Ambidextrous learning in a customer order–based context

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Abstract

Purpose – The purpose of the paper is to describe ambidextrous learning in organizations within the customer order-based context (COBC), here based on a dynamic view of work processes. The study focuses on how organizations can learn while working with customer orders, considering learning in organizations as both a process and an outcome.

Design/methodology/approach – This conceptual article focuses on learning in the COBC, where the individual customer requirements represent a key input into the organization's work processes, thus limiting the possibilities to plan and standardize. The COBC brings about challenges and potentials for learning in organizations where task variety and complexity are high and in which the contradictory interplay between efficiency and responsiveness is apparent not only at a strategic level but also at an operative level in the customer order fulfillment processes. Depending on the variations in tasks and parallel complex work processes between different units in the organization, the ambidextrous learning dynamic can appear in the COBC.

Findings – Five propositions were made from the analysis: Proposition 1: Learning in the COBC can occur both in real-time but also in retrospect and with sporadic and recurrent interventions. Proposition 2: Learning in the COBC can occur for, as well as from, customer order processes. Proposition 3: Learning in the COBC varies and will depend on the delivery strategy. Proposition 4: Learning can be stimulated by the variation in priorities among customer orders in the COBC because the work characteristics for the back office and front office differ between customer order fulfillment processes. Proposition 5: Learning in the COBC can occur both within the back office and front office but also between these organizational units. The paper discusses the importance of building learning infrastructure in COBC and how that can be supported by a suggested learning office.

Originality/value – The present study demonstrates the importance of functions being able to act both as back office and front office in relation to delivery strategy. It also shows the ambidextrous learning process for the sake of improving both the internal efficiency and external effectiveness across the organization.

Keywords Learning organizations, Customization, Organizational learning, Ambidextrous learning

Paper type Conceptual paper

1. Introduction

Based on technical rationality and positivist ideals, research in the industrial context has been criticized for being brought into "an intellectual blind spot" (Aastrup and Halldórsson,

2008, p. 749) and failing to deal with complexity in work tasks (Adamides *et al.*, 2012; Schön, 1983). In practice, standardized work processes increasingly fall under the responsibility of automation and artificial intelligence, whereas work processes requiring flexibility and innovativeness are managed by humans. Today, many industrial organizations have differentiated their offerings, providing both standardized and customized offerings (Fernandes *et al.*, 2012), where cost efficiency is key for the former and where the latter places high demands on responsiveness innovativeness and learning capabilities (Engström and Käkelä, 2019). Management concepts such as customer-driven manufacturing (Wortmann *et al.*, 1997), customer order-based production (Borgström and Hertz, 2011) and customer order-based management (Wikner, 2014) have been proposed for addressing issues arising in this context. In a similar fashion, the current article focuses on learning in *customer order-based context* (COBC), where the individual customer requirements represent a key input into the organization's work processes, limiting the possibilities to plan and standardize. The COBC brings about challenges and potentials for learning in organizations where task variety and complexity are high and in which the contradictory interplay between efficiency and responsiveness is apparent not only at a strategic level but also at an operative level (Eisenhardt *et al.*, 2010) in the customer order fulfillment processes. Örtenblad (2013) recognized that there is a learning aspect to consider when the organization sets out to understand customers' needs. In the COBC, different functions and units are typically involved in a variety of customer order fulfillment processes that run in parallel and that pose different requirements for customization, which can cause tensions in the organization. These tensions can be manifested as disturbances in information flow (Huber, 1991), lack of coordination (Marengo, 1992; Melin, 2002) and flawed communication processes (Edmondson, 2012). Engström (2014) identified such discrepancies in organizations working with variations in customer orders as potential areas for learning. Moreover, customization can be a trigger for organizational learning and, ultimately, the basis for becoming a learning organization (Engström and Käkelä, 2019), which is the ideal state of sustained learning that an organization can achieve (see, e.g. Örtenblad, 2001). Building on this line of reasoning, the present study adopts a more comprehensive view of learning in organizations by considering how the dynamics of learning are manifested in the COBC.

