35 000 square meters and a product range of 9500 articles, IKEA is struggling to maintain a wide enough range to be a specialist and maintain logistical efficiency to keep prices low. (Dahlvig 2011).
The explosive growth of stores made it necessary to perform a backward integration by purchasing Swedwood, due to the fact that IKEA "*simply became too big to find suitable external producers*" (Dahlvig, 2011 p.82).
An early example of growth was from 1973 to 1983, whereby in ten years, 34 new stores have been opened (from seven to 41). However, this growth seemed to have created areas for improvement, especially within supply chain management: "*there was a big disconnect in the supply chain...The company was, and always had been, functionally organized. Goals and objectives were not coordinated, and work processes, time plans, and IT systems were built up in isolation in the different functions*" (Ibid., p.84). A new wave of change to synchronize supply chain parts led to IKEA to move from a functional organization to a process oriented one. As such, IKEA pushed for direct deliveries from regional suppliers as a way to decrease supply costs. Furthermore, the swedish furniture retailer created "*standardization of sales solutions, logistical work processes that minimize the movement and handling of*

products in the store, and the use of technology and IT to further simplify work procedures." (Dahlvig, 2011, p.92)

IKEA today is looking quite different from its pre-2000 form. According to the figures and facts released at the end of the IKEA calendar year on 31 August 2015, the firm maintained: *"A total of 328 stores in 28 countries; 27 Trading Service Offices in 23 countries; 33 Distribution Centres and 15 Customer Distribution Centres in 17 countries; 43 IKEA Industry production units in 11 countries. In total, we have 978 suppliers, including external suppliers."* (Inter IKEA B.V., 2015) Backed up by a total of 155 000 co-workers, of which 16 500 co-workers in retail, IKEA is almost globally recognised. With a total Sales revenue of 31.9 billion euros, the IKEA group can be seen as a giant and leader in the home furnishing business (Ibid.).

4.1 Zooming in - From the IKEA world to store A and B

The IKEA stores under study are based in Europe

IKEA store B is about 18 000 m², originally opened in the 70's, and is considered small. Its external warehouse is about 4000 square meter, and is over 10 years old. It receives regular cargo from the IKEA distribution centres in Älmhult, Dortmund and Torsvik.

Store A was opened in the early 2000's, however it undertook a rebuilding process in the last decade that expanded the surface area from 25 000 m² to about 28.000 m².
With an average yearly turnover of around 60 million euros, the store has about 250 co-worker that run the daily store operations.
In logistics terms, the store has a product range of 9.500 articles, whereby the average volume handling is around 56.200 cubic centimeters, unloaded and managed in the goods receiving area of the size of 890 m².
Store A is embedded in the central European distribution region. The store receives goods by automatically sending system-generated order when products stock level are going below specific parameters.
The main distribution centres that allow the store to be refilled daily or weekly are Wels (Austria) and Dortmund (Germany).
Additionally, internal direct deliveries from supplier are managed by an integrated IT software to restock the store so to avoid storage distribution centres costs.

The following part of this chapter will - through a narrative, take the reader through the process of the goods flow in the store. The narrative will be used as a blueprint for the reader, to get a better understanding as to where the routine deviations - described after the narrative - are placed in the goods flow process and how they can affect other parts in the process.

The narrative portrays the following a generic product as it arrives at the store, moves through the store and is picked up by the customer to be eventually - in this narrative - returned. The part starts with an introduction to the case, after which the different sections in the store are mentioned and the routines surrounding the product in that section are highlighted. A visualisation of the layout of the store, the layout of the external warehouse and the actual goods flow movement as described is for consultation in figure 1, figure 2 and figure 3.
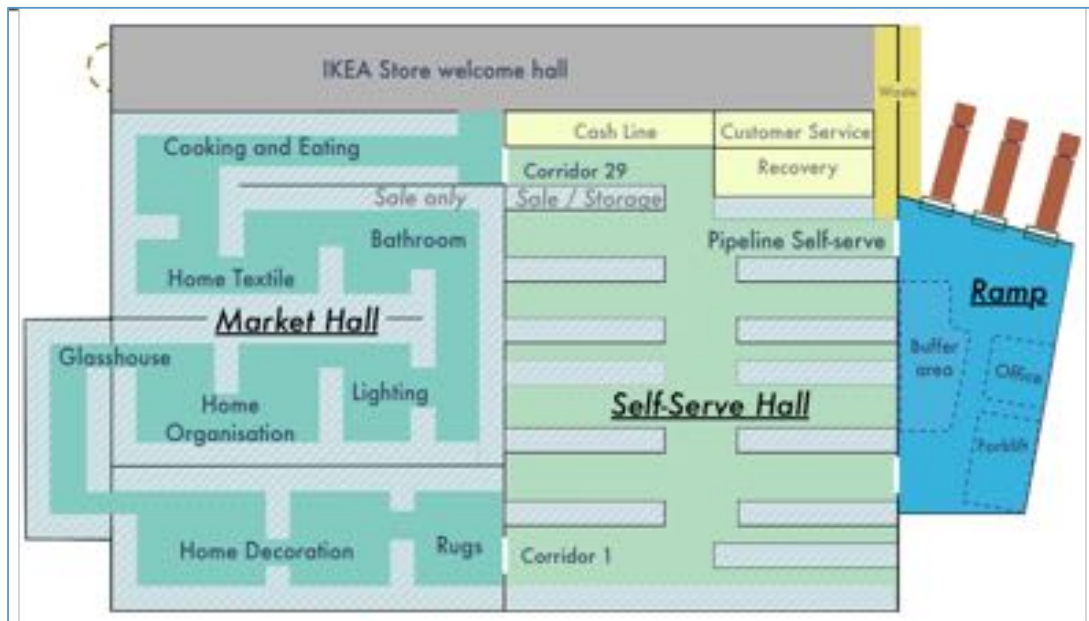
Figure 1: Layout of the store

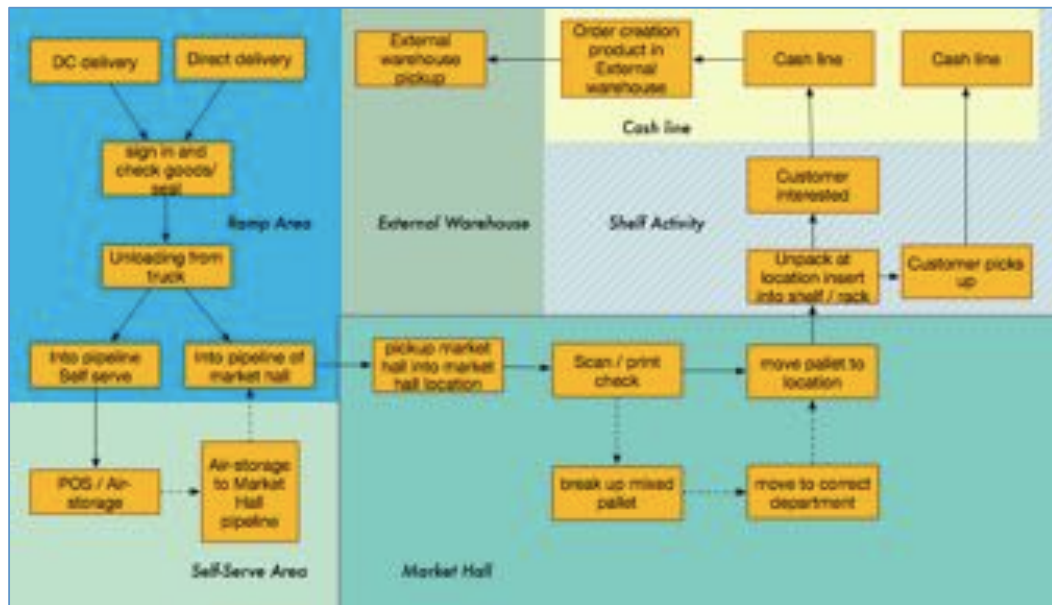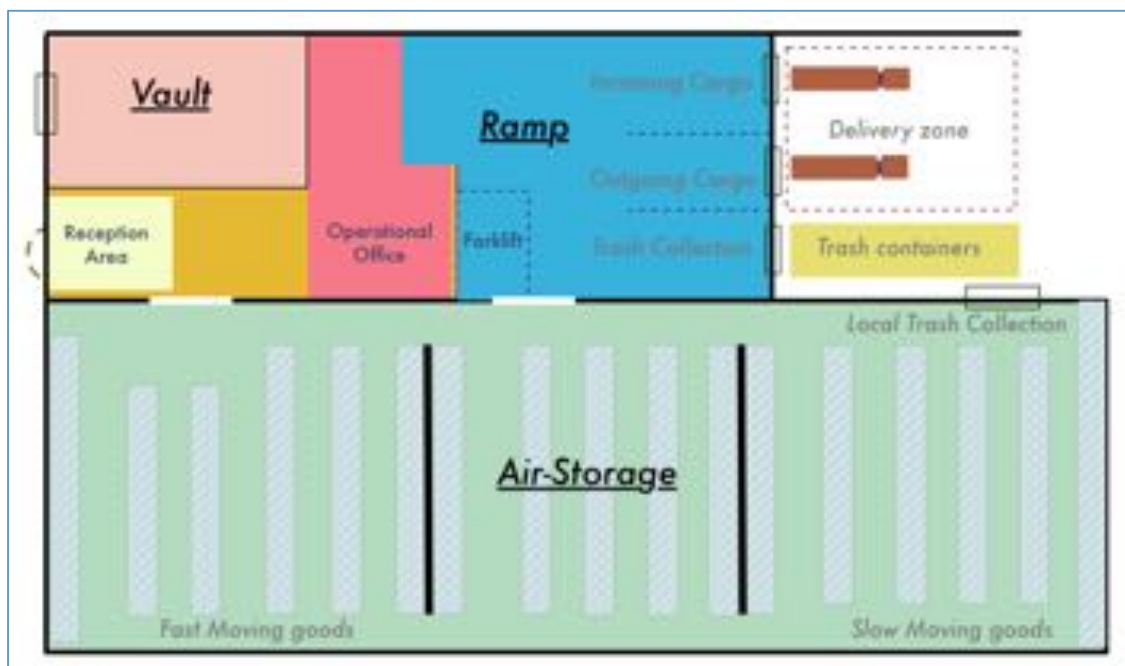Figure 2: Goods flow process through the IKEA store and the external warehouse

Figure 3:Layout External Warehouse

4.2 Introduction to the case:

Thursday, 5 am
IKEA

The day has probably not yet begun for the majority. Not many of the inhabitants of the small city are already awake at this time, but those few that for work reason or personal will, most likely enjoy breakfast gazing the sunrise over the majestic mountains, standing with pride with a clear cloudless turquoise sky. This is not the case for IKEA co-workers. With truck deliveries docking in as early as 04:00 in the morning, the rapid movements of forklift, the squeaking of wooden pallets being loaded and unloaded, is an indistinguishable sign that the store is preparing itself for the public opening at 09:00 o'clock. The loudspeaker turns on, notifying co-workers about today's restaurant menu, emergency code procedure, together with a warm good morning greeting. Thursday is not only the beginning of high-peak customer flow at the store due to the weekend approaching, but also a congested day in the unloading ramp, given the multitude of Wels and Dortmund deliveries from IKEA Distribution Centres. It all starts with transporters opening their truck's tailgate, so to allow forklift drivers to enter the cargo, load goods on the fork and unload them at the bay nearby. A continuous beeping from the orange sirens on top of the machines warns of forklifts reversing, together with the hydraulic sound of the metal forks that manage to handle tons of weight with an apparent ease.

Spotting beauty in the early morning in such congested, crowded and noisy place requires the individual to go beyond what is apparent and visible. One could imagine such activity to be automatic, mindless, robotic, barely requiring any use of emotion or personal judgment. However, such view would barely scratch the surface of what this process entails. The grace stems not only from how these individuals coordinate their action for a common purpose, but in how their activity is interlocked, ensuring that once the goods are unloaded, they will be transported to the department that will start restocking and replenishing the store shelves. With the support of software, such as hand scanners connected to the system stock management, individuals are guided and routed to perform their duties. Procedures, manuals, and training are all provided to ensure the smoothness of processes, from the unloading bay to the replenishment, from

picking of goods to customer delivery. Behind the scenes of a world whereby individuals perform exactly what prescribed in manuals and procedure, there lies a universe of potential individual performance variation. Rather than curtailing such variation to an extent that would negatively impact individuals and their freedom, a chain organization should be aware of this daily-micro variation that has an important effect on store performance. Allowing for mistakes for the purpose of improvements, whilst achieving short-term targets is a thin line, a grey area, a cradle for individual perception – a judgment that touches upon feeling of what is appropriate and what is not.

As such, this study will try to shed light on how IKEA balances such dilemma.

4.2.1 Following the goods flow

There are various routines within the logistics department at play. Most of them happen in the morning. With safety and security high on the priority list, IKEA refrains from driving forklifts in 'public' areas during store hours. The opening time of a store therefore also signifies the time when the overarching goods flow routine for the day needs to be finished.

However, before that particular morning, the foundation for executing this set of routines in a good fashion is laid beforehand. Depending on the volume that is expected, the respective team leaders of the unloading bay (or ramp), the self-serve area and the replenishment area make a planning of personnel needed for the day. The volume expected comes from a joint forecast in which sales, logistics and Sales and Service Support (referred to as triple S) work together intensively to smoothen the process. There are days that are commonly referred to as Dortmund days- high volume days in which the deliveries from the distribution centres located in Dortmund (DE) and Wells come into the store. The normal days for DC deliveries are Tuesday and Thursdays, so that the store is restocked for the days when sales are booming. Other days, Monday, Wednesday, Friday and Saturday, there are deliveries, yet not as many trucks will deliver to the store. On Sunday, the store is closed. As such, according to the planning, the various logistics co-workers arrive at different times, depending on their responsibilities. From here, the routines that the co-workers executed were visible for the researchers. What follows next is an overview of an typical day within the restocking of IKEA. The narrative follows a product as it is unloaded, moved through the store and placed into the sales location, before being purchased by a customer.

The Ramp: unloading area

.Unloading bays used to load and unload truck deliveries

An average day would start out with delivery trucks reporting to the co-worker entrance reception, located at the side of the building. Here, deliveries are registered and an unloading ramp is assigned. The truck then backs up towards the assigned ramp. Due to architectural brilliance, the ramp is of similar height as a standard truck. This allows for the forklifts to easily access the trucks. The unloading team on this day consists of three co-workers. The first step is to check the incoming cargo – it has to be in good shape, no damages and has to be what was ordered. A single-use seal is to be placed on the cargo by the supplier - to ensure that what the store receives is the intended cargo. Once a co-worker signs off and removes the seal, the cargo is accepted by the store and the other two co-workers are able to take a forklift to start the unloading process.

The unloading is, like all processes involving goods, a delicate process. The way the delivery truck is stacked with goods will influence the unloading process. Due to the constraint of only being able to unload from the backside of the truck, the pallet placement by the distributor or supplier is crucial. Respecting mandatory distances, pre-defined ways of good placement on pallets and splitting the cargo between the different warehouse locations is something that is expected.

The forklift driver drives up to the truck and often in the truck. Before picking up the good, the forklift driver scans the IPI on the goods – a sticker printed with barcodes containing information on the items such as quantity, location and particularities. Once verified, the forklift driver places the pallet into the pipeline in the self-serve hall, so that the cargo may move further into the store. The forklift driver then drives back to retrieve the next piece of cargo. The more experienced forklift drivers increase efficiency even more by transporting two pallets - back to back - at the same time.

The Self-serve hall
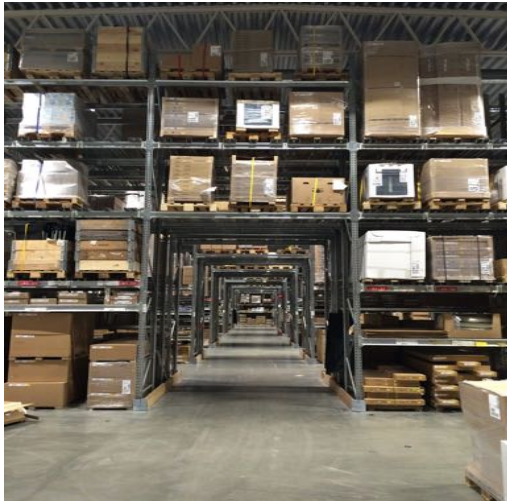
The self-serve hall is - like the rest of IKEA – almost iconic. The massive hall serves as a storage unit, as well as a point of sales for a variety of bulky goods. Coming often after the market tour and before the cash line point, the hall serves as a place where customers can pick up items packed in the iconic IKEA way.

