



**UNIVERSITY  
OF TURKU**

Turku School of  
Economics

# **Start-up team's collective cognitive schemas in nascent markets**

Department of Management and Entrepreneurship  
Master's thesis

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16.3.2023  
Turku

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Master's thesis

**Subject:** Entrepreneurship

**Author:** Joanna Purosto

**Title:** Start-up team's collective cognitive schema in nascent markets

**Supervisor:** Prof. Ulla Hytti

**Number of pages:** 64 pages + appendices 3 pages

**Date:** 16.3.2023

In their early stages, start-ups often modify their business model to innovate and align their scarce internal resources to the evolving market needs. In essence, a business model is a cognitive schema that is shared across the start-up team members. It is this collective understanding of the business model that determines the start-up's success. However, there is a lack of studies investigating how a mutually recognized business model takes shape through a learning process in nascent markets when there is just a vague idea of an arising market need.

To fill the research gap, this study draws on a qualitative multiple-case study based on interviews with three start-up key decision-makers from two start-ups. Data collection combined narrative, visual, and interview methods. In the first phase of the interview, interviewees described their company story from inception to this date. Only a little guidance was given for the first phase to not steer the founding story, but to give more room for surprising findings. In addition to describing the story, Company A's interviewees complemented their story by drawing a visual timeline on a whiteboard. The second interview phase was conducted as a semi-structured interview with pre-defined main questions and spontaneous follow-up questions.

The empirical research supports the existing literature to a large extent and provides further findings on forming a collective cognitive schema in nascent markets. The study's findings align with the current research in that start-up teams learn about nascent markets like pre-schoolers. The theoretical framework of Parallel Play explains that start-ups, like pre-schoolers, learn about the new world by playing next to each other, engaging in hands-on experimenting, and pausing before elaborating on a certain activity system. Further, the 4I organizational learning framework offers depth for organizational-level learning in business model design. It explains how case companies transform learnings from individual intuiting by first interpreting them with the team and then integrating the learning as part of their operations.

In addition to aligning with the current literature, results showed that perception is required to introduce individual's insights on an organizational level to shape a business model. According to the empirical findings, a business model seems to be a collective cognitive schema organized into categories. This research explores the Piagetian stage theory to conceptualize how collective cognitive schemas take shape. The Piagetian stage theory is generally applied in child development, and it describes that 2- to 7-year-old children organize their understanding through categorization; they learn to sort and group objects and experiences based on shared characteristics. Start-ups, like pre-schoolers, need to learn to categorize new information when facing new situations in nascent markets, such as composing their business model. Overall, this research contributes to the current literature by offering a deeper understanding of the business model design in nascent markets and explains how collective cognitive schemas take shape in the new venture learning process.

**Key words:** start-up, nascent market, business model

Pro gradu -tutkielma

**Oppiaine:** Yrittäjyys

**Tekijä:** Joanna Purosto

**Otsikko:** Start-up tiimin yhteinen kognitiivinen skeema orastavalla markkinalla

**Ohjaaja(t):** Prof. Ulla Hytti

**Sivumäärä:** 64 sivua + liitteet 3 sivua

**Päivämäärä