In research focusing specifically on organizational learning, two models – both of which, though, focus on the development side of learning have had a major impact. From a cognitive perspective, Nonaka and Takeuchi (1995) proposed the socialization–externalization–combination–internalization spiral model for innovative learning, whilst Engestrom (1999) used an expansive learning cycle that is based on a contextual perspective. When analyzing the two models, Engestrom (1999) found that nonexpansive phases were not supported by either and concluded that the "processes of innovation knowledge creation are not pure" (p. 391) and that learning processes contain both expansive and nonexpansive phases. Other studies viewing cognition and context as tightly intertwined through task performance and the actions in different work processes (Ellström, 2001; Engström, 2014), have identified two contradictory and competing logics of learning in organizations: *executional learning* (Engström and Wikner, 2017), which is developed from the concept of adaptive learning (Ellström, 2001) and that focuses on the exploitation of existing knowledge (March, 1991) and *developmental learning* (Ellström, 2001; Engström and Wikner, 2017), which focuses on the exploration of new knowledge (March, 1991).

Managing daily work with numerous exploitative work processes and renewing it with explorative work processes are equally important and tightly intertwined within organizations (Boud *et al.*, 2006; Sollander and Engström, 2021); which can be discussed

through the lens of ambidexterity (Birkinshaw and Gupta, 2013). New ways of viewing this mutual independency of contradictory and enabling parts as a duality (Farjoun, 2010) have led to a dynamic view of learning logics in organizations: *ambidextrous learning*, which focuses on the integration – rather than only the interplay – of exploitation and exploration (Engström and Wikner, 2017; Sollander and Engström, 2021). Depending on the variations in tasks and parallel complex work processes between different units in the organization, the ambidextrous learning dynamic can appear in the COBC.

The purpose of the present conceptual paper is to describe ambidextrous learning in organizations within the COBC, here based on a dynamic view of work processes. The study focuses on how organizations can learn while working with customer orders, considering learning in organizations as both a process and an outcome.

2. Theoretical framework

2.1 Organizational learning

Performing tasks creates opportunities for groups to learn (Ellström, 2006b; Hackman and Oldham, 1980). At the same time, some knowledge is required to handle different tasks. There are tasks that can be performed in a completely routinized way without much awareness, while others require adherence to a set of rules or instructions (Ellström, 2001, 2006a). In these two cases, the task can be performed based on existing organizational knowledge (cf. exploitation; March, 1991). Schön used the concept of "knowing – in-action" as nonreflective and unplanned, solving most everyday practical problems. Thus, this knowing, according to Schön (1983), is not enough to meet more complex situations. To be aware of tacit knowledge, we need to distance ourselves and learn to reflect. More complex, uncertain and unclear tasks require collaboration between several competences to create new knowledge or to reach a new solution (Hackman and Oldham, 1980; Oldham and Hackman, 2010). In other words, different tasks need to be performed with different suitable actions. Figure 1 illustrates a theoretical model of how learning in organizations occurs based on different levels of action in organizational work processes (Ellström, 2006a, 2006b).

Implicit work processes are formed by *routine-based actions*. Here, work is performed routinely or automatically, without much reflection. With certain skills, the individual performing the task knows exactly what to do without much conscious attention or thinking, has probably done it many times before and is quite sure about the results. Problematically, routinized work is often self-reinforcing and difficult to change (March, 1991). Sometimes, certain rules are needed, and the work is performed more consciously and is more time-consuming. The individual performing the work needs to evaluate the outcomes and possibly make minor adjustments to the methods used, which can be viewed as a process of improvement. This includes tasks with instructions on how the work should be performed, but it can still be done in many ways because the same person may perform it
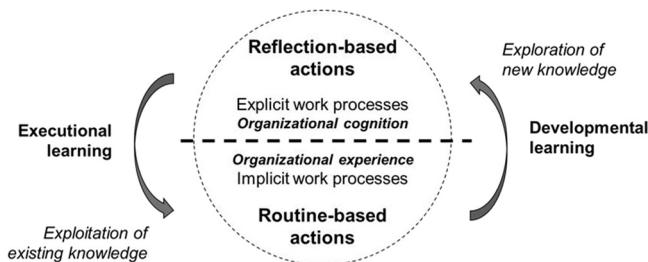
Figure 1.
Levels of action for executional and developmental learning (based on Ellström, 2006; Sollander and Engström, 2021)

differently over time (Ellström, 2006a, 2006b). The knowledge required for routine-based actions is based on *experience* and already exists within the organization (Ellström, 2011); this relates to March's (1991) concept of exploitation. *Reflection-based actions* strive to develop new knowledge in the organization, either as influenced by generic theories from the academic system or by the creation of completely new knowledge or innovation (March, 1991). The actions here are performed with a higher level of consciousness, hence demanding time and effort, where task complexity is important and explicit work processes are built based on intellectual work and *cognition* in the organization. Awareness and the ability to reflect on and analyze the situation are crucial (Ellström, 2006a, 2006b).