In the morning the pipeline is filled with the goods that come from the delivery trucks and are unloaded by the ramp team. The co-workers assigned to this hall take the forklift from the charging station in the ramp area and start working on emptying the pipeline. A pallet is scanned, its name, quantity and location is checked after which the forklift driver takes the good and drives to the location. Everyone present in this area has to respect the prevalent rules in the hall. For forklifts, this means following the driving directions and respecting that some corridors are off-limits, except for designated drivers. For other co-workers on foot, this mean giving way to forklifts. A good that comes from the pipeline can have one of two destinations. Either it goes up into the storage racks in the self-serve hall – it will be 'air-stocked', or it is placed in the pipeline for the market hall. Either way, when at the destination, the co-worker in the forklift signs off the good into its destination by confirming its destination in the system.

A good is air-stocked immediately from the truck when it is not needed directly in the sales location. For logistics, this means that the good will arrive in its point of sale indirectly. A good that moves directly from the truck, through the in-store logistics process onto the shop floor is referred to as a direct delivered. Some goods that are currently air-stocked are also needed for that day. It is the responsibility of the forklift drivers in the market hall to pick these items from storage and place them in the pipeline for the market hall. The procedure for this is similar as the unloading procedure. The system produces a list of items that are needed in the pipeline with a specific location of the good. The good is retrieved,

scanned and verified and moved. If it is a good that is normally retrieved from the self-serve hall, it is often air-stocked right above its sales location, ranging from 0 to 135 centimeters from the ground. It is then for the forklift driver a straightforward motion – picking the item from the air-storage directly above the sales location and lowering the pallet – into location. If the good is normally retrieved by the customer in the market hall, then it needs to be placed in the pipeline to the market hall, either corridor 1 or corridor 29. The pallet is placed in the pipeline nearest to where the point of sale of the good is within the market hall. The placement of the pallet in the destination is again confirmed by the driver, who then moves to the next item on the list.

The market hall pipeline

The market hall is the area where most of the IKEA customers do their shopping. Here, a variety of items that are seen in the many showrooms and displays are available for picking. The items in the market hall are grouped by home furnishing department, such as home decorations, lighting, kitchen and textiles. In each of these departments, smaller product groups can be distinguished, with the most prominent items stored near the main walkway of the tour. While there can be items observed all over the area, including the walls, only items up to 135 centimeters are available for sale. Items above this point are for decoration – their purchase tags have been removed.

A different kind of forklift is used in the market hall. The driver of this lighter forklift takes the items from the pipeline at the beginning of the market hall and drives them to the respective home furnishing department. The pallets are placed in a central point of the home furnishing department, but on the walkway. They are placed one after the other, forming a pipeline for the replenishment co-worker.

The forklift driver follows a similar process as the other forklift drivers, scanning a good through the IPI barcode, verifying it and taking it to the destination, where it's signed off. The driver needs to make sure that pallets are in place when the replenishment team arrives – so that they can start right away with stocking the sales locations. Additionally, the forklift driver places the rubbish containers, carton and plastic separated, on the designated locations.

Replenishment in the market hall

About three hours before store opening, most of the replenishment co-workers arrive. This is the group of logistics co-workers that arrives latest at the store. These co-workers are often the experts within their home furnishing area, knowing the location of products by heart. However, some co-workers arrive earlier, similar to the timing of the forklift drivers. These replenishment co-workers have an additional task, which entails taking inventory of articles as specified by the joint function of logistics, sales and triple S. This procedure aids in maintaining stock accuracy and needs to be completed before replenishment of sales locations begins.

Once completed, they join in with taking goods and placing them in the sales locations.
IKEA maintains a quantity of a product in the sales location – referred to as safety stock - to make sure that the product is available for purchase by the customer. On top of this safety stock a measurement called visual fill rate applied. Despite the minimum availability of quantity reached, a point of sale may be depleted to a certain extent that the customer would have to bend over to reach an item – something that is discouraged.

A minimum quantity is therefore maintained by the system. Based on automatic sales prognoses – which are three times daily adjusted by sales and logistics co-workers, the system orders items from storage or from vendors.

A pallet of goods may contain more than what is needed to reach the preferred quantity and as such, the system prefers to send items back into storage.

This information is aggregated on a prenote – a document that indicates the different stock quantities – including the quantity that the replenishment co-worker should insert in the sales location. The remaining quantity of the pallet should, according to the system be returned to storage.

Unpacking a pallet

A pallet placed by in the walkway needs to be unpacked. The good is protected and supported with carton sheets, plastic wrap and secured in placed with plastic straps. The co-worker chooses a pallet and scans it. On the scanner, the same information is available as on any scanner; item, quantity, location, peculiarities. The co-worker then compares the quantity of the item on the pallet with the quantity that is needed in the sales location as prescribed on the prenote. Once verified, the co-worker takes the manual forklift and takes the pallet to the sales location. Here, the plastic and carton are unwrapped from the good, the goods are placed in the rack, the co-worker picks up the leftover plastic and carton and drives to the rubbish bin. Here the plastic and carton are split after which the co-worker chooses the next pallet to unpack.

Pallets come with different goods placed on them. To save space and therefore cost in truck deliveries, some pallets are packed with multiple goods. It also occurs that some pallets are packed with goods that belong to different home furnishing departments.

Co-workers then need to unpack the goods first, by department, before splitting the pallet by the different goods – following a sequential process as if there was only one type of good on the pallet. On the other side, there are also pallets that are typed ready-to-sell. Typically, these are pallets whereby the items do not need to be stripped of all carton – as individually stacking these items is not beneficial. Examples are candles or ceramic bowls.

Once the pallets are cleared, they are placed back in the pipeline. The forklift driver of the market hall then picks them up for backflow, to be collected at a central point in the unloading area. Once all goods pallets are cleared, the forklift driver picks up the waste containers and places them in the unloading area, where they will be aggregated by another department.

A final sweep and check of the market floor and the self-serve hall – and the store is ready to receive its customers in a clean, restocked store, with enthusiastic sales co-workers ready to assist. This process, from unloading to replenishment, repeats every morning that the store is open.

Picking up the good

With customers coming from close by and far away, IKEA strives to give customers what they need; whether it's inspiration for home decors or expert product advice. A typical Swedish meal can be enjoyed in the IKEA Food court, before heading out to the self-serve area to pick up the last items and cash out. Some items may however not be available in the self-serve area within the store – they're placed in an auxiliary warehouse (external warehouse) off property. Once the customer has paid the item, a digital message is forwarded to the external warehouse, with a picking request for the co-workers there.

The external warehouse

The external warehouse is located about a kilometre away from the main store. The building has been acquired more than a decade ago and has been expanded slightly. A layout of the warehouse can be found in figure X. While the store has three ramps, only two are actively used. A delivery arrives in the morning, where the forklift driver for the unloading bay performs a similar routine to the routine performed in the main warehouse. Checking of cargo, unloading of the cargo and placing it in the pipeline. A difference here is that there are no point of sales open to customers. Forklift drivers in the storage area therefore stock items, next to air-storage, also in the traditionally dedicated sales locations. The items are placed according to their demand. The storages closest to the buffer zone are the fast-moving items, then come the medium, followed by slow moving goods. The location of the pallets is confirmed by the forklift driver, who then moves to get the next pallet.

There are also items from the external warehouse that need to be moved to the main warehouse. This process is executed in similar fashion to the picking items for the customers, yet these items are placed in the ramp area – so to be transported with the next available shipment – once daily from 07:00-08:00. During the loading process, the cargo load is secured using a single-use seal – to ensure the intactness of the cargo, only to be removed by a logistics co-worker from Ikea in the destination location.

Requests for picking items are coming throughout the store-opening times. The requests come in twofold. Either they are from customers who ordered online, in which case the items can be picked by personnel both locations and placed for pickup / delivery in a designated area near the customer service area. The other option is that the picking request comes from a customer who needs an item from the external warehouse.

IKEA external warehouse

When this request comes in, a picking team in the external warehouse picks up on it. An Ikea shopping cart if lifted on the forklift and the driver is off collecting the needed products from a variety of pallets. Much like using a giant shopping cart, they shop around in the warehouse and eventually aggregate this in a buffer zone, from where a customer service co-worker picks it up and places it in a room referred to as the vault. Since the customers paid the items, the items are no longer officially owned by IKEA and as such, should not be handled by Ikea personnel. When the customer comes to pick up their items, the customer service co-worker can go in the vault with the customer, verify and inspect the product before handing it over to the customer. After a signature of acceptance, the good moves out of the Ikea store, into the 'pipeline' of the customer.

The customer's return process
Naturally, despite best preparations and advice, the 'Billy bookshelf' may have a setup that in hindsight does not seem right. This is no problem for Ikea, as the reverse flow of goods is taken care of efficiently by the customer service co-workers. A customer can return goods to any Ikea store in the world, regardless of Ikea purchase location. The only requirement is the intactness of the product and the original receipt.

The customers bring the goods to the designated counter, whereby a customer service co-worker scans the item and gives it a status – a trans type. Since this good is neither in storage, nor on the floor, the system needs to be able to keep track of these items, despite their unusual location. From the customer service department, the item is picked up by the recovery team – located directly behind the customer service.

"in the end, everything gets here, if somebody does not write off an item, we are the only people who can notice it, we are the last chance" (Co-worker)

This co-worker evaluates the item – gauging the potential the item has for resale. Some items are not 100% anymore, but may still interest customers. These items are completed to the best ability and placed in the discount area. There is also a collection of items that is beyond selling potential. These items are either stored for parts, or they are recycled. Depending on the outcome of the audit that the recovery co-worker executes, the product is updated with a trans type to reflect its status. Naturally, some products come back in near perfect shape. These items need to be repackaged and are then placed in the pipeline for Sales – who empty the pipeline regularly during the day. Through this, items rotate back onto the shop floor, ready to be of use for another customer.

4.2.2 Supporting departments

The combination of these routines as described above is executed frequently, whereby smooth interaction with other routines is vital to create a process in which the outcome for the customer is maximised. Despite a variety of control systems in place – uncertainties are a part of life and as such, they can still distort the efficiency of the delicate overall routines.

In order for these routines to run smoothly, the various levels of logistics and sales are supported by Communication and Interior Design (Com&In) and Sales and Service support (Triple S).

Communication & Interior Design

The products that IKEA sells can be viewed as individual components, but their value is better seen within a full display of a room. This gives customers inspiration from which they will take purchase items to improve their home. However, putting together these showrooms and other inspirational setups requires finesse and 'an eye' for it. The creative co-workers of the Com&In department are responsible for this. Next to that, Com&In also takes care of the areas above 135 centimeters - the maximum height of a sales location. Giving the right visual impression enhances the sales experience - which translates into purchases by the customer.

The promoting of IKEA and its showrooms, products and more is in a separate area, under the wings of the commercial activity manager. In conjunction and cooperation of the Com&In, the sales and the logistics co-workers, the word is spread.

However, once the word is spread, the products need to be available when the customer comes to pick them up. This is where Sales and Service Support comes in - a dedicated team to support Sales and Logistics in making sure that products are available for the customers to buy.

Sales and Service support

As products move throughout the flow process, the status of the good needs to be updated constantly to keep an accurate inventory. Sometimes, discrepancies pop up in the system. These queries are handled by the Sales and Service Support team (Triple S). The main function of this team is to make sure that products are available. This means having the right amount in the store, as well as maintain and update the forecast.

[To make sure that] *"What is shown to the customers is correct online. For example, is we have 10 pieces left - and they come 50 to 100 km by car to the store, and we don't have anything left - they won't be amused if it's not there."*
(Co-worker)

This is done through updating the system in case of anomalies. Manual input based on experience and the gathered information. Sales may notice a problem, which can be confirmed by logistics. This then triggers Triple S, who sort out the issue. Sometimes from behind the computer, adjusting parameters, but also manually checking the stock on the shop floor.

"If sales see a problem, from replenishment in the morning, or from the parameters. They don't care who is responsible; they just contact Sales and Service Support. We check directly in with the logistics people - the team leaders primarily, what happened in the morning - and then we relay the information".
(Co-worker)

Next to that, there are regular routines that have to be executed. One of these is the "empty buffer stock location" check. This check entails physically checking the location of empty spaces.

"The system says a location should be empty, but there is something there. That's how we find goods. Another thing is the inverted situation. System says nothing in sales location, but there is a pallet." (Co-worker)

These routines allow for the Sales and Service Support team to maintain an accurate stock count, so that the store is filled - so that the IKEA customer can have the right experience and enjoy their products.

Whereas the Sales and Service support co-workers of the store do this on a daily basis, IKEA representatives on a country and firm level also execute audits periodically. Examples include formal reviews such as the commercial review – compliance with the IKEA concept, functional review – reviewing a function's performance and I-Monitor – digital reminders of routine follow-up's to be executed.

4.2.3 The importance of the mindset

The various departments support each other in arranging for a visual stimulation, getting the product on the right location and helping the customer to purchase and pick up the products. The glue that holds these departments together is passion - passion generated through a common understanding of what the customer is to enjoy when shopping at IKEA. This passion is quantified in the IKEA values, from which the IKEA concept is arrived.

The Ikea concept promotes several key values that from the underlying base of the whole operation. It comes together in the IKEA vision: *to create a better everyday life for the many people*. Through offering a diverse range of quality home furnishing products at an affordable price, IKEA is able to offer home furnishing solutions for people with 'all wallet sizes, throughout the year, with high availability of items – "*so that customer can take their purchase home and enjoy them immediately".* To do so, IKEA employs a combination of unique assortment of IKEA only products, a warm and enjoyable purchasing experience in the store or on the web and knowledgeable and enthusiastic co-workers.

In 'The testament of a furniture dealer', Ingvar Kamprad, IKEA founder, wrote in 1976 how he believed this IKEA concept was to be supported by the values, norms and informal rules on which he ran the initial business. This ranges from a focus on investing in people, being cost-conscious and opposed to waste to the duty of taking responsibility and by always reflecting on whether things can be done differently. The sentence "*Most things still remain to be done. A glorious future!*" (Kamprad, 2011) captures the ever-driven mind-set of IKEA towards improvement and evolvement for all. By being humble, keeping it simple and not being afraid of making mistakes, these values, as with many other ones, are only worth something if they are upheld together; '*Tillsammans*' – meaning together in Swedish. To this day, a personal copy of the testament - along with the concept and the IKEA dictionary that describes key values - is given to every co-worker within the IKEA world.

> "*Maintaining a strong IKEA culture is one of the most crucial factors behind the continued success of the IKEA concept in the future*" – Kamprad (Ibid.).

A strong culture needs to be nurtured throughout the organisation. Solid leadership, which provides the right example, can influence those that are being guided.

"If I'm store manager and have short term view my store will have quick result, if I'm store manager long term view, then give more people more freedom and scope"
(Manager)

"We are a concept driven company, the more you know the concept the more the freedom you have within the concept". (Manager)

This statement refers to the expertise development of sales people, that make individual choices to move products when they find new ways to increase sales and customer interaction with those. Even though members have to follow rules for daily operational tasks, individuals are empowered to try new solutions and improvements, at the cost of making new mistakes.

"I believe in a mix of routine and personal initiative." (Manager)

The supporting culture is not only transmitted through slogans, symbols or verbal communication. It also stems from social interactions that go beyond the company itself, and are promoted within the IKEA world:

"I love my co-worker, they do together lots of things, like a marathon last week, they are really good to each other, it's like a small family".
(Co-worker)

The possibility for Communication and Interior design co-workers to make adjustments on the display media, thus finding new ways to create "hot spots" (high peak interaction point between display area and customers) are endless.

"We work together with the commercial team, we check together the sales locations also with logistics, you can change a lot, you know everyone by name."
(Manager)

The close collaboration and interdependencies between the different functions (Com&In, Sales, Logistics and Triple S), places a strong focus on day to day communication through daily or weekly meetings.

"People make the business, people buy from people" (Manager)

"My team is my success" (Manager)

This is the working philosophy driving IKEA.

People are people - facing reality

There are enthusiastic employees greeting customers at the entrance, wherever a customer looks, there are products and a trip through the store can go as fast as the customer needs it to be. Inspire, experience, pick up, purchase and out the door to enjoy – that is the way the mechanical sales experience in IKEA ought to be.

However, this would not be possible without the many co-workers that work behind the 'curtain' to ensure a clean and stocked store. The behaviour of these co-workers is guided by the concept, the culture and the values, norms and informal rules. Yet, whereas their point on the horizon is clear, they are accountable for achieving the set targets. Some routines that support the achievement of these targets are changed – through deviation from the prescribed ostensive understanding of the routine.

"When you talk about routines, we are probably one of the few companies that has so many routines that are not 100% followed, especially filling the store(..) That's why we put so much into leadership in Ikea, always train to grow leaders, because routines by themselves, they just don't work." (Manager)

In the next section, a variety of these variations will be narrated. These narrations are supported by a visual representation of how the routine should be performed (ostensive), how the routine is actually performed (performative), the understood cause (reason) and finally, its understood consequences (impact).

4.3 Drift within routines

The following section describes the various empirical cases obtained through the previously described research method. While these examples are not linked in the narrative sense, they are connected to the overall goods flow process. Primarily, these examples occurred throughout the goods flow process and auxiliary p

rocesses. To maintain an overview of how these illustrations fit in, the various examples are placed in an order corresponding with the order of the goods flow, as described in figure X. Starting out with a summarized visualization, the empirical examples are extended further.

As per the starting point of figure X, the first empirical example of drift within routines starts in the ramp area, with a delivery arriving from the main warehouse.

Transportation between warehouses
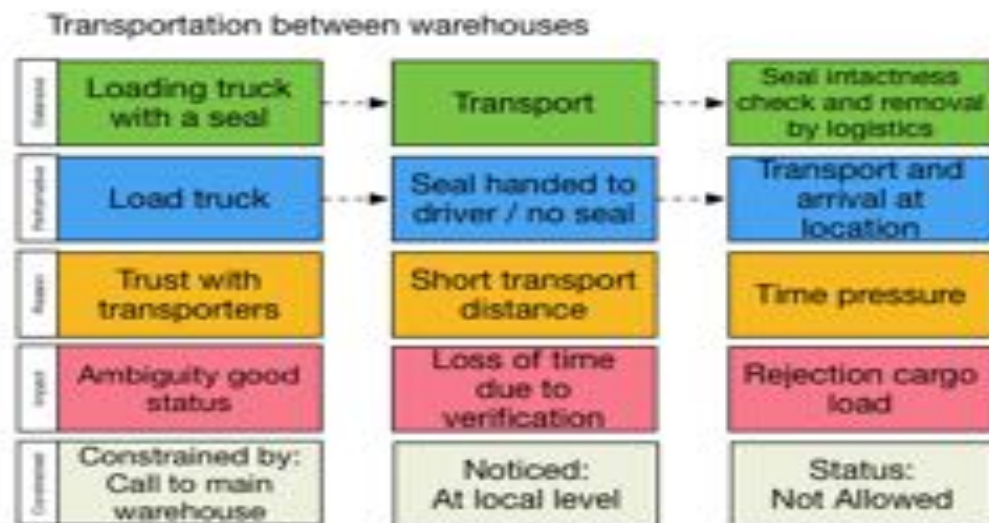
The internal transport of bulky goods (such as sofas and kitchens) between the main house and the external warehouse takes place everyday from 7 to 8.

The two warehouses are only two kilometres apart. However, the physical separateness requires the goods to be handled safely and according to strict procedure

For internal IKEA policy, every truck has to be sealed from the main house to the external warehouse, and the seal can be broken only by logistics co-worker of IKEA to prevent thefts. According to the manual, the seal has a unique number, which is registered through a bookkeeping procedure.

The seal purpose is to guarantee the safety of the stock within the truck, together for insurance claims in case of theft.

Normally all goes well, but sometimes, the truck docking at the external warehouse coming straight from the main, is missing the seal on the truck tailgate. In such case, a checking procedure starts by calling the main house logistic co-workers, ensuring that they simply forgot about it.

As one co-worker explained, the transporters from the distribution centres are acquainted with the IKEA co-workers, due to the high frequency of deliveries being performed to the stores. Therefore, it happens that the seal is simply handed over to the transporter, as a result of long-term trust developed with them.

Example of IKEA seal used to seal truck deliveries

However, when the lack of seal is being noticed at the second external warehouse docking space, ambiguity follows according to whether the delivery should be accepted or rejected.

Once the checking option started, the process of identifying the correct number of products on pallet is a time consuming activity, that goes on top of the logistic duties to handle goods efficiently.

Despite the acquaintance with the transport drivers, and the short distance between the main and external warehouse, co workers admit that the seal should always be attached, regardless of the trust to transporters.

Unpacking goods

Replenishment of mixed-pallets during high-volume days

unpack good at Point of Sale	Fill POS	Bring back trash, move to next POS
unpack and sort pallets by departments	Sort multiple pallets by placing items in front of multiple POS	Filling multiple POS simultaneously
Anticipated aid of other replenishers	Personal preference	Experience
Creates modularity	Faster filling of POS	-
Constrained by: KPI	Noticed: At individual level	Status: Allowed

Replenishment of mixed

Once pallets of goods are unloaded from the trucks, they are being transported, parked one next to each other by the logistic co-workers to the relevant Home furnishing business (HFB). Thereafter, the replenishment team starting the shift at six o'clock in the morning starts with restocking the shelves in the market hall.

The replenishment team is normally composed of around eight to 12 people depending on the workload, which is set by the team leader. Co-workers are trained and equipped with enough knowledge to replenish all the departments, however, for them to become specialist of a unique replenishment area, they are usually assigned to a specific HFB.

"One [replenisher] *has to have a lot of tacit knowledge and experience, since the system [RDT or Pre-note] tells only the product area, but not the exact sales location."* (Manager)

The pallets can be of two types, mono pallets and mixed pallets.
Mono pallets are those with only one type of article belonging to a unique sales location and are easier to handle. Therefore, the process of replenishing starts with scanning the goods, checking the prenote, moving the pallet to the point of sale, fill manually (or replace pallet in case of ready to sell one), until the pallet is completely empty. See picture X

Replenishment co-worker restocking goods

Instead, mixed pallets are composed by many articles which are cased in boxes, stacked one above the other. The variety of goods onto the mixed pallet belongs to the same HBF, which could be candles and frames for the "home decoration department", or stoves and pans for the "cooking and eating" department. However, when mixed pallets for the textile department are parked in a pipeline manner, their placement does affect the time length it takes to unpack and fill the point of sale. The size of the department is quite extensive since it includes different product areas such as duvets, curtains, and rugs.

Following the manual, mixed pallets respect the same scanning/checking prenote procedure, but the items/or boxes are taken one at a time to the specific sales location. Once the point of sale is restocked, the co-worker goes back to the mixed pallet and starts over until the pallet is empty.

"Singular [mono] pallets are easier to unpack (…) However in high volume days, such as Dortmund and Wells deliveries [Tuesdays and Thursdays] *we first unpack mixed pallets and then the mono ones (…) in low volume days you prefer to start from the end of the pipeline [no matter of mixed or mono pallet]"*
(Co-worker)

During the replenishment process, it is often the case that co-workers help each other to replenish if one's department is completed.
As the co-worker mentions:

"If you look [as a replenisher co-worker] *at the prenote, and it is only one page, it is not so much, maybe two hours, so I help someone else. This is a routine, at 8 o'clock we have critical line and we are close to the finish line* [9o'clock the replenishment team shift ends]*, which means all backflow should be written and placed in storage, garbage should be started, and if I start fifteen past eight, it's too late, I have to begin the process early enough to finish."*
(Co-worker)

As the co-worker in the textile department has to deal with a considerable area, the mixed pallets are processed by protocol, such as scanned and checked with the prenote.

According to the team leader:
" We don't experiment new techniques for mixed pallets. it's the same procedure of mono pallets, you open, walk, replenish, and walk back again [and start over] (..) but replenishers can also develop their own method and technology in replenishing the shelves". (Co-worker)

As a matter of fact, from observing the process, one of the replenishment co-workers changed his own way of performing the task. Instead of taking one good at time, filling the shelf and walking back to replenish another point of sale, he sorts the boxes firstly by department, and secondly by point of sale, leaving the box in front of the shelf.

"It is better for me, I know what belongs where, I have a better view of my work (...) in case others come to help me in replenishing, they do not have to check the prenote, but rather start replenishing automatically (...) I think it goes faster"
(Co-worker)

Facilitating other co-workers emerges from the fact that:
"If you don't know where a sales location is, you need to walk 5 or 10 minutes [around the HFB]*, considering that 10 minutes is what normally takes to sort a pallet, it is a loss of time"* (Manager)
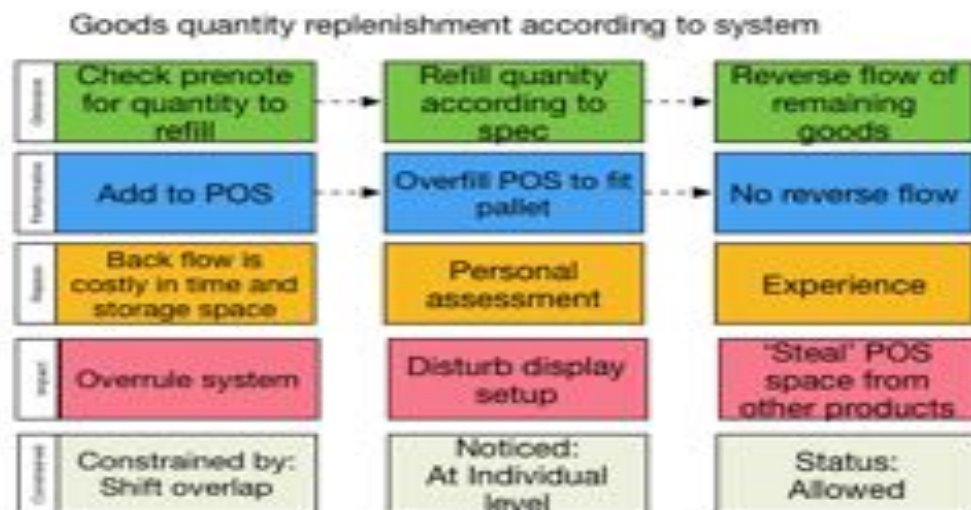
The co-worker creates modularity by splitting and sorting the boxes in the right department and point of sale.

"I have been here for almost seven years till now, and I think it is just the best way"
(Co-worker)

When other replenishers join the textile department, they do not have to be a specialist in the department to help, since the sorting has already been performed. Thus, the routine variation enhances simultaneous filling and an improved automatic coordination between the replenishment team.

Goods quantity replenishment according to system

Once the system selects an item to be replenished, a pallet containing the product needs to be taken down and moved into the market hall for replenishment. Once it is taken out of its air-storage, the item is, for the system, considered to be in the sales location - the system gives no intermediate label to

Goods quantity replenishment according to system

	Check prenote for quantity to refill	Refill quanity according to spec	Reverse flow of remaining goods
	Add to POS	Overfill POS to fit pallet	No reverse flow
	Back flow is costly in time and storage space	Personal assessment	Experience
	Overrule system	Disturb display setup	'Steal' POS space from other products
	Constrained by: Shift overlap	Noticed: At Individual level	Status: Allowed

the product as it is waiting in the pipeline. Transit is therefore not recognised by the system.

With vendors also being cost-conscious, pallets are sent containing full product load - referred to as Großverpackung, roughly translated from German as being 'bigbox'. Items packaged in this way are often small and plentiful, more than what would be needed to replenish a point of sale. Other forms of packaging also often have more products on them than the amount needed to refill the sales location.

The prenote, which is provided by the system, maintains a balance of how many items should be in the sales locations versus how many items the storage should have. Once a sales location is approaching the minimum amount, the system updates the prenote to include a replenishment of this good. The prenote distinguishes how many units there are in total possible for sale in this location, it displays the current number as well as the number that is still required to fill it to the optimal amount. Knowing how many items a packaging of product carries, the system then also distinguishes how many units should go back into storage.

Prenote detailing sales locations to be refilled (blank) and product units to be send back (grey)

"When you scan, the system tells how big the sales location is, you cannot put inside more than sales location give you quantity" (Co-worker)

The remaining items should then be on the pallet, placed on the other side of the aisle to signify that they are reverse flow and from there, the forklift drivers will take care of it.

However, it happens that sometimes, the system wants to send back only a couple of units of a product.

"When good backflow is necessary, items are put on wooden pallet, strapped (...) a blank IPI is used to identify the goods (...) items to be sent back have to be put in the system to air-storage, the IPI is filled with date and name of co-worker"
(Co-worker)

In that case, reserving a full pallet space in storage for just a couple of items does not infer a cost-conscious attitude - despite the system directing a co-worker to do it.

"I completely trust the system, but I also trust my 5 years of experience, it Is important to let computer calculate - to work together with it".
(Co-worker)

"Newly hired people send stuff back, it is tricky in educating them, I cannot tell them to bypass the system, hence the approach is to "ask someone", it is hard to know exceptions, it comes from experience." (Co-worker)

That is why IKEA has introduced flex. Flex means that a sales location can be filled up to an amount that is above the optimal count. This may mean that the location is not displayed as stylish as it could be. Also, in the market hall, there are bottom racks that can be used for this. With only a couple of items, this should not be a problem. With a significant amount of items, this is a potential problem. The breakpoint for this is up to the co-worker, who relies on their experience to see whether the location can be overfilled and to what extend.

"Overfilling, it is a thin line, between healthy and unhealthy, having 1 or 2 more items allows those days with unexpected purchase to still have goods on shelf even though the system did not predict it through its statistics". (Co-worker)

Whereas overfilling was once the means to cover too many units of a good in one pallet, it seems that overfilling is now the default option. This translates into products fitted in a sales location, whereby the remaining of the product are pushed behind other items, in essence taking space of another product. As can be seen on Picture X, the sales location is stretched beyond its designated space, which can ultimately mean that the product 'disappears'. With a co-worker checking the product count in its known location realising that there is a mismatch, product deliveries could be manually initiated - thereby taking deliveries away from other IKEA stores, from other sales locations.

"That's why we don't have to overfill, otherwise we stand on capital, preventing other houses to sell it." (Co-worker)

Therefore, despite the system insisting on returning goods, a systematic overruling seems to take place. The deciding factor is the co-workers, with their experience. However, hasty placement of goods could spiral into system inaccuracies - which have the potential to be more costly than reverse goods flow.

"I don't know if they bypass the RDT scanning, I don't look at them every time, but I trust them." (Co-worker)

When replenishing, the prenote signals that a product has two different sales location by using a normal font (primary sales location) , and the bold font (secondary sales location). Additionally, the RDT displays the same information, by showing on the upper side of the monitor which page (and sales location information) the user is looking at.

"Sometimes, replenishers are not able to find all the different sales location, since there could be so many [spread around the store]" (Manager)

In the case the replenisher fills the primary sales location, but he overlooks the secondary one, the system corrects the mistake the day after. When items are sent back to be air-stored, they are put on a pallet with a unique IPI with the date and co-worker signature. Therefore, if the overall sales location (primary and secondaries) are not filled according to the prenote, the day after the system creates an internal order the of the same product pallet. As a consequence, if the same pallet is seen twice in a couple of days, the deviance is spotted and corrected.

However,

" As the system checks the overall quantity of products on sales location, but not for each POS, replenishers can fool the system by overfilling one area instead of the different sales location (...) yet, salespeople notice during their shift if a location is underfilled or the other one is overfilled." (Manager)

RDT Scanner shows product with multiple sales locations as seen on 'page 1' (L) and 'page 2' (R)
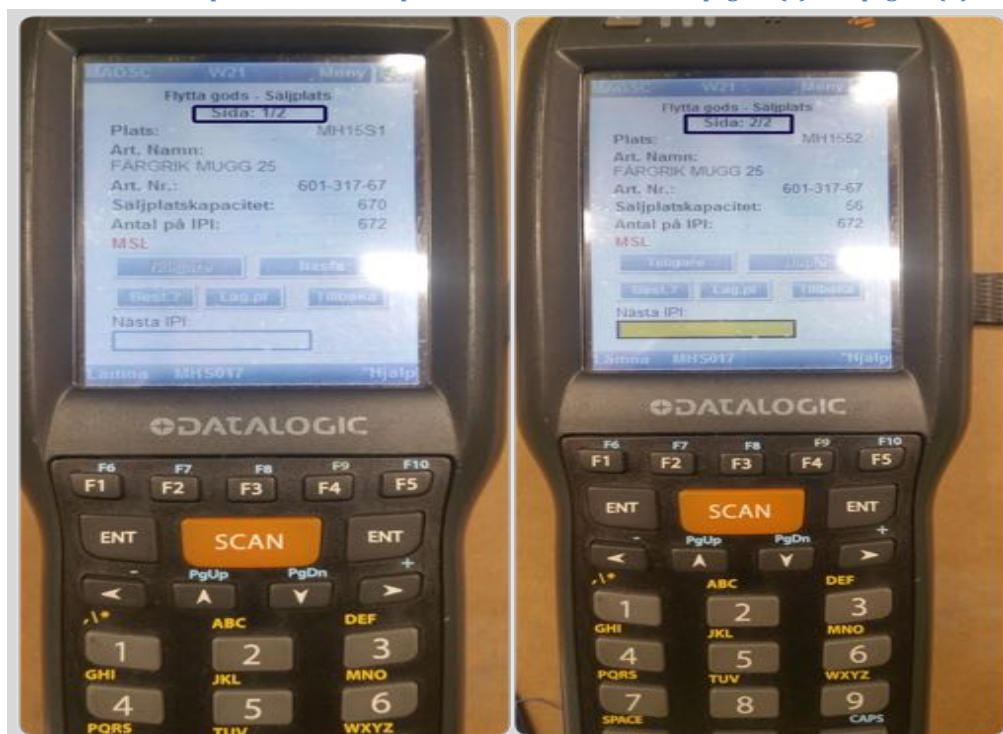
"There is a dilemma in teaching people when to fill more than written in the system and respecting the system. In an utopian world, you follow the system and you fix the sales location [notifying salespeople to increase sales product space], now you cannot fill more whilst fixing the POS at the same time, because of scarce time resources." (Manager)

The interdependencies between logistics and sales create a drive for the store, yet it also acts as a source of continuous intra-store novelty.