Two different logics of learning occur through the interaction between explicit and implicit work processes in an organization, as illustrated in Figure 2. When standards, routines and existing procedures do not work, there is a need for *developmental learning* (Figure 1) – bottom-up processes through which the established perspectives are questioned and new knowledge can be explored. Flexibility, variation, diversity, expansion, experimentation, discovery and innovation are the key issues here (Ellström, 2006; March, 1991). Taking risks, accepting failures and critical reflection when testing alternative ways of acting in different situations also support developmental learning. When new knowledge serves as the basis for new standards, routines or procedures, there is a need for *executional learning* (Figure 1) – the top-down processes where rules and agreed-upon procedures need to be followed and adopted. Standardization, homogeneity, stability, refinement, efficiency and repetitiveness are key issues here (Ellström, 2006; March, 1991). *Ambidextrous learning*, which is based on either developmental or executional modes (Figure 2), occurs through complex work processes when uncertain, unpredicted and unplanned situations in daily work arise and when other learning logics are not sufficient to solve the problem in the long run (Sollander and Engström, 2021). In an ambidextrous learning process, explorative and exploitative activities are highly integrated.

Executing ideas that have been developed as new routines and procedures, as well as questioning existing processes and developing new routines and procedures to replace those that are no longer valid, are the key aspects of ambidextrous organizational learning, allowing ambidextrous learning organizations to build the infrastructure for learning processes at work. Boud *et al*. (2006) referred to these actions in real situations at work as *productive reflection*. Schön (1983) concluded that reflection differs in form, content and direction; Schön (1983) highlighted two types of reflection: *reflection in action*, which occurs when we reflect in a specific ongoing situation (operational level) and when we learn while working and *reflection on action*, which occurs when we have distance from and the ability to reflect on a situation we are familiar with but not currently involved in, hence being better able to build knowledge transferred to other situations (strategic level).
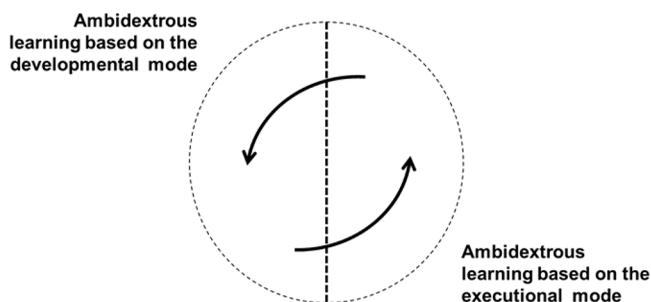

Ambidextrous learning based on the developmental mode

Ambidextrous learning based on the executional mode

Figure 2.
Ambidextrous learning processes

2.2 Decoupling back office, front office and process segments

For organizations in the COBC, to varying degrees, internal work processes are impacted by customer-specific requirements. The organizational implications of this can be explained by the separation of the back office and front office. The back office and front office distinction separates interlinked processes (Safizadeh *et al.*, 2003) and activities (Zomerdijk and de Vries, 2007) based on whether they are indirectly (back office) or directly (front office) impacted by customer contact. This distinction is well recognized in the service operations literature (Chase, 1978; Shostack, 1984; Wikner *et al.*, 2017). By being protected from the customer view, the back office can prioritize the internal efficiency of operations, typically striving for cost reductions and economies of scale. Contrary to this, the front office is responsible for achieving external effectiveness at the customer interface (Wikner *et al.*, 2017), providing support and flexibility toward new and existing customers (Bitner *et al.*, 2008; Gwinner *et al.*, 2005). A "mid-office" concept has also been proposed, which represents a link between the back and front offices; it is defined by Silvestro and Lustrato (2015) as "an interface between front and back offices, which protects the technical core of the high volume back office but also supports the front office with knowledge-based expertise" (p. 868). However, it can be argued that by its very definition, the mid-office is a part of the back office because it implies indirect rather than direct customer contact. The essential argument is, however, noteworthy, recognizing the importance of coordinating back office and front office priorities.