"Manuals cannot be made for everything or continuously updated, sales location change every time, there is a high degree of adaptation to not create backflow, a continuous learning is needed, we have more a concept of floating routines."
(Co-worker)

Picking up the good

Use of RDT scanner by co-workers
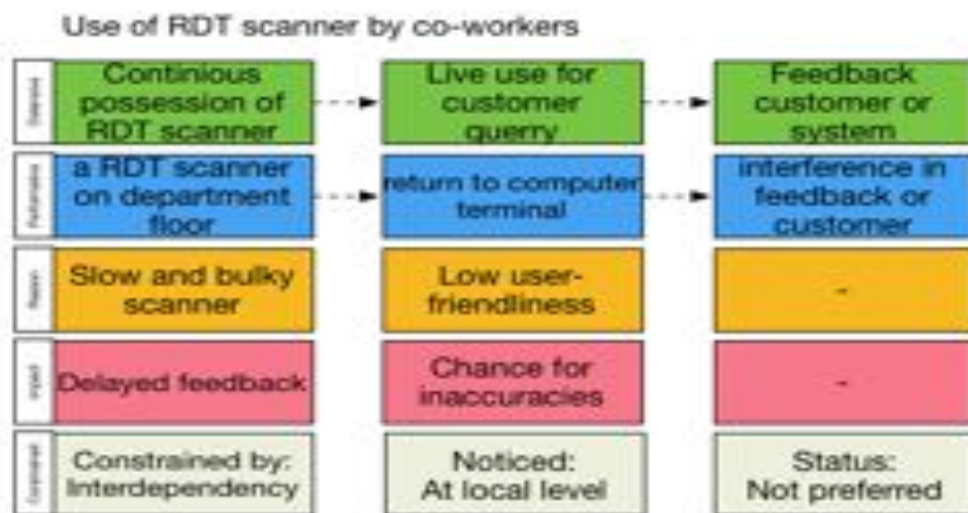
IKEA is based on the concept of cost-consciousness. This includes automising as much as possible - including the sales process. The shopping experience at IKEA is supporting mechanical sales. This means that within IKEA, everything is provided what the customer needs to get inspired and take the product home, without the aid of a co-worker. The sales co-workers are there to keep the shopping experience high, by keeping a visually filled sales locations and by answering questions. While the salesperson is an expert within the area, there is more information stored in the computer than in the mind.

Access to the system can be gained through the use of a RDT scanner, with extended access to information at the computer terminals throughout the store.

"*They need this scanner to be faster, more flexible and more competent. If you have [sales location].. And its empty, you scan it and then you get the information as to why it's so empty. In most cases, the prognosis is wrong.*" (Manager)

The RDT scanner is a small, handheld device that allows for scanning of barcodes that are present on the IPI of a product. Not so widely used in other stores, store A has been promoting its usage.
After the product has been scanned, the RDT scanner provides a wide range of details. From the name and product identification code, the quantity in the sales location and the quantity in stock to the next delivery date.

Being near the sales location with the RDT scanner allows for immediate problem solving. Issues can be adjusted close to the area of operation, rather than at the distant computer terminal. When a customer has a question about a specific article, or when a sales location seems empty while it should be full - the RDT scanner can provide immediate knowledge that can lead to a solution.

RDT Scanners showing product information
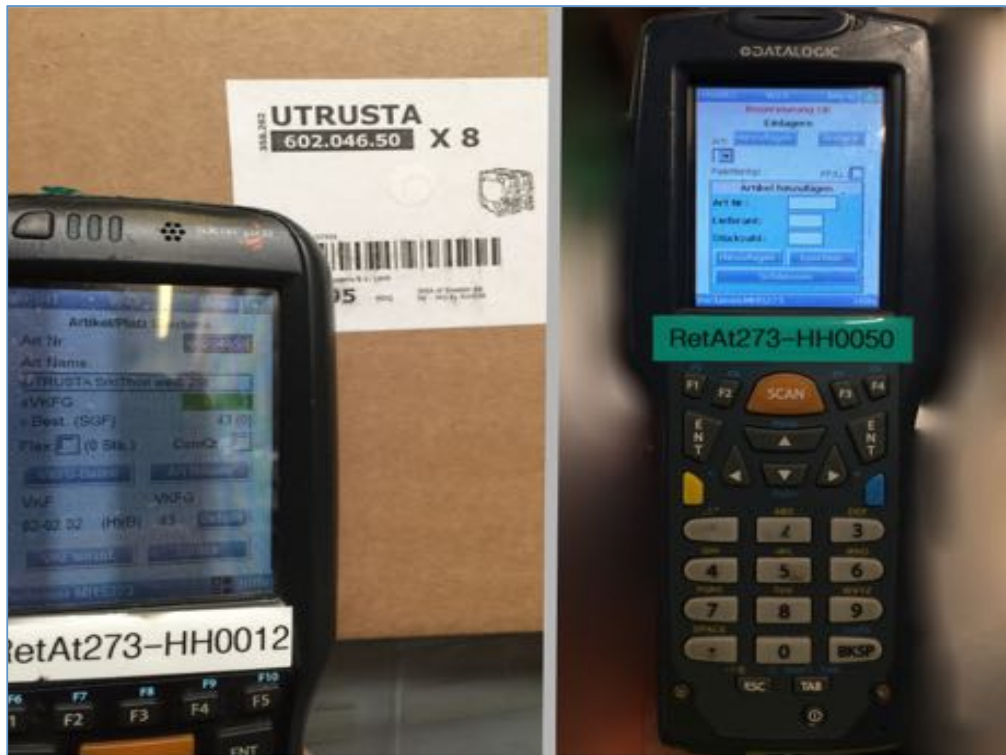
"You stand in front of the sales location where you directly see the problem. It is faster to do it on the computer, but on the way there, five customers ask you for something, you forget why you were going in the first place. So there is the expectation that there should always be one scanner per department, but ideally, everyone should just take it."
(Manager)

However, not everyone uses the scanners. As it appears, co-workers find that the scanners are not suited to their needs. The device is outdated, heavy to use and slow to scan.

"The roll-out for [at country level] *was not so good, the scanner is not the best on the market...it's slow and heavy. Hindrance started."* (Manager)

This means that many resort to leaving their RDT scanner near the computer terminal. Or, in other cases, leave them in a central spot while they execute their workload. Communication regarding the importance of using the RDT scanner is picking up.

"It's coming from logistics, but it is also used in sales. We lead with a good example and some areas are performing quite good. This leads to examples that prove to people that it works and that it is more efficient. Half a year ago, almost no one would have it. But now, we're much more on track, because the focus on this is more important to us."
(Manager)

*"To coach my team, I ask them how they would you feel if, as a customer, you come here and not find the product because one of us did not write-off the items [*we take for display media purposes]*, they need to have the same feeling in the morning"*
(Manager)

The RDT scanner however still is not used fully throughout the store.

"I don't have a scanner with me, we have one on the main department."
(Co-worker)

Not using the RDT scanner can however have an impact for other departments. The highly integrated functions between the departments that the RDT Scanner offers is not now used. Information is not shared and updated on the spot – which increases the potential for inaccuracies.

"That's one routine by the system [inserting the correct TT]*, but it depends on people"*
(Manager)

A stock loss review is a yearly procedure that is aimed at identifying the amount of write-off trans types, amounts of good lost and the possible causes for it. Moreover, the proceedings from the review help managers and team leaders to focus on where improvement needs to be done. However,

"Stock loss review actions change year by year, and of course they depend on which reasons we focus most, it's a cost conscious company, we can focus only on 3-5 topics per year."
(Manager)

RDT Scanner detailing options to send a message to other RDT users regarding product issues, placement issues and more.
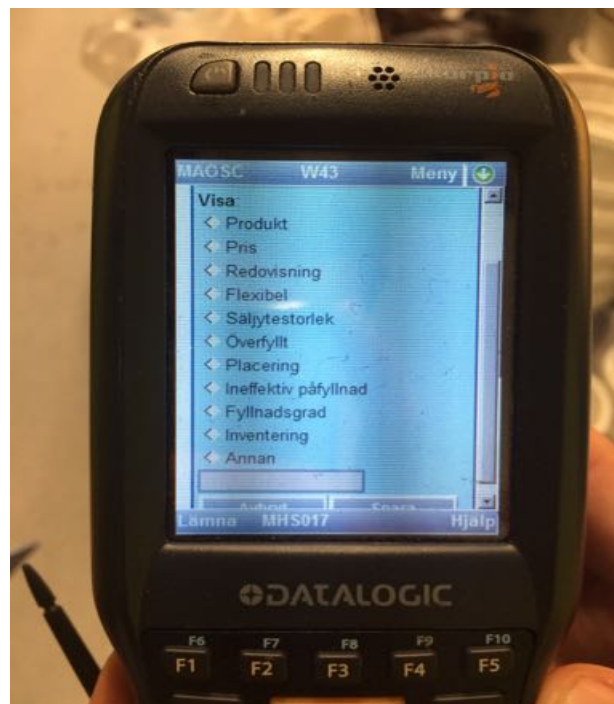
The external warehouse

Forklift movement in warehouse goods storage

Forklift movement in warehouse goods storage

	Straight driving lines	Turn 90°, face storage	Load up / unload good
	Straight driving lines	Multiple turning manoeuvres, fidget fork heights	Load up / unload good and manoeuvre out
	Increasing range product size	Dated layout design space storage	KPI pressure
	Increased forklift movements	Potential increase in TT391	Increased stress on driver
	Constrained by: Safety and Security	Noticed: At local level	Status: Allowed at local level

Forklift machines are of utmost importance in the logistic process for unloading transporting the goods.
An efficient coordination of buffer zones, together with pipelined pallet parking in corridors for storage process represents the objective to have a smooth goods flow throughout the store and warehouses.

As defined by the team leader in the external warehouse:

"When my boss talks about money, I talk about handlings (...) Handlings is our currency in logistics" (Co-worker)

The goal is to route the forklift in the best manner, so that with the least possible amount of handlings, goods can be brought up to storage or directly to the point of sale. Forklift machines are powerful machinery, running on batteries and get charged every night when the warehouses are closed. However, forklifts are also bulky machines, with a length close to170 centimeters and width of 150 centimeters.
Therefore, when designing the layout of the store, it is mandatory to create corridors (between the storage racking) wide enough for the forklift to turn.

Forklifts used in the external warehouse

According to IKEA policy, for a forklift to operate in the warehouse, it has to be able to turn 90 degrees in the racking corridor, turn additional 90 degrees to face the racking, and proceed to store the goods by lifting or lowering the hydraulic fork placed on the forklift front. This is to create the safest environment as possible.

The turning radius of the forklift, being the smallest circular U-turn the vehicle is capable of making, is one of the many critical variables a warehouse layout has to take into account when designing corridors and corridors width between storage racking.
It is imaginable that, as product range develops not only by type, but also by size, the layout of a warehouse can become an issue in handling the increased product size.

Moreover, architects should also anticipate the possibility of product range extension. The goal is to build a long lasting facility, preventing its obsolescence due to product development, whereby length of goods and size of pallets would undermine the warehouse usability and safety. As being noted by one co-worker, some of the corridors of the external warehouse in store A are slightly narrower compared to the newest extended products. Therefore, it creates some challenges in manoeuvring the forklift to perform the stocking of goods.

"To store [both in low racking and high racking*], you make small turns, fidget with the fork, you get inside other racking, go back little bit, and then store in the right place (…) The building was there before we opened, we bought it like this (..) luckily these products are slow movers, it's just kitchens in here".* (Co-worker)

The layout constraint leaves no other choice than adapting the forklift movements, since goods have to be stored in a specific timing that is reflected by handlings and warehouse key performance indicators. However, handling the goods in this way takes more time than average, due to the fact that he has to fidget the fork on height with tons of weight on it. Internal damages could potentially happen (Transtype 391), impacting inventory stock level and stock turnover loss.

From a co-worker perspective, managing the increased risk of internal damages, within safety limits is a top priority. This because in the case that forklifts cannot make a smooth turn (90 degrees), some pallets on the floor are potentially exposed to collisions due to the multiple tentative of turning the forklift to access the racking corridor.

"Before we had these mats used as [thermal] *insulation, and after the rebuild it was a leftover. I was thinking, we have the guy in the recovery* [that has the right tools], *and also this little* [pieces of] *wood, why don't we make a pallet bumper out of it? (…) If you want new idea to work, you just do it and wait for a response, if it doesn't work, they know you tried something new"* (Co-worker).

DIY bumper placed in front of products

"*It's a good solution, but you have to use them the whole time, if you fill them in the morning* [insert the wooden bumper support into the pallets mouth] *and you are a little bit tired and you just leave it half, and then it breaks, then it defeats its real purpose.*" (Co-worker)

DIY bumper damaged

"Either you have on of these on each pallet, but it's hard for the guys to make sure they understand it has to be there [all the time]*, otherwise, back to the root- idiot proof - I put it directly on the forklift."* (Co-worker)

Bumpers placed on forklift using Velcro

"This does not impact the radius of the forklift, you see [pointing at the forklift bumper with scratches]*, the surface is slightly broken, this would carry 300 or 400 euros of damage on goods (...) we paid 500 euros in terms of material and recovery time, the first month we had 300 euros of internal damage, the month before 800, and this month only 80, a decrease of 90%* [of internal damage]*."* (Co-worker)

Even though the workaround proved to be efficient in the material cost and damages saved, the team leader still highlights the importance of being careful.

"Of course with the cushion it is an improvement, but I tell the guys to stay focused [during forklift handlings] *and change the bumper once every week (...) There is a strong focus on mindset, I tell my guys to take pride for what they have done, it is not only about moving boxes, but fulfilling customer's dream"*
(Co-worker)

Customer pick-up goods

Customer pickup of items in external warehouse
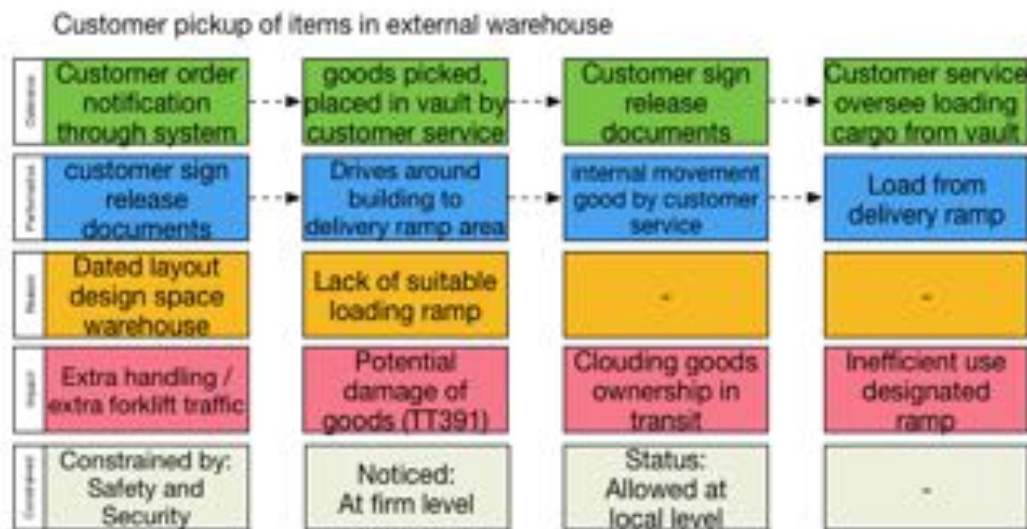
When a customer is inspired by the showroom at IKEA and decides to purchase a whole kitchen set, the payment takes place at the cash lines in the main house. Once the purchase is confirmed at the cash terminal, a notification of customer pick up is sent through the internal IKEA software to the "Auslager" - the external warehouse. Meanwhile in the external warehouse, details of the good to be picked up are being displayed on the main monitor in the first hall.

Forklift drivers then go to the point of sale where the item will be picked, stack it on a pallet, which will be finally transported and stored in the vault. The vault is a parking space for pallets, which are already being paid by customer and written of from the store stock level.
The vault acts as a safety point:

> "Ikea is not anymore the owner [of the purchased pallets], it is already paid, nobody from our co-workers is allowed to enter the vault after the goods are parked in it (...) [when customer arrives at the external warehouse] customer service takes it out from the vault, closes the doors, and handover the goods to the customer by filling some form.(..) it is common thinking- the more you touch something, the more it gets broken. If I want to put something safe, I have to put it where nobody is going to touch it."
> (Co-worker)

Then the customer loads the goods on his private car and leaves happily with his new purchase. However, if the sheer size and number of items requires a truck transportation, then a chain of issues arise. The front area of the vault is not equipped with a retractable ramp system, which means that goods cannot be loaded onto a truck unless the truck itself has an elevator to perform the operation.

"Without the ramp we cannot work (…) just a kind of truck (3.5 or 6 tons) has the elevator behind, but since their volume capacity is low, we have to pay them two times to transport the goods (…) it' s like having a shoe without a foot."
(Co-worker)

Therefore, the goods parked in the vault are being loaded again on the forklift, and transported all the way down to the ramp on the backside of the facility, which is the spot reserved for internal IKEA and Distribution centres transport.

"The pallet is supposed to stay here [at the vault] but it is going around everywhere, and sometime you receive stuff at home and something is broken, because it can happen (…) even though you try to avoid to destroy stuff, you are forced to re-enter again in the warehouse, by transporting internally since you can load trucks only from the main ramp."
(Co-worker)

"This is a soft workaround, the problem is not only the lack of a retractable ramp on the front of the vault, but also the radius for the truck to turn (…) if the driver would park here [in front of the vault]*, it would block the way to the main parking of the external warehouse."* (Co-worker)

The consequences of adapting the handling of already purchased pallet in the mentioned manner, carries an increased risk of internal damages (Transtype 391), an inefficient usage of store layout together with extra handlings.

Trash station need / external warehouse

Creation of trash station outside dedicated area - external warehouse

Trash Station need	approval goods flow manager	physical installation
Trash Station need	Physical installation	Informal communication manager
Limit forklift interaction	Avoid garbage leftover	Restaurant passe experience
Efficiency	Safety and Security	-
Constrained by: Safety and Security	Noticed: At Individual level	Status: Allowed

"The guys [forklift drivers] were leaving the trash on the floor after unpacking and filling pallets to the storage space (…) when two forklift drivers were on the same corridor, one was leaving the trash behind himself, meaning that if the other driver needed to take over, he had to wait the narrower corridor to be clean or the other driver to move, which meant waiting time and inefficiency" (Co-worker)

As shown from the external warehouse layout (picture X), the original trash point located in the loading bay led drivers to accumulate trash while unpacking and then bring it to the trash point.

"Then I [team leader] start to split them, you work in these corridors, you in the others, nobody in the way, I saw it was better, but worse for the garbage (…) People thought - I am alone, I don't keep it confined here, but everywhere-" (Co-worker)

Notwithstanding the decreased interaction between forklifts, the trash management was still to be improved.

"I suggested to use a carton on the floor, like a plateau, where they could leave the garbage on it, and when you go back to the unloading ramp, you bring it inside"
(Co-worker)

The suggestion of using a pallet to collect the trash had the following effect:

"They were using it, but I saw them stockpiling trash on it, and while they were working the pallets were getting super full, nobody was taking them outside to the waste ramp" (Co-worker)

Therefore, the co-worker saw the necessity of making additional changes that would allow garbage to not hinder the workflow of the co-workers.

"Then I said, let's put some boxes, at the beginning it was one, and time was lost sorting the trash, then we added three boxes (...) they fill it, and when it is full after 2 or 3 days, it takes ten minutes to empty (...) I stole this idea when I was working in the restaurant before, it is called 'passe' between the kitchen and the dining hall, it is my working philosophy to never go around with empty hands (..).
(Co-worker)

When inquired about what would the protocol say when implementing changes on the goods flow, such as the change of trash flow

"Normally I would have to talk to the goods flow manager for his approval, to check it there is nothing against it, then there is a trial, if it works then you can implement it, it is bureaucratic for small stuff (...) however my boss gave me a - white card- he really trusted me, and told me - you know what you are doing, go on like this-". (Co-worker)

Trash station installed on a loading bay

The buffer trash station enhances a smooth forklift movements as the drivers are both autonomous in storage handlings (because of corridors splitting) and centralised trash backflow. Moreover, the trash point is an efficient solution in terms of layout utilisation. The third ramp placed in the far left side of the facility is built from aluminium, which by law cannot lift more than a specific tonnage. As a consequence its usability is dramatically reduced, and exploiting the space around the ramp creates multiple benefits for forklift drivers as mentioned above. The team leader further stressed the importance of a positive work environment to deal with misunderstanding and uncertainties.

> *" If you want the place to go smooth, you have to take it personally and feel responsible (...) that's why I call my co-workers my family, we call each other brothers here, we work here the same amount of time we spend with our own families. It is Communication that keeps people alive, this kind of family feeling takes you personally, there is more passion and intimacy."* (Co-worker)

The customers return process

Verification of goods picked for customer delivery

Verification of goods picked for customer delivery

Pallet picked and prepared	Scanning of all products with RDT scanner	Goods ready for handover - placed in vault
Pallet picked and prepared	Scan item, write each article number or use terminal	combination system verified and user verified checks
IPI or Barcode obstructed from view	Scanner low user-friendliness	system-derived value given to method used
Erroneous customer order	Time-consuming and stress inducing	supposed lack of co-worker's completion of check
Constrained by: Software	Noticed: At local and firm level	Status: Not Allowed

IKEA offers the possibility through the IKEA store website for customers to check which items are in store, to order and pay online.

The online channel proves to be very relevant for those customers that live far from the store, and need to know whether items are available or not so to justify the trip to IKEA. Additionally, it is possible for the items purchased to be sent to the home address by the iconic IKEA yellow truck.

IKEA delivery service

ONLINESHOP
Online einkaufen rund um die Uhr.

Wusstest du eigentlich, dass du auf der **ganzen IKEA Website Produkte online kaufen** kannst? Achte einfach auf den **Button "Online kaufen"** und leg damit die Produkte in deinen Warenkorb. Lass dich inspirieren, stell dir aus **über 7.500 Produkten** deinen Einkauf zusammen und wir liefern ihn dir **ab 9,-** nach Hause. Und dafür musst du nicht einmal von der Couch aufstehen.

1 Wähle dein Produkt!

2 Klicke auf den Button!
Anschließend befindet sich das Produkt im Warenkorb. Du kannst deinen Einkauf jederzeit fortsetzen.
Online kaufen

3 Wähle deine Zahlungsmethode!
> Zu den Zahlungsmöglichkeiten

4 Wir liefern zu dir nach Hause!
> Mehr zur Lieferung

Source:
http://www.ikea.com/COUNTRY/LANGUAGE/catalog/categories/departments/onlineshop/?icid=at/ic/nav/Onlineshop

Once the order and payment is processed, a pallet of the right products is picked, prepared and parked in the customer relation hall.

Thereafter, customer relation co-workers scan item by item with the RDT, checking them against the order to ensure a correct delivery.

Following, the goods are stored in the main house vault and handed to the delivery co-workers.

"We start working with the hand scanner, and scan every piece of furniture or piece of product, now it is a higher rate of everything to be correct, we now really control products are on the pallet (...) when scanning an item, the system records it and colours it as green (...) it is already green it means that my colleague has already scanned it." (Customer service co-worker)

The RDT and scanning barcode feature is an important tool that decreases the risk of missing or wrong items to be delivered. However:

" I should scan all of them, but since it [RDT] *does not really work, or sometimes it does, but really badly, you end up having no patient."* (Co-worker)

Beyond visible issues of the user friendliness of the scanner, how products are piled can have consequences for the readability of barcodes.
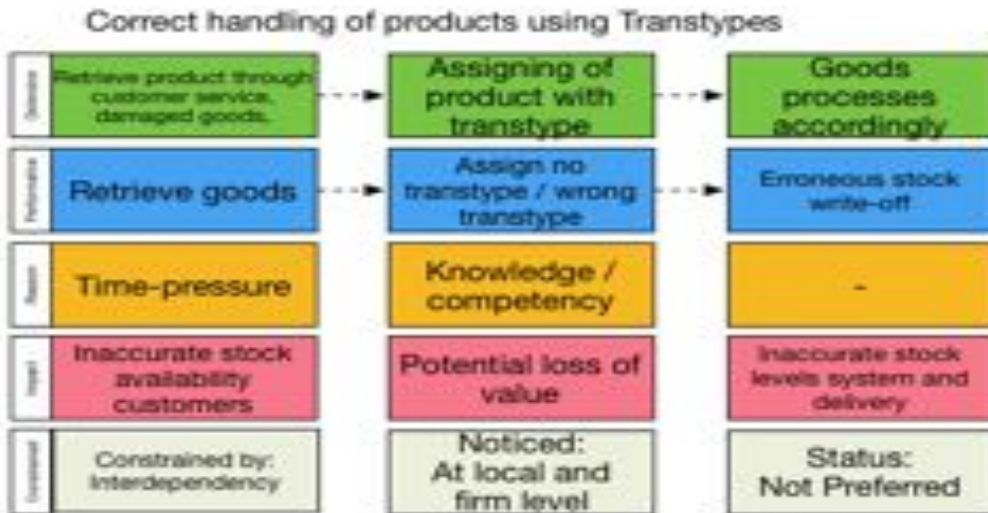
"These products that are stacked in between and have their barcodes on the upside, I cannot reach it, then it is tricky for me to control, but clearly I have to type it in the system anyway" (Co-worker)

The RDT in this case allows for two different solution. The first is to type in the kind of product and multiply for how many items of the same kind are in the pallet, which is faster and easier to type in given the reduced screen size of the RDT.

The second is to type in every article number of every product, even if it belongs to the same kind. It is a time consuming checking activity that potentially interferes with the task of dealing with customer at the desk.

*"I can click on the article, and I could type in how many of it are on the pallet, however, it would come in the statistics [*of co-worker performance*] as if I haven't checked it, hence this would be the very last option (...) therefore in type in every article number and when everything is green, then I am approved as everything is controlled (...) with the first option it looks like I could have skipped some articles (...) it's a safe for every co-worker to be able to say yes, it was not me, I have controlled that* [in case of incorrect deliveries or missing products].*"* (Co-worker)

Correct handling of products using transtypes

Correct handling of products using Transtypes

Retrieve product through customer service, damaged goods.	Assigning of product with transtype	Goods processes accordingly
Retrieve goods	Assign no transtype / wrong transtype	Erroneous stock write-off
Time-pressure	Knowledge / competency	-
Inaccurate stock availability customers	Potential loss of value	Inaccurate stock levels system and delivery
Constrained by: Interdependency	Noticed: At local and firm level	Status: Not Preferred

With the overview of the incoming deliveries mapped, the logistics co-workers on duty are starting their work for the day. A truck has arrived and is backing up into the ramp. The door of the ramp opens, the truck doors are opened and the necessary checks are performed. The unloading can begin and the time starts to count. If unloading or loading continues after the agreed time, a penalty is to be paid by the IKEA store, for the hold-up of the truck.

The unloading continues, the forklift drivers are extracting the pallets smoothly and are in line with the schedule. However, after the first couple of pallets, one of the pallets is carrying a cargo of which the cover seems damaged. Upon further inspection, it appears that the cargo on the pallet is suffering from water damage. The customer in IKEA is not going to accept a damaged product. The system needs to be informed that it will not have a pallet of the product for sale. Furthermore, the costs of the pallet need to be retrieved from the distributor. As IKEA works with mostly internal suppliers, a department has been created to deal with these disputes: the CASY department.

The correct procedure is to label this product with a transtype (TT), a special designation so that the system knows that this product has a different status from the regular to-be-sold products. A list of internal transtypes codes and their meaning can be found in appendix X. Depending on the situation, a different transtype is applied to the product. In this instance, a product is received as damaged is labeled with a TT391. The setting in which the damaged good was received needs to be captured as well so to make a convincing appeal to retrieve the cost.

The steps involve making pictures of the situation; the specific damaged good, the IPI and the freight letter. Because this involves also water damage, it is important to capture how potentially the cargo could have been damaged – by taking a picture of the source of the water in the truck. An overview of the procedure is found in photograph X.

Whereas this procedure is straight forward, it is an important one. It involves covering a part of the value that has been lost due to another party. It is important that those handling the cargo – in this instance the forklift driver – takes care to write off the product out of the system in the right way.

"Write offs, that happens here too, it is a universal IKEA problem" (Manager)

Transtypes are to be used throughout the goods flow process, not only in the ramp. A product might be damaged through internal handlings (TT390), dropped beyond immediate fix. This product needs to go to recovery, who can fix it. Also customer returned products end up, through customer service, at the recovery section. After the patch up, the product rotates back onto the floor again, changing into TT450 (good in the pipeline to go from recovery to stock). Sometimes goods get lost in the store (TT456-), and is found again later (TT456+). A transtype has to be affixed to the product and/or the system has to be updated. Another example of a situation is one whereby a good may be taken from the sales location by Com&In department to be used in a showroom. A transtype has to be given to this good – so that the system is aware of its rotation out of the stock available for sale. If this is not done, it appears that the product is going to be sold - thereby creating stock inaccuracies that Triple S will eventually need to sort out.

"Lack of write offs is due to poor planning in advance. At IKEA we have the 10-step working methods, integrating the operations from Sales, logistics, and Com&In. During project implementation [e.g. renewal of room setting, point of sale rebuild] *each function has the lead on a certain phase. However time is not enough, and some news are coming into the store without knowledge, and there is no time for planning"* (Manager)

Despite the Internal service agreement is set in place, and it acts as a prerequisite for the 10 step working method to function:

"There is ambiguity when to use the 10 step method, is it for small movements of goods or store rebuild? As there are no clear answers, the manual explain how to, not when. Then you have to do it on your own, but when explaining this to co-workers, there are possibilities of different understandings".
(Manager)

With people in the flow of their work, writing off products does not always happen immediately. For instance, the transtyping of a product is postponed to after the shift has ended, with the product put aside or immediately employed in a showroom– so that the sharp targets set for the shift can still be reached. Next to that, whereas signaling the issue is straightforward, processing the issue through the CASY software can be a challenging process, for which not everyone has the right knowledge to successfully do this.

The importance of keeping stock accuracy can be viewed internally and externally. Internally, it is important to know the accurate stock quantities when it comes to deliveries. IKEA employs an automated stock ordering system that – if left unattended – would disturb goods flow if it would base its decisions on inaccurate data on stock. Externally, if a customer reads on the website that a product is in stock, yet after a drive to the store, it is nowhere to be found, then IKEA did not deliver the right shopping experience. Delivering the right shopping experience - something that IKEA strives to over deliver upon –starts with knowing where specific articles are to be found.

Step-by-step guide to registering (water-) damaged goods

IKEA Family card offers

IKEA Family card offers

Request for offer from shopkeepers	Verify with Sales manager	obtain graphics from Com&In and price from resp.	Print and submit to department for distribution
Late / no feedback shopkeepers	Own assessment	Prepare graphics, prepare prices	Print and submit to department for distribution
Scarce time resource	Strict submission and launch deadlines	Divergence of priority of work among depts.	-
Chain-reaction of delays	Increased workload and potential for stress	potential conflict Internal Service Agreement	-
Constrained by: Scarcity of time	Noticed: Not noticed	Status: Allowed	-

The annual catalogue drop happens at the start of the new year for IKEA. In the IKEA world, this is in August. The catalogue promotes the new range of products available, showcasing products and home furnishing solutions alike. Whereas this catalogue only is spread once a year, those with an interest in more frequent updates can sign up for the IKEA Family Card. This card functions like a bonus card. Targeted discounts can be obtained with it, as well as other benefits. Alongside this card are the IKEA Family Card Offers - a monthly newsletter which highlights seasonal products and sets out the latest offers specifically for 'your' chosen IKEA store. The preparations for the newsletter are kicked-off and executed under the supervision of the commercial activity leader. Due to the many parties involved in the process with differing targets, a healthy balance has to be maintained:

"Shopkeepers [co-workers responsible for specific departments] *want to sell their own products... Everyone has their interests and to have a good mixture, that's my function."* (Manager)

Since it is a consequential process, the different parties involved are, to a certain degree, dependent on each other - complicating the procedure.

"There is a routine for everything." To have a monthly offer [e.g. for the newsletter]*, I send to the shopkeepers: "what offers do you want to have?" Then I check with the sales manager if the offers are ok. Then graphics needs to put it in a folder.* [Our pricing expert] *does prices, we need to make scanner prices and visual tags, collect it all and give it to the departments to hang.*" (Manager)

With the tight planning within each department, the departments require advanced notice of their requested input regarding the newsletter.

"The worst problem is timing."
(Manager)

Due to the planned workload and the primarily sequential procedure, the deadlines for the input per department are different. Furthermore, due to the variety of priority that departments give to the IKEA family card offers, departments are not always on top of the deadline. In the Internal Service Agreement (ISA) made between departments, the 'rights and duties' of the department versus other departments are set out - so that departments can be held accountable. However, when a department misses a deadline, ultimately, it is the commercial activity leader that is held responsible for the sending out of the offers. However, sometimes departments - in their own priority arrangements - have more pressing matters - wherein their vested interest is bigger.

"It seemed no one wanted to help me, but everyone has so much work and [those involved in the process] *is bound by a routine - therefore not super flexible."* (Manager)

This could pose a problem for the commercial activity leader. With late or no feedback from the shopkeepers, the manager is forced to find the offers him/herself - a process that takes time as the offers need to be thoughtfully selected. This means that the submission date for graphics department is approaching or has even already passed. Due to time constraints, a less-than-optimal job from the graphics department means that the commercial activity manager needs to aid in the graphics process, or even do it all, instead of leaving it to the experts. The same applies for creation of prices.