Similar to the separation of the back office and front office, the manufacturing operations literature has given prominence to the decoupling of value-adding processes into speculation-driven (in some cases referred to as forecast-driven) and customer-driven process segments, which are separated by the so-called customer order decoupling point (Giesberts and Tang, 1992; Hoekstra *et al.*, 1992). The customer order decoupling point explains which activities are performed before the customer comes into the picture, here based on speculating customer demand and which activities are performed while the customer is waiting, here based on actual customer demand (Wikner, 2014). Depending on the customer order decoupling point's position in the value-adding process – thus the disposition of speculation versus customer-driven activities – it is possible to classify delivery strategies with varying degrees of customer involvement, as illustrated in Figure 3.

Five delivery strategies are accounted for in Figure 3, four of which are customer order based. To the left of the figure is the make-to-stock (MTS) strategy. MTS implies that

Figure 3.
Delivery strategies within the customer order–based context
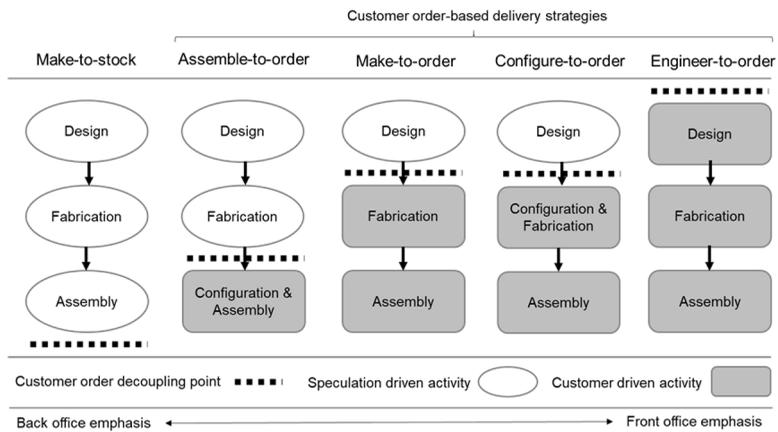
standard products are produced to stock in high volumes in a stable and repetitive environment, in which there is no customer involvement in the design or production (Olhager, 2003). Relating to the separation of the back office and front office, MTS is heavily back office-oriented in designing and producing products, whereas the front office responsibilities can be more restricted as an effect of the standardized offering. On the other side of the spectrum is the engineer-to-order (ETO) strategy, as shown on the right of the figure, in which highly customized products are designed and produced according to the customers' unique needs (Gosling and Naim, 2009). Various functions and competences are required to be in direct customer contact to define the product to be designed and produced (Engström and Käkelä, 2019), meaning that engineers, planners and purchasers who are otherwise back office associated instead step forward to the front office. These two polar opposites – MTS and ETO – represent profoundly different environments, with the former associated with mass production and standardization and the latter with tailored customization and highly complex project-based operations (Reid *et al.*, 2019; Yang, 2013). In between are assemble-to-order (ATO), make-to-order (MTO) and configure-to-order (CTO) strategies. MTO is similar to MTS in that it represents a standard product, but the product is not produced until after receiving a customer order, for instance, because of the perishability of the product or unsuitability of the product to stock. ATO and CTO are closely related to each other, both allowing for customization yet constraining customers to choose among predefined modules (ATO) and/or scales and items (CTO) (Simpson, 2004; Song and Zipkin, 2003) that have been defined in advance based on speculation. In this context, the back office can benefit from a stable, mass production-like environment, such as for MTS, which is in accordance with the promises of the business concept *mass customization* (Fogliatto *et al.*, 2012), while the front office is responsible for guiding customers to a suitable solution within the scope of a predefined product offering (Forza and Salvador, 2006; Salvador *et al.*, 2009).

Typical for organizations in the COBC is to cater to a combination of MTS, ATO, MTO, CTO and ETO deliveries, and these deliveries are carried out in parallel, where the back office and front office emphases vary between customer orders. This poses a challenge for the organization's flexibility repeatedly requiring organizational adjustments to what the customer and task demand; however, this ultimately creates possibilities for learning in the organization.

3. Dynamic view of learning in the customer order-based context
Two key dualities related to delivery strategies and organizational units in the COBC were identified in the analysis. These dualities are intertwined and explain the context-typical factors that decision-makers frequently need to consider and relate to and where each customer order fulfillment process may call for different stances and learning activities.

3.1 Duality 1: standardization vis-à-vis customization – learning for and learning from
Whether a work process is standardized or customized impacts the type of knowledge required to design the activity. In ETO, each customer order implies explorative activities, such as thinking in new ways, testing ideas and experimenting, sometimes in collaboration with customers and/or suppliers. In these cases, there is a development aspect to consider where the organization cannot rely on standards; this is associated with uncertainty and risk according to the developmental learning logic (Engström and Wikner, 2017). Learning that takes place is largely experience-based and bottom-up and requires reflection in real time and on a daily basis. Recurrent evaluations are required so that the knowledge developed can be of use for future customer order fulfillment processes. Even though the customer

order fulfillment process is heading toward innovation and new knowledge, existing knowledge is still important to account for prior experience but also to reflect on and identify any knowledge gaps and the need for new competences. At the same time, the organization needs to express and explain what knowledge and competences they can offer to customers (Engström and Käkelä, 2019). Here, a customized activity is related to an individual customer, where the organization needs to exploit existing knowledge and develop new knowledge in close dialogue with a specific customer. Thus, ambidextrous learning based on an explorative mode is key for highly customized offerings, where both explorative and exploitative activities need to be put into action. If there is an excess of presumptions and existing knowledge, the innovativeness required to accommodate unique customer needs may be hindered.

In contrast, standardized activities need to relate to what the market needs as opposed to what an individual customer need. Learning about market needs requires forecasts or speculation, for example, via market surveys, to be used as a basis for standardization. Standardized offerings are based on ambidextrous learning grounded in an exploitative mode, or the organization's existing knowledge, where exploitative activities are required in the daily work. The learning that takes place is largely based on the organization's cognition, is top down and requires reflection in real time and on a daily basis. Systematic follow-ups of existing knowledge and reflection occur sporadically, retrospectively and via planned initiatives to improve processes or develop new offerings. Here, an excess of explorative activities will hinder efficiency, as Engström (2014) concluded. Learning rarely occur in relation to specific customer orders but instead to develop or improve a standardized offering targeting an entire market. For standardization-based customer order fulfillment processes, such as ATO, which is based on standard modules and MTO, particularly MTS, which is heavily standardization based, exploitative activities are required; here, the work is performed in accordance with the rules and routines that have been developed and arranged in advance (Ellström, 2006a, 2006b) so that the process can be efficiently performed and maintain a certain level of quality.

For both standardization-based and customization-based processes, there is a need for routine and reflection. Reflection that occurs on a daily basis for ETO can be the basis for new routines and the standards for CTO, MTO, ATO and MTS. Knowledge developed through retrospective reflection of standardized procedures can become a point of departure for ETO processes. There is a dependency between standardization and customization that organizations with a variety of product offerings can make use of. Moreover, organizations in the COBC have the potential to learn both *for* the specific customer order at hand, understanding the customer's needs and providing a solution accordingly, which is in line with Boud's (2006) concept of productive reflection, but also *from* customer orders for the sake of developing routines, procedures and processes to benefit future customer order fulfillment processes, which is in line with Ellström's (2006) argument that knowledge from specific instances needs to have a beneficial application for a wider area. This is also related to Schön's (1983) two types of reflections: reflection in action (learning *for*) and reflection on action (learning *from*):

P1. Learning in the COBC can occur both in real time but also in retrospect and with sporadic and recurrent interventions, here depending on the extent to which the customer order is based on customized or standardized work. If carefully arranged, the routines and reflection for customization and standardization can foster and enable each other based on which type of activity needs to be performed.

P2. Learning in the COBC can occur for, as well as from, a customer order, in MTS, ATO, MTO, CTO and ETO processes.