"Uncertainty empowered me to learn things on my own. You learn as much as possible to do it yourself. Now I can do a lot on my own...I know how to do prices and graphics." (Manager)

With prices prepared and quickly added, the newsletter is in time for the final deadline of distribution - but effortlessly is different. The extra input from the commercial activity leader means that other parts of the workload are unattended. Also, as the commercial activity leader is ultimately responsible for this, pressing other departments to meet the deadline can cause conflict. A tradeoff needs to be made by the commercial activity leader - pressing with the risk of conflict, or letting one passed deadline spiral into more passed submission deadlines?

"If you know how to do it, you tend to do it because it's quicker, and you don't need to chase people...you think you are quicker on your own, but in the end, it's a lot of work that you do on your own. You go away from routines again. I can do it, but it is not my job...But I am responsible for it." (Manager)

IKEA Family Weekly Offer

Source: http://www.ikea.com/at/de/store/STORELOCATION/offers

5. Analysis

The function of this chapter is to abstract from the empirics into the academic domain. This research started with the goal to identify how drift was managed, considering the interplay on the extreme scales of constraining drift altogether versus allowing for unlimited variation.

The understanding from literature points to the idea that drift is ever-present. Depending on the unit of analysis, drift can be distinguished with more or less precision - yet it is still there. This also became clear in the empirical part of this paper. The various examples provide for evidence that there is drift on routines - resulting eventually in a different routine compared to the original/intended one. Enablers as described in theory have thus also been found in the empirical findings. Constraints were not plentiful in the literature, yet several have been identified from empirical analysis.

The forthcoming paragraph will see the empirical findings through a theoretical lens. The enablers (variation enabling factors) and constraints (curbing factors) will be highlighter, after which the constraining factors will be grouped.

5.1 Connecting drift with literature

Transportation between warehouses

In the example of the transportation between warehouses, logistics co-worker forgets to place the seal, by handing it over to the driver although it is strictly forbidden in the manual. The performance of the routine, or more precisely, the lack of it (no seal placing), is dictated by the subjective understanding (Becker, 2004) of logistic co-workers, due to the personal relationship with transporters, together with the short travel distance the truck has to drive to get to the external warehouse.

The seal procedure can also be seen as a standard operating procedure, defined as an *artifact* by D'Adderio (2008). The performativity of routines is guided but not constrained by such artifact. Therefore, even if execution is routed through SOP, the possibility of going astray from it is still likely considering agentic factors.

However, when the seal check part is interlocked with the logistic external warehouse team, the deviation occurred in the main house gets noticed and corrected.

Therefore, the same artifact that is bypassed by some agents, is being respected and accounted for from others. The deviance is thus constrained by a different set of actors that act upon the operating procedure of seal checking.

Replenishment of mixed pallets

The goal of the replenishment team is to have the shelves filled when the store opens to the public at 9 o'clock. The team leader and the manuals both prescribe the procedure of sorting and filling items one by one when the pallet is of a mixed kind, therefore *legitimizing* the ostensive aspect of the routine. (Feldman and Pentland, 2003). However co-workers perform their routines with a high degree of agentic discretion (Feldman, 2000), since replenishment is done individually and involves manual handling of products.

As the routine is changed, by a different handling mixed pallet method, the actor subjectively interprets some aspect of the ostensive understanding (replenishment done by 9 o'clock) and selectively retaining certain aspects (how to replenish). This appears to be similar to the process in literature referred to as *selective retention* by Feldman and Pentland (2003). The retained routines allows the co-worker to adapt the execution to what he deems desirable (Feldman, 2000), whereby sorting by department and point of sale enhances the feeling of being in control of the situation, so to reduce *uncertainty* (Becker, 2004) concerning the tight 9 o'clock deadline.

The actor has discretion in whether to include the new subjective ostensive understanding into the manuals. Therefore if the actor does not include it, the variation might go unnoticed (Feldman and Pentland, 2003). The variation in the replenishment routine is still influenced and dictated by an higher level artifact, such as the one stating the deadline at 9 o'clock for replenishment to be performed. In this way, the individual places a subjective understanding (Becker, 2004) on the two different artifacts (manuals of technique and manuals dictating team deadlines) according to how *legitimate and politically* important those are for the organisation (Friesl and Larty, 2013). Clearly, replenishing by the deadline has a higher importance from the actor's point of view as compared to what technique of sorting pallet to follow.

Goods quantity replenishment according to the system

Filling up the sales location with the right quantity is seen as the goal of the replenishment process. The 'right' quantity is subjective. When it comes to the system, there is only one amount right - yet a co-worker has the ability to engage in flex filling - utilizing the extra space to overcome a potential backflow. However, there does not seem to be a specified cut-off point whereby overruling of the system to defy backflow turns into complying with the system. A personal discretion of the co-worker - much like *subjective understanding* (Feldman and Pentland, 2003; Becker, 2004), of the 'right' amount appears to decide this. The creation of an item backflow prescribed by the system, clashes with social expectations (Howard-Grenville, 2005) by the logistic co-workers to avoid backflow when possible, due to handlings additional costs.

The 'right' quantity to refill has different subjective interpretation (Feldman and Pentland, 2003) by those actors involved. Logistics' version of the 'right' quantity may be above the system's quantity to avoid a backflow to a certain extent. Sales and Com&In's quantity depends for a great deal on the commercial attractiveness, whereas Triple S aims for an accurate stock level - therefore applying the system number as 'right' quantity. As a co-worker of logistics, this creates confusion and thus an aspect that can be described as *uncertainty* (Weick, 1979; Becker, 2004; Dionysiou and Tsoukas, 2013).

What contributes to the variance of the routine is the fact that social expectation and the flexibility of artifacts allow the actor to tailor his action "*to fit new situations or new intentions*" (Howard-Grenville, 2005 p. 626). However, tailoring the new routine clashes with Feldman's (2000) notion of *interaction*, whereby the routine is connected, and is part of a bigger routine - it's interlocked. While the replenishment co-worker is operating with logistics KPI's in mind, maximising these at the expense of other department's efforts harms the overall goal - the customer's shopping experience. If the co-worker would overfill to a certain level that does not fit the quantity by Sales and Com&In, the issue will be raised by these during the time of the shift overlap.

Using RDT scanner by co-workers

Depending on their role, co-workers at IKEA are expected to carry the hand scanner with them for their daily operations.

However, it is likely the case that individuals carry the RDT with them, but still not using it, or do not carry it at all.

As co-workers at IKEA are given responsibilities in their respective area, they carry their tasks with a certain degree of 'agentic discretion' (Feldman, 2000). As an example, sales co-worker counsel customers during daytime, replenishers fill up the shelves in the early morning, and Com&In adjusts media displays of products throughout the day. These activities are all carried out on the shop floor level, with a high degree of autonomy. Carrying the hand scanners enables these actors to perform their task in a more efficient way, given their high integration of activities. This is easily represented by replenisher co-workers refilling according to sales location (as displayed on the RDT), whilst salespeople having to notify logistics when changing a product sales location (through RDT menu functions). The hand scanner both enables but also constrains individuals due to its characteristics (such as weight, user interface and poor battery power).

Individuals perform their assessment of the situation in which they are in, by prioritizing and selecting certain aspects of the routine (Feldman and Pentland, 2003), as individuals' preferences are rarely stable (D'Adderio, 2014). As the carrying or usage of the hand scanner is bypassed, the rationale behind is it that

the artifact "*Informs how the routine is enacted, but does not determine it*" (Howard-Grenville, 2005 p.627).

As a consequence, it directly and indirectly impacts different organisational stakeholders, creating stock inaccuracies, decreased commerciality and potential loss of turnover. The deviance is dealt in two different ways. The first is with a *legitimization and political process* (Friesl and Larty, 2013) by the team leaders and respective area managers. Co-workers are encouraged to use the RDT not by just enforcing the manual, but by framing the importance of its usage by the symbolic consequences impacting the firm's customers. The second way is done by highlighting how the hand scanner is the connection point between different firm functions (such as Sales, Logistics and Com&In), whereby its correct usage creates a smooth workflow. From a theoretical perspective, the interlocked chain of action feature of a routine (Dionysiou and Tsoukas, 2013) represented by the interaction among different firm functions, constraint the actors to follow the routine as it is in the manual.

Forklift movement in warehouse goods storage

The use of forklifts in moving and stocking the heavy goods in the warehouses is indispensable. The pipeline needs to be emptied and other pipelines have to be filled. The rules and regulations for the use of these machines is clear - safety and security first. Yet, the drivers are also measured on something else - their KPI's of handling goods and fulfilling their jobs in an efficient manner. Time (measured as a proxy for handlings) is money in the logistics world.

However, it seems that forklift movement in the warehouse is deviating from what the manual, as artifact, prescribes. The multiple manoeuvres, together with using stock storage locations as 'extra movement space' to transport items - as opposed to fluent movements solely in the corridor - are needed in order to meet the goal of pipelining goods. This increases the potential for damages to products on the forklift, but as well those in the vicinity in storage. The ostensive aspect of the routine is flawed. Through the *process of enactment* (Weick, 1979; D'Adderio, 2008), a working variation was found. By outfitting certain sales locations and later, outfitting the forklift with 'bumpers', considerable improvement in the damaging rate of forklift drivers are accomplished. Finding this solution - this variation for the problematic routine required a combination of insights, skills, expertise and *experience* (Friesl and Larty, 2013) within the job. Experience in the first place to maneuver the products in place - but also experience in 'thinking outside the box' and combining items to a solution. Respecting safety and security directives is always a top priority. However there will always be "*unwritten social expectations*" (Howard-Grenville, 2005 p.626), such as 'to be done with someone's job' that actors needs to be aware of, so to complete what the routine is supposed to achieve.

Customer pickup of items in external warehouse

The layout constraint forces co-workers in the external warehouse to bypass a procedure, such as the one of parking the products in to be picked in the designated area (the vault). As the vault itself does not possess a ramp to load the goods into the truck, it is ambiguous the role of such space considering its original purpose.

The uncertainty that stems from the vault effective purpose leads individuals to assess whether to respect what written in the manual or not. In order to manage complexity *"to a workable level"* (Weick, 1979 as in Dionysiou and Tsoukas, 2013, p.189) co-worker engages in *role taking to reduce such uncertainty* (Dionysiou and Tsoukas, 2013), by moving the goods from the vault to the loading ramp reserved to internal ikea transport.

The role taking, or performative enactment aspect (D'Adderio, 2014) affects and determines the ostensive understanding (Dionysiou and Tsoukas, 2013) that external warehouse co-worker develop, so to deal with the vault situation. This process can be referred to as how the ostensive and performative domain of a routine are mutually constituting each other, through an iterative cycle (Dionysiou and Tsoukas, 2013; Feldman and Pentland, 2003).

Once the deviance is legitimized in the eyes of the manager and other individuals (Friesl and Larty, 2013), it becomes part of the new ostensive understanding of those involved. However, the deviance still involves risks, such as increased likelihood of good damages due to the additional handling necessary to move from the vault to the ramp.

Therefore, the deviance is kept based on the trust that managers place on the team leader, and the team leader on his co-workers, by making sure goods are handled with an extra care when placed on the loading ramp from the vault.

Trash Station need / external warehouse

The creation of a trash station in the external warehouse is as of a result of observations - putting a problem and a solution together (Cohen, March and Olsen, 1972), a disused ramp now became useful as a buffer trash zone. This was the result of *incremental change* (Becker, 2004), whereby the trash first was on the floor, then on a plateau which was overfilled and finally in the box on the ramp. The originality of the idea transcended its original place of encounter in the restaurant, to where the actor could deploy it in a new context - in essence being *experience and utilising prior knowledge* (Friesl and Larty, 2013). The improvements to eventually end up with the trash station where it is now is the result of *selection, variation and retention* of specific aspects by the actor (Feldman and Pentland, 2003) - Whereas the procedure for this amendment in layout of the floor would be with a goods flow manager, the experience and prior

knowledge of an individual, combined with the *legitimacy* of this individual in its function (Friesl and Larty, 2013) allowed for the trash station to be installed immediately - resulting in improved efficiency and limited forklift interaction.

Verification of goods to be picked up from customer

Customer relation usage of RDTs is a procedure to check that the right goods have been picked from co-workers for a customer delivery. As part of the 4-eyes principle, the routine acts as a *truce* (Nelson and Winter, 1982) by enhancing coordination and responsibilities allocation to the different parties. As the scanning is performed through the RDTs, previously identified as an artifact (D'Adderio 2008; 2011; 2014), the software guides the behaviour of individuals, who "*often undertakes the path of least resistance*" (D'Adderio, 2011, p.215), thus contributing to the stability of routine over time.

However, the *enactment* of the routine (Howard-Grenville, 2005; Feldman and Pentland, 2003), together with the *agentic discretion* (Feldman, 2000), enables the co-worker to make an assessment and bypass the *artifact*, even though it has a constraining force upon the actor (D'Adderio, 2008).
When the constraining factor is stronger, and *politically reinforced by managers* (Friesl and Larty, 2013), the individual is routed to execute its action according to what the artifact prescribes, notwithstanding how artifacts embedded characteristics (bulky, slow and heavy) alters individual preferences in performing the routine (D'Adderio, 2014).

Moreover, when the co-worker cannot scan the product barcode with the RDT, because of barcode placement on the upper side stacked in between different items, the struggle with the artifact becomes evident. The actor faces the choice of either input how many items of an article are presented for those that are hard to scan, or to find the article number and fill it in manually for all the items whereby the barcode is hidden or the RDT itself is unable to read it. The first choice is regarded by the software as if the co-worker willfully skipped the scanning procedure, thereby potentially undermining the checking process. Such system thinking reflects the non-neutrality of artifacts, which *"reflect the agencies that are involved in their production and use"* (D'Adderio 2011, p.222)*. Henceforth, the individual prefers to manually input each article number.

Such procedure is time consuming and forces the actor to re-prioritize the checking routine (because of software value based-focus) over the job duties that are more relevant and appropriate to the context (such as dealing with customer returns).

Correct handling of Transtypes

IKEA prides itself on being able to offer products to the customer, both online and in the physical store. Therefore, IKEA is striving to keep an accurate inventory, so that the customer is able to view online how much there is left in stock to buy. However, as business is conducted, products can rotate in and out of sale, for various reasons. The importance of updating the product with the right transtype can mean the difference between paying for damaged cargo, or not having to pay for it at all from a store level perspective.

Co-workers are however held accountable for their overall performance in their shifts - not so much on the correct handling of a single item. Whereas the importance of accurate stock is established, it is up to the co-worker to do it within their shift; choosing to write off the product instead of continuing with their task. But, due to the agentic discretion (Feldman and Pentland, 2003) that the co-workers have, it means that not always items are written off immediately, or written of with the right transtype. Resonating with the subjective understanding (Feldman and Pentland 2003) that individuals have, not all co-workers are similarly aware / individually see the importance of using the (right) trans types, let alone being able to register this in the system. The lack of correct TT handling is also influenced by whether the co-workers carry with them with the RDT, and whether it is being used.

IKEA Family Card Offers

The IKEA family card offers ought to be a process of multiple departments using their expertise to reach a goal. Yet, there is a unit of uncertainty (Dionysiou and Tsoukas, 2013) as to whether departments are able to comply with the deadline. This seems to lead to the manager on the job to take over these jobs - utlising her agentic discretion (Feldman and Pentland, 2003) and influence (D'Adderio, 2008) to get it done. As in the beginning, this was not possible due to lacking experience and information - now, it is possible to complete it independently of others. By enacting the routine multiple times (Feldman and Pentland, 2003), the end-result is attained, yet at a cost.

5.2 Summarizing analysis

The previous part in this chapter analysed the routines from empirics and combined it with theory - one by one. In order to analyse and abstract, an overview of this process has been visualised in table 5. The first column details the routine examples. The second details the theoretical link with column three noting the specific variance. Column four and five state the reason for the variance and the drift constraining factor respectively.

From table 5, it becomes clear that literature defines many enabling sources, whereas it identifies few sources of constraint. Yet, from empirics, it becomes clear that the routine variations are being constrained. The overview can be observed in table 5. The table will provide the input for the next chapter regarding abstracting the constraining mechanisms observed.

Table 2: Summarising the analysis

Which routine	Enablers Theoretical link	Specific Variance	Reason for Variance	Constraining factor
Transportation between warehouses	artifact bypass (D' Adderio, 2008) Appropriatedness (Feldman and Pentland, 2003)	seal not attached	friendship with transporters	call main house, start checking according to manual
Replenishment of mixed pallets during high volume days	selective retention, Preference, Agentic discretion (D' Adderio, 2008; Feldman and Pentland, 2003) Legitimization (Friesl and Larty, 2013)	expanded technique	to be faster and done	not entirely constrained, every replenisher has its technique, as far as done by 9 am - as manual prescibes.
goods quantity replenishment according to system	Uncertainty (Dionysiou and Tsoukas, 2013), Interaction (Feldman, 2000) Subjective understanding (Feldman and Pentland, 2003)	Not respecting the system	to be more efficient, and not create backflow	if overfilling, shift overlap with Com&in and Sales constraints
Use of RDT scanner by co-workers	Agentic discretion (Feldman and Pentland, 2003) Preferences (D'adderio, 2014) Interlocked chain of action (Dionisioy and Tsoukas, 2013)	not being used	bulky, slow artifact	different firm functions using it simultaneously
Forklift movement in warehouse goods storage	Experience (Friesl and Larty, 2013) Enactment (D' adderio, 2008)	Adapted forklift movements, Bumpers	constrained by layout	IKEA mindset, to achieve the rotuine goal
Customer pickup of items in external warehouse	Role taking (Dionysious and Tsoukas, 2013) Enactment (D' Adderio, 2014)	From vault to ramp	constrained by layout	IKEA mindset, to achieve the rotuine goal
Trash station	Incrementality of change (Becker, 2004) Experience and prior knowledge (Friesl and Larty, 2013) selective variation (D'Adderio, 2014)	Spontaneous trash installation	to be more efficient, limit forklifts interaction	IKEA mindset, to achieve the routine goal
Verification of goods to be picked upfor customers	agentic discretion (Feldman and Pentland, 2003) Artifact constraint (D' Adderio, 2008)	Items not scanned, or article inserted 1 by 1	bulky, slow artifact - lose patience-	stats from software reveal if one bypasses
correct handling of TransTypes	Subjective understanding and Agentic discretion (Feldman and Pentland, 2003) Artifact bypass (D' Adderio, 2008)	incorrect/missing TransTypes, no goods/inaccurate write-off	different priority, scarce time resources, artifact issue	interdependencies of TransTypes with other firm functions
IKEA Family card offers	Enactment (Feldman and Pentland, 2003), Uncertainty (Dionysious and Tsoukas, 2013), Agentic discretion and influence (D' Adderio, 2008)	do it all alone	get things done, learn from others to be more indipendent	IKEA mindset, to achieve the routine goal

32

6. Discussion

Having reviewed enablers and constraints in the individual routine drift examples and infused them with theory, the constraints are still not clearly identified. As such, the current paragraph will describe the constraints as identified in the empirics and the analysis. The overview can be found in table 6. An initial, tentative grouping of the constraints has been made according to their properties.

Table 6: overview of constraining factors in IKEA

Manuals and Software	Internal Service Agreement	IKEA Mindset	Formal Reviews
Pre-note	4/6 eyes principle	Togetherness	Commercial review
RDT	Shift overlap	Family	I-Monitor
The system		Empowerment	Functional reviews
		Responsibility	

When looking at the table, the first column *Manuals and Software* includes a set of constraints such as the pre-note, the RDT scanner and the overall system. The system, whose output is in the form of a pre-note, is a verification tool that aids the constraining process as discrepancies become visible quickly.

The second column, *Internal Service Agreement*, constrains another set of routines. The actors executing these routines have bypassed or have adjusted the first set of constraints of *Manuals and Software*. The actions of the actor are part of a grander routine, whereby drift in the initial smaller routine is noticed by others that are part of the grander routine - thereby limiting and curbing the room for drift for the actor. Practical examples include the 4/6 eyes principle, whereby at least two people have to sign-off on a job. Similarly, shift overlap means that co-workers of different departments need to confer on what is possible - thereby limiting drift for both actors - as either actor has a different perspective / goal as to what is right.

There are however also some routines that are not involving other parties, or the impact of the routine on other parties is lagging. This means that the actor of the

routine can bypass this set of constraints as well as it is not noticed immediately. While this should not be the case, it can happen.

However, there is another column with constraints - the IKEA Mindset constraints. This set of constraints, consisting of the norms and values at IKEA, are guiding principles for IKEA co-workers. When a routine passes through the first two set of constraints, a solution is presented by the third column. The idea of 'Family, Empowerment, Togetherness and Responsibility' - to name a few, guide the co-workers to making the right choice - a variation of the routine that is as close to the core as possible - yet still workable. If a variation of a routine is dangerous for co-workers or customers, or it does not contribute to the enhancement of the customer's shopping experience - then it is not the right choice. However, to make it work, it has to be changed - but the routine variation is curbed by the IKEA Mindset - thus not engaging in potentially damaging behavior more than needed. Actors engage in routine variations to achieve the original routine intention - but no more variation than needed to reach the objective efficiently.

If however, a routine variation does indeed become hazardous for co-workers and customers alike, a *Formal Review* will curb the routine variation. The various forms in which the formal review comes, such as 'Commercial Review, Functional Reviews and I-Monitor', are tools with which departments are audited periodically. As deviance of routines piles up and is captured by certain indicators (stock inaccuracy, stock loss, inaccurate deliveries, damaged goods), variance is not constrained immediately, given the time lag characteristic of formal reviews. Therefore, drift straying away from the three sets of constraints can go unnoticed for long periods due to the dormancy of reviews.

However, when formal reviews take place, management focuses on those routines that contribute to the end result of the KPI taken into account.

From there on, follow-ups are conducted with team leaders, and team leaders with their coworkers. However, due to scarce time and attention resources, management can only trigger the focus on a specific set of routines and follow ups.

As a consequence, even if the aggregated result of a routine deviance is detected and captured by KPIs, the selective focus of management might leave the deviance uncorrected. This process continues until when either the resources to conduct follow ups are unlocked and available, or the drift piles up to a level that it is prioritized over others routine deviance.

The actor as starting point

The routine variations do not seem to continue infinitely. The actors in the process curb the routine variation for a variety of reasons e.g. the objective is achieved, an efficient-enough method is found or after some time, the constraints stop the variation.

The original routine is the one that is easiest to execute, constraints help make other variations of this original routine more difficult to execute. However, the original routine can become inefficient e.g. due to contextual factors - making it less attractive to use the same routine. An alternative of this - a variation - may be more suitable for the situation. The routine variant now outweighs the original routine in suitability, despite the added constraint aimed at keeping the individual restricted to the original routine.

Thus, it all start with the actor - who firstly bypasses parts of the routine, creating a variation. With the interlocking feature that many routines have, routine variations are noticed by others, who also need to accept this variation. Otherwise, the actor needs to revert back to the original routine. However, with routines that do not immediately interlock, the actor can bypass this set of constraints. The routine variation is however curbed by the intention of the actor, guided by the mindset of the firm. This means that, if a routine variation does not enhance the customer's' shopping experience, or it puts people in danger, the actor is not to choose this variation - but only consider the variations that are 'positive'. As such, the routine variation is curbed. In the event that the co-worker does not respect the manual, the interlock feature and the mindset, there is the formal review - strong enough to change a routine variation in becoming the 'new' original routine, or compel the actor to execute the original routine.

Therefore, a set of constraints - referred to as barriers from now on - are working together to restrain drift at various stages for various routines. Certain routines require a stronger barrier of a certain type compared to other routine variations. The sequential setup of the routine barriers ensures that no routine variation runs too far out of control. The combined power of the barriers together (the multiple sets of constraints) creates incremental 'friction'. The further a routine varies from the original setup - the more resources are needed by the actor to achieve the variation and overcome the barriers.

6.1 Theoretical Discussion

"I can teach you competence, but not good attitude"
(Manager)

The current chapter will review the paper, abstract the empirical findings which have been analysed in the previous chapter and see these in a grander light. This takes form in a summarisation of the state of routine drift as seen after the empirical understanding, a theoretical implication as a result of this and a managerial implication. Finally, the new understanding of routine drift will be connected to the grander importance of the matter for replication.

As seen in the analysis chapter, routines variations are initiated by actors, but actors also curb the variation of a routine. The original routines may not work anymore, can become more efficient, or for another reason are not deemed the suitable way by the actor to obtain the desired result. Variations of routine occur because actors are involved - who do it differently because of their (past) experience, to be more efficient in their working method, to make it work or just because tools are not adequate enough for the job. Furthermore, pressure in various forms, combined with the scarcity of resources (time and attention) allows drift to emerge.

As for the constraints, having reviewed the routine variations and infused them with theory, the authors propose the overall groupings to be as presented in table 7:

Table 7: Grouping of constraints

Theoretical designation	Artifacts	Embeddedness	Logic of Appropriateness
IKEA designation	Manuals and Software	Internal Service Agreement	IKEA Mindset
Routine variation examples	Transportation between warehouses	Replenishment according to the system	Forklift movements
	Replenishment of mixed pallets	Correct handling of transtype	Customer pick-up point
	Verification of picked goods for delivery	Use of RDT scanner	Trash station
			IKEA Family Card

The following paragraph will elaborate on the view of the different barriers and how they constrain drift.

Artifacts

The *Manuals and Software* barrier curbed the variation of routine mainly through the use of software - the system. The system limited the movement room for co-workers, by granting and preventing access and giving authority/legitimacy to actors to access/alter certain components of the system. This made it possible for those with access to make changes and adapt, while for others, this was not possible. If one wanted to override the system, it would become visible rather fast. It would require substantial amounts of resources: "*in practice this requires the deployment of resources (i.e. time and software programming skills), which are often unavailable*" (D'Adderio, 2011, p.216). It is much easier to stay with the components of the system that one has access to. This links with the concept of '*Path of the least resistance*' by D'Adderio (2011). This concept promotes that the actor will most likely take the path of the least resistance when executing a routine. Since the original routine should be the easiest to perform, compared to those variations that are supposed to be constrained - it is likely that the routine as intended is executed to the biggest extend. Also, once this routine is executed often - it becomes part of an actor's way of working - linking to the concept of the *'Power of Default'* (D'Adderio, 2008).

Artifacts prescribe the options on how a routine is to performed, however, they do not determine the routine itself (Howard-Grenville, 2005). Therefore, artifacts are a barrier layer which deal with deviance at an individual level, whereby the actor has discretion over whether to follow the artifact or not.

Therefore, it seems that the more the routine is embedded in artifacts, the less the likelihood of variation of routines is to occur. This because the strongly embedded routine guides the actor's 'as wanted' execution of the routine better, compared to a loosely embedded routine. However, despite this embeddedness, social expectations of how the routine should be performed can still render the routine somewhat flexible to adaptation (Howard-Grenville, 2005).

Embeddedness

The *Internal Service Agreement* (ISA) serves to integrate the working methods of different IKEA functions together. The goal of the agreements is to shed light on responsibilities, allowing for a smooth coordination by guiding the interdependencies between the different IKEA functions. From a theoretical standpoint, Sales, logistics and Com&In can be defined as organisational structures. The structures collaborate to achieve a common goal, yet their individual milestones for this common goal differ. Through their different priorities, these different structure keep each other in balance - preventing from

one straying off too far. In other words, as these structures overlap and their routines are enacted simultaneously, the degree of embeddedness "*prevents improvisation and reinforce perpetuation*" (Howard-Grenville, 2005, p.619), thereby contributing to constraining drift.

Moreover, the dispersedness of knowledge across actors needed to achieve the routine goal (Becker, 2004) creates an interlocking structure of participant actions (Dionysiou and Tsoukas, 2003). In other words, the nature of the routine itself creates interdependencies between actors, and control among them.

As a consequence, drift taking place during an actor's routine performance which is embedded with other organisational structure, is spotted and dealt with at a local level. The localness stems from the overlapping feature of routine enactment, whereby different set of actors interact simultaneously with each other on the contextual local level.

Organisational Character and Logic of Appropriateness

The I*KEA mindset* is the third barrier that hinders the routine drift in the organisation. IKEA mindset originates from norms and values (chapter 3) that were originally written by the founder Kamprad, and are transferred to co-workers at all level through HR practices, the use of language and symbols. The values are supposed to actively guide the decisions of the co-workers. If there happens to be a situation where the manual ('artifact' in academic terms) does not prescribe the procedure and there is a lack of interdependency that would curb the drift arising from the uncertainty as to 'what to do' - then organisational character - the norms and values guide the actors in their ostensive understanding, and thus their performance. The behavior of co-workers in the organisation is stipulated in the values. When a situation is uncertain, the values as set in the organisational character stipulate what action is deemed 'right' for the situation.

Situation, Identity and Matching
When in function, co-workers are guided by pre-defined norms and values. Upon coming across a situation in or around the IKEA world, the co-workers, being experts in their area, match their IKEA identity with the situation, which produces the outcome that falls within the IKEA set boundaries. An IKEA co-worker is not supposed to decrease the shopping experience, create waste and costs or put safety and security willingly at risk. If coming across a situation like this, the appropriate course of action - as determined by the IKEA identity, makes it that a certain variation of a routine is not performed. Certain variations close to the core of the routine are allowed - as IKEA promotes making experimenting and making mistakes - but those variations further away from the core of the routine - those that harm the shopping experience or other examples - those are curbed as they are not appropriate for an IKEA co-worker to perform.

This resonates with March (1991) and the *Logic of Appropriateness* - a concept that sheds light on the ostensive understanding (of an actor), which then determines action for a particular situation. Here identities of actors are matched with situations.

> *"How do I define what kind of a situation this is? What kind of a person am I and what is appropriate* [action] *for a person like me in a situation like this?"*
> (March, 1991, p.105)

As the different actors are performing their individual routine, there is considerable interaction and dependency of routine execution among actors. Due to the interlocking feature of routines, having a similar ostensive understanding between actors is pivotal so to know what to expect from each other. This aids in the smooth execution of the individual routines - by reducing uncertainty (Becker, 2004) and truce creation (Nelson and Winter, 1982) - while still fitting in the overall process. The similar ostensive understanding then allows for variations in performance to be noticed, and deviations that stray too far to be corrected. Consistent execution of the preferred set of actions is required for the overall goal to be reached. IKEA co-workers, of various departments and structures are going to work within the limits of safety and security, as there is a common ostensive understanding as what constitutes a safe and secure behavior. This in turn influences the performative aspect of a routine in a safe and secure manner. Changing the ostensive understanding is hard, as many different actor's understanding needs to be changed simultaneously - something not easily done by a single actor. If a change in the ostensive domain of a routine is needed, it requires authority and legitimacy.

Changing routines that are strongly embedded in cultural structures may rely heavily on the use of authoritative and relational resources because they can be used to frame and negotiate, over time, shared meaning, shared norms, and collective identity (Creed et al. 2002; Maguire et al. 2004 in Howard-Grenville, 2005, p.634).

Identity on the organisation level

The difficulty in changing organisational ostensive understanding is also recognised by Birnholtz et al. (2007). They promote the view that the action dispositions, defined by the habits, trait or skills of individuals are enacted simultaneously with other dispositions (ibid.). These are retained in organisational members procedural memory, which is developed by experience and interactions with other participants. However, it is the goal of the organisation to channel into a coherent ensemble of disposition the diverse capabilities and preferences of its members, so to shape novelty and its complexity to a workable level (Weick, 1979).

However, organising member's actions involves explicit or implicit negotiations, therefore leaving the possibility of political struggles and conflict.

To guide individuals action in the face of novelty, organisational character is a potent tool to route performance that are aligned with the organisational goals. Organisational character is defined as "a *coherent content of the ensemble of dispositions that generates the distinctive actions of the organization*" (Birnholtz et al., 2007, p.317).

When members face a different set of plausible options, they choose according to what they "*feel and believe*" (ibid., p.318) is the appropriate thing to do in the given situation. This approach can be linked to the 'logic of appropriateness' (March, 1991), that enables a match for disposition performance between identity and situation. Moreover, as members' performances are carried out, the coherent ensemble of disposition acts as a filter for those dispositions that interfere, or collide with other dispositions (Birnholtz et al., 2007).

In other words, organisational character act as a guidance tool in two situations, when uncertainty arises and there is no exact procedure on how to proceed, or when actors are exposed to "*multiple plausible actions disposition*" (Ibid., p. 318). Character, which is enacted and recreated through time, creates a range of plausible solution that enables members to choose "appropriately" and act "in character" (ibid., p.325). Hence, actions that stray too far from the range set in place by the character, will be filtered out, thus disappearing from the ecology of actions disposition.

Organisational character is then identified as a permeable but thick layer constraining drift in routines, acting as a "last resort" before formal reviews. Character enables members to adjust routines in an "appropriate manner", hence creating drift from the ostensive understanding and artifacts. As a consequence, allowing for an "appropriate" variance empowers the members to align their new performances with the organisational goals.

Character and logic of appropriateness act together as the third, last layer to constrain drift from straying too far. Moreover, the constraint feature of character is a critical resource-saving tool. When individuals themselves limit drift by acting "in character" (Birnholtz et al., 2007), the drift has not to be accounted for during formal reviews. Therefore, character prevents some drift to aggregate by piling up, to a level which negatively impacts the firm and is captured by KPIs.

Secondly, curbing drift with character enables management to reduce the number of organisational items on where to focus on, therefore supporting for an efficient prioritization-focusing process over more strategic issues.

Thirdly, character as drift constrainer, precludes the deployment of scarce management resources (time and attention) to be allocated over resource intensive and costly follow-ups over time. Whereas most of the drift seems to get restrained by one or another barrier, some drift does stray away. It is here where the 'hard management control systems' kick in. This signals that the variation is too much - thereby providing a feedback loop from which the actor can recalibrate their ostensive understanding and liberties within this.

6.2 The Drift scale in Research

As described in the previous paragraphs, the distinguished layers are visualised in a model, figure 5. Aside from the natural variation that occurs in routines as they are executed, the figure focus is on the use of various barriers to constrain routine variation. The three main barriers as described above are also found in the model: Artifacts, Embeddedness and Logic of Appropriateness. Together, these make up the initial barriers - in varying thicknesses at various times.
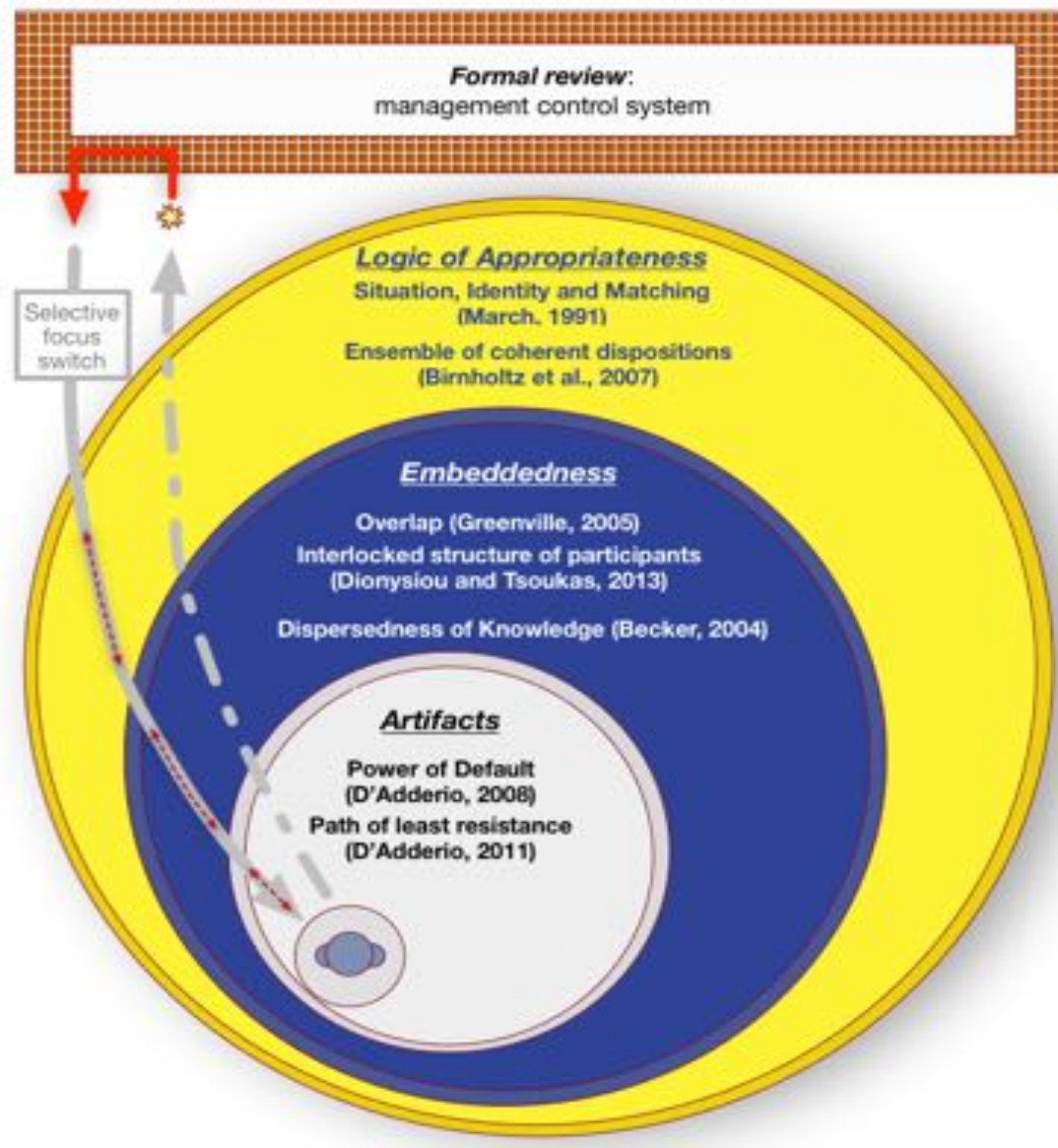
7. Conclusions

After the research, the empirics and the analysis, there should be a clearer idea as to how drift is managed within IKEA. The abstraction of this analysis on a more theoretical level gave way to the 'drift scale model' - the conceptual scale on which drift constrainers could be placed in.

The understanding on how IKEA enables and curbs drift to different extents could potentially be applied elsewhere. The contributions of this paper are split up in two items, the theoretical contribution - more aimed at academics, and the managerial implications - more aimed at practitioners.

Theoretical contribution

*"Indeed, one of the main reasons for being a big company rather than a small one is to capture on a grand scale the gains that come with applying smart processes and routines (*Winter and Szulanski, 2002, p.62).

Literature has already identified the existence of drift. Yet, to the current knowledge of the authors, it was not specified how to deal with this drift. Yet, everyday, firms are managing this drift. Having no drift at all is not beneficial - the routine needs to develop and adapt to the situation to stay relevant:

In those instances the routine may need to be adapted to the new context prior to the implementation - in essence, the "discovered" routine needs to be redesigned for the new context" (Gupta et al., 2015, p.852).

On the other hand, too much drift is costly, routines are interlocked (Dionysiou and Tsoukas, 2013) and they provide stability and decrease uncertainty (Becker, 2004). Changing the routine too much therefore doesn't seem to pay off either. Managing the balance between these two is interesting for those who copy the routines often - thereby risking also copying the variation - which eventually means that the starting routine is not the same as the routine further in time, or the routine in a different geographical area. Thus, the validity for making inroads in understanding how to balance is for organisations that replicate their routines frequently - the concept of replication for chain organisations such as IKEA.

"At the heart of replication strategies is the transfer of organizational routines...[with the goal of] *achieving similarity of those routines across a variety of intra-organizational units" (*Friesl and Larty 2013).

Replication is echoed by Friesl and Larty (2013) as:

"*The creation of 'similar' units (Szulanski and Jensen 2004; Winter and Szulanski 2001) which in significant respects copy features of the replicating organization (Jonsson and Foss 2011; Nelson and Winter 1982).*

However, whereas it seems simple to copy the routines, the intricacies with routines and their almost ever-present variations is not to be underestimated.

It is rarely if ever the case that replication can be accomplished merely by supplying the manual to the recipient - (Baden-Fuller and Winter, 2007).

The multitude in ostensive understandings, followed by differences in performance and the engagement and adaptation of various artifacts in the process are taking place all the time. As was observed in this paper, the firm of focus, IKEA, has several constraints in place to curb these variations of routines. A combination of Artifacts, Routine embeddedness and Organisational character components present in sequential format in various degrees of thickness during different on the drift scale make it that IKEA is still one of the most successful furniture organisations in the world.

Managerial Implications

The importance of dealing with routines drift is a critical factor for the success of the business. It is the execution of the small routines, and their smooth flow that contributes to the bigger processes, that make the business a success. Copying these routines - known as replication - is a way for a business to grow: Replication can be considered as a strategy for growth, for implementing best practices and enhancing flexibility for organizational learning (Friesl and Larty, 2013; Winter and Szulanski, 2001). However, the success of the business depends largely on replicating the set of routines contributing to success.

However,

"*Replication* [success] *depends on a company's ability to adapt routines (Ambrosini and Bowman 2009; Aspara et al. 2010; Eisenhardt and Martin 2000; Teece et al. 1997) and to (re)combine and (re)deploy (Lockett et al. 2009) them in order to adjust to new markets, geographical locations or customer groups (Helfat and Peteraf 2003)*" ([authors in original] Friesl and Larty, 2013, p.110).

Therefore, (re)designing routines for replication strategy, whilst maintaining a coherent ensemble interorganisational processes, is a pivotal tradeoff for organisations.

Defined as the *"replicator dilemma"*, organisations face the choice of precision (e.g. Intel's 'Copy <u>EXACTLY!</u>' method, Mcdonald, 1998) versus variation and innovation to adapt routines to the new context. Both sides are extremes, and their respective disadvantages stem from the lack of learning and adaptation (in case of copy exactly), or ambiguity and lack of process coherency across the organisation (in case of pure adaptation).

This study helps practitioners to find a middle balancing point in this complex dilemma, by shedding light on how to allow for variance for organisational learning and adaptation whilst still achieving organisational coherency on an intra-firm level.

Designing organisational routines together with the drift barriers found in this study (Artifacts, Embeddedness, and Identity), enables variance in performance to be curbed before reaching harmful levels for the organisation.

Moreover, creating routines that are able to "float" when improvisational adjustments are needed, but stabilised when not, can be a potent source of strategic flexibility at the operational level.

When implementing, changing or simply thinking of routines, practitioners should not think of variance in routines as a stand-alone phenomena, waiting to be fixed by managerial enforcement. Conversely, drift can be best symbolised through the metaphor of the "snowball effect". This representation showcases how small routine variances can potentially "pile up" to an extent that could hinder intra firm coordination, by creating uncertainty, ambiguity and conflicts among actors.

Therefore, setting up organisational barriers, such as those advanced here, enables drift to be curbed on an "automatic"mode. The practical implications emerging from the findings highlight the importance of embedding routines with artifacts whilst creating interlocking structures, allowing for drift to be constrained at an individual (in case of artifact) or local level (in case of routine interdependencies).

However, in the event that the performing individual manages to purposefully bypass these first two levels, organisational identity becomes of fundamental importance for the drift so to not stray too far.

This last finding explains the importance of cultivating organisational character and transferring it to individuals, so that actors are empowered with a sense of appropriateness in choosing to what extent the drift can be carried out.

Organisational character and identity thus send signals to individuals about the allowed range of drift. Pursuing a strategy of reinforcing drift constrainers permits organisation to correct deviances in a less time-lagged way, if compared to the resolutions stemming from formal reviews.

However, as managerial resources (time and attention) do not come in abundance, the model developed in the study enables decision makers to visualise where the deviance can be corrected, together with the choice of which layer to be reinforced.

Final words

To sum up, variation in routines is a double-edged sword. On one hand, it allows for innovation, improvisational adjustment, operational flexibility and learning opportunities. On the other hand, too much variation threatens process efficiency and firm coordination. The dilemma of what kind of variance to allow, and to which extent, is a time consuming activity for managers to focus on. The drift scale model developed in this paper illustrates how deviance can be partly curbed without managerial intervention, so to let decision maker focus on more strategic issues.

With this study, the authors hope to have shed light on the fascinating phenomenon of drift in organisational routines, and to have provided a stepping-stone for future studies in this field.

- End -

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Appendix

Appendix 1: Dictionary of terms and contractions

Dictionary of terms and contractions used

- Commercial Team
    - Day-to-day responsibility of running of the store. Includes the store manager, logistics manager, Communication and Interior design manager and lastly, Sales manager.
- Common store planning (CSP):
    - centralised solution planning from IOS (IKEA of Sweden) based in Älmhult, to be implemented yearly on a global scale.
- Drift
    - *The difference between the Ostensive and Performative; the difference between what should be done and what is done.*
- Formal Review
    - Periodic auditing of various components of a store. Comes in various degrees of size and importance. Commercial and Function reviews are important tool for measuring how the IKEA concept is followed in the IKEA countries and within different functions
    - I-Monitor is an example of a self-checking tool designed to follow up routines. These and other auditing tools are quality checks of store KPI's.
- Goods flow process (in-store)
    - The 'journey' the products travel in the store. In-store goods flow refers to the goods flow process throughout the store, from delivery and/or customer return to the point where the customer paid the good.
- Home furnishing business (HFB)
    - *The various departments in the showroom and the market hall of the store.* Ranging from Kitchen and Cooking, to home decorations, textiles, bathroom and lighting. Quite similar to the regular rooms one would find in a typical home.
- IPI
    - *Internal Packet Identifier*. A label used on items to provide information of items to which the label is attached. Often comes with barcodes to be scanned for easy access to the information.
- I-Monitor
    - *See formal review*
- Market hall / market tour
    - *Dedicated space in which the smaller items e.g. decorations can be picked up by customers. The main aisles, starting in the showrooms, make up the market tour - in which if followed, a customer would see an article of each area in the house.*
- Ostensive
    - *Perspective of how a routine SHOULD be*. Includes understandings taken from individuals but also documents such as manuals

- Loose hands
    - Products that are taken from the shelves by customers, but left throughout the market display sections.
- Performative
    - *Perspective of how a routine IS executed in practise.* Observed in practise, as individual understanding of what one thinks he/she does can vary with what one actually does.
- Prenote
    - *Pre notification.* The prenote is a document detailing the expected incoming shipment based on the amount of goods sold in a particular location. Coming three times a day, the co-worker is able to use it to better adjust the prognosis of future sales
- Pipeline
    - *Dedicated area in which pallets/products are parked to await continuation of their route to the destination.* Area where products in transit are parked, most often in the self-serve area, but also in other buffer zones.
- Point of Sale (POS) / Sales location
    - *Dedicated area in which products are presented for the customers to take or order.* These locations are where goods go to be actively sold.
- Ramp / unloading area
    - *The (un)loading dock at an IKEA store for truck deliveries.* An area which has been adapted so to be able to receive deliveries. Often includes adjustable ramps to be able to access a truck.
- RDT scanner
    - *A hand-held device designed to scan barcodes and provide information on the spot.* Used to sign off on pick ups, deliveries to destinations, adjust information on a product or provide general information regarding a product.
- Sales and Service Support / Triple S
    - *Sales and Service Support.* The supporting department solving operational issues for logistics, sales and other queries related to the goods flow process and accurate stock inventory
- Self-serve area
    - *Dedicated space in which the bulkier items can be picked up by customers. Also, the main area for air storage of these bulky items, as well as air-storage of items used elsewhere.*
- Showrooms
    - *Dedicated space in which combinations of home furnishing solutions are presented.* Inspiration for home furnishing can be found here. Starting point of the market tour.
- System
    - *The various software computer systems used by IKEA.* The overarching combination of softwares that track and maintain information on goods in the past, present and future.
- Transtypes (TT):
    - Labels given to products or pallets indicating special status (see appendix 2 for an overview).

Appendix 2: Internal Transtypes

Transtypes: Internal transactions overview

Transtype number and meaning of label

310	Withdrawals (Decoration by Com&In)
325	Returns to Recovery ('Damaged' returns)
330	Quality Claims
390	Internal Damages (e.g. by logistics or sales)
391	Received Damages (already damaged upon delivery)
440	Undamaged & Q-articles to Recovery (unsellable and/or out of assortment)
441	Inventory Adjustments
450	Recovery to Stock
456+, 457+	Stock Taking + (pallets / products 'found')
456-, 457-	Stock Taking – (pallets / products 'lost')

Appendix 3: Initial interview

Initial interview templates for semi-structured interviews, split by operational functions and management functions.

Operational co-workers interview template

Date	
Starting time - ending time	
Location	
Name	
Function and department	
Contact details (email +phone)	
Previous experience in Ikea (length and location)	

General overview *(How would you describe your occupation?)*
- What are your responsibilities (*What do you do on a daily basis in this function)*
- Which tools do avail yourself for your tasks? (*Do you use any means to help you out to complete your activities?)*

Continued
- Is there a manual for your tasks? Are there situation in which the manual does not provide an answer - and how do you deal with that? How has that turned out?
- What is the 'right' choice (alternative) - and how do you make this?
- Did your understanding of your task improved with experience? Did you make different choices in the beginning (inexperienced) as compared to now (expecting experience)?
- Are there also directions in the manual that are not adequate for the task at hand? How do you solve this? Did changes made in routine workings provide a different result? What is the way forward then (*Did you change back to the old routine? Did you continue to experiment?)*
- Did any working adjustment brought to conflict with other parties involved and how?
- Is your action dependent on other co-workers´ action? Does your action impact others?
- Do your co-workers with a similar function perform their tasks in a similar fashion as you do?
- Do you share your way of working with co-workers? If you're working together, how (who) is it decided how things will be done?
    - o Did you accept and performed such suggestion?
- Are the tools you need available for the job? Are they adequate?

Management interview template

Date	
Starting time - ending time	
Location	
Name	
Function and department	
Contact details (email +phone)	
Previous experience in Ikea (length and location)	

General overview *(How would you describe your occupation?)*
- What are your responsibilities (*What do you do on a daily basis in this function)*
- Which tools do avail yourself for your tasks? (*Do you use any means to help you out to complete your activities?)*

Continued
- Does your team perform the routines as they should? Do they deviate from the routine - is it common / for what reasons? Does this impact other units - if so, how?
- What are the consequences of such deviance from your perspective?
- How do you follow up on routine deviation? Are there others (functions / departments) that follow up with you on routine variation?
- How are the co-workers taught the routine? Who/ what teaches the routine to them?
- Are the manuals adequate for the co-worker tasks?
- Are there adjustment that can be made at operational level to make routines more smoother in your opinion?
- Do you allow - and if so, in which case- certain routines not to be followed?
- Which KPI are you measured upon? Do you make your team part of these KPI?