3.2 Duality 2: the back office vis-à-vis the front office – learning within and learning between units
Work processes in the front office, which focus on external effectiveness and flexibility toward customer demands and that are related to customer-driven activities and a high degree of customer involvement with various functions and competences involved in producing low volumes of customized products, are strongly supported by exploration. With a high degree of customization, more functions are in direct contact with the customer, and there is a need for an interplay between functions to create shared knowledge about the customer's needs. Exploration of new knowledge needs to be facilitated in the specific customer order fulfillment process. Learning cannot fully rely on predetermined work processes and efforts to stabilize work processes need to be made while fulfilling a customer order, as in ambidextrous learning based on the explorative mode (Sollander and Engström, 2021). This applies particularly to ETO, where several functions typically need to explore for new knowledge to respond to unforeseen customer needs and to a limited extent CTO, which also requires responsiveness but within the scope of predetermined customization possibilities.

Work processes in the back office, which focus on internal efficiency and cost reductions, which are related to speculation-driven activities without customer involvement, and which have high volumes of standard products and repetitive operations, are strongly supported by exploitation. To stabilize and refine these work processes, existing knowledge serves as the basis for the standards, routines, or procedures, where rules are agreed upon and procedures are adopted. To reduce variety, standardization and repetitiveness are key. Fewer functions are in direct contact with customers, and the need for an interplay between functions can be regulated in established routines and work processes. Rather than being related to a specific customer order fulfillment process, exploration can be initiated by planned change processes, for instance, when developing a new product generation, as in ambidextrous learning based on the exploitative mode (Sollander and Engström, 2021). This is particularly applicable to MTS, ATO, MTO and CTO because these delivery strategies can rely on relatively stable customer order fulfillment processes; this is in contrast to ETO, where the accommodation of the customer's unique needs implies limited possibilities for repetitiveness and exploitation.

The delivery strategies in the COBC have different implications for ambidextrous learning dynamics, which, from an organizational perspective, can be described by the decoupling of the back office and front office. For functions that are engaged in both standardization-based and customization-based processes, there can be substantial possibilities to learn different things by shifting between being a front office and back office resource. Learning within and between functions in the COBC can then occur when functions are involved in customer order fulfillment processes that have different degrees of standardization and customization:

P3. Learning in the COBC varies and will depend on the delivery strategy.

P4. Learning can be stimulated by the variation in priorities among customer orders in the COBC because the work characteristics for the back office and front office differ between customer order fulfillment processes.

P5. Learning in the COBC can occur both within the back office and front office but also between these organizational units.

4. Discussion

The current study's results on the dualities show that parallel work processes in the COBC trigger learning for and from a customer order task, as well as within and between units in the organization. Two areas for discussion are accounted for: the first area promotes learning infrastructures as means to create flexible structures for learning in COBC, and the second area introduces a learning office as the part of an organization that is responsible for ensuring learning within and between the back office and front office.

4.1 Building a learning infrastructure in the customer order-based context

The dualities that arise between the logics of standardization and customization and between work in the back office and front office depend on having flexible structures for learning. In an organization where many types of customer order fulfillment processes are run in parallel, one logic may have to be emphasized in instances where the other logic is held back and vice versa. The developments and learning in one project can be standardized, providing efficiency in the next project. Because learning occurs in the front office, knowledge can also be of importance for the back office. To continuously have both these organizational units in sight can be referred to as paradox thinking (Smith and Lewis, 2011), meaning that two different interests are considered at the same time rather than singularly focusing on one or the other. In the industrial context, the tendency has historically been to enable efficiencies through standardization, where flexibility and creativity among workers have been suppressed; this is the basis for the "intellectual blind spot" mentioned by Aastrup and Halldórsson (2008) and the prioritization of exploitation at the expense of exploration (March, 1991). To improve competitiveness by also catering to customer-specific needs requires an awareness of how exploitative and explorative activities, on the one hand, depend on each other but, on the other hand, need to be managed in different ways for them to not hamper each other (Engström, 2014). There is a need for awareness and structures for various learning activities that relate to the different types and combinations of customer order fulfillment processes, such as in the COBC.

Although learning in organizations occurs independently of an organization's specific business area, previous research has shown that learning often occurs in implicit work processes and becomes stuck at an individual level (Ellström, 2006a, 2006b). However, there is a great amount of potential for organizations in the COBC to become learning organizations, but this requires the organization to build a visible and effective learning infrastructure, as well as a unit for taking care of the arrangements and evaluation in relation to learning. In this context, organizations need to ensure that learning structures can be flexibly applied because too rigid and fixed learning structures typically struggle to meet the diverse needs of the COBC. A learning infrastructure can basically function as a portfolio of learning activities to be situationally used, where organizations both can strengthen ambidextrous learning in relation to specific customer order tasks – in comparison with Schön (1983) reflection in action – but also build an ambidextrous learning organization through reflection on action (Schön, 1983); doing this enables both flexibility and efficiency at the same time, which Eisenhardt *et al.* (2010) called for.

Ultimately, to prevent suboptimizations, it is important that the back office and front office have structures for joint learning to provide clarity to their respective roles in relation to each other and the customer order fulfillment processes. Therefore, learning infrastructures need to include routines that can ensure that learning occurs between different parts of the organization.

4.2 Introducing a learning office in the customer order-based context

The current study has highlighted priorities for different delivery strategies in COBC for improving both internal efficiency and external effectiveness in the organization based on learning that transpires in relation to customers and customer orders. Priorities can be based on work in the back office or front office, where an important factor for task design is if the task is performed in direct contact with customers. This way of thinking about organizing differs from the functional layout (also referred to as process layout) (Slack and Brandon-Jones, 2021), which instead focuses on internal efficiencies and local or administrative processes. Having a strong function-based organization can lead to functions becoming inflexible because they are either strictly back office or front office. The present study demonstrates the importance of functions being able to act both as back office and front office, depending on what the delivery strategy requires. The current study also highlights customer orders as boundary objects (Carlile, 2004), which not only trigger cross-functional learning (Majchrzak *et al.*, 2012) *per se* but are highly dependent on integrating knowledge expertise from different functions to fulfill complex task. A mid-office concept has been suggested in previous research (Chase, 1978; Shostack, 1984) as a link between the two units in coordinating and supporting their respective priorities. The mid-office concept has, for example, been based on the need for the back office to support the front office with technical competence in relation to customers (Silvestro and Lustrato, 2015), but the present study has adopted a learning perspective when looking at the mid-office, arguing that organizations need stakeholders that take responsibility for learning. Although reflection in action takes place in the front office and back office separately throughout customer order fulfillment processes, we propose that the role of the mid-office is, from an ambidextrous learning perspective, to function as a *learning office*. The role of the learning office is to establish a learning infrastructures that require reflection on the actions undertaken in the customer order fulfillment processes. It is imperative that the learning infrastructures are not solely bound to the separation of the back office and front office because there is considerable potential for ambidextrous learning in the space between them. This is shown in Figure 4, which illustrates the ambidextrous learning process in the space between the back office and front office, where the learning infrastructure nourishes learning for the sake of improving both the internal efficiency and external effectiveness across the organization.

5. Conclusion

Based on a dynamic view of work processes, the current study has described ambidextrous learning in organizations within the COBC, where organizations have the potential to make use of customer order fulfillment processes as a basis for building an ambidextrous learning organization. The interplay between standardized and customized work – a key characteristic of the COBC – has been highlighted as an important factor for the type of learning that takes place. It has been proposed that learning is required both *for* customer
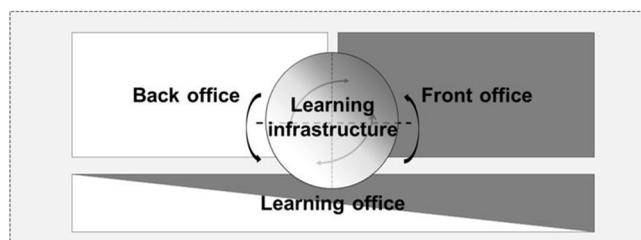
Figure 4.
Building a learning infrastructure from ambidextrous learning

orders to fulfill the task at hand and *from* customer orders to benefit future work. Changes in the priorities for functions within the organization, where, for instance, engineering can vary between being a back office or front office function depending on the delivery strategy, can stimulate learning. There is also great potential for learning between the back office and front office. Overall, organizations in the COBC can benefit from building a learning infrastructure that functions as a flexible portfolio of structures, routines and procedures for learning, one where a learning office functions as a coordinating unit.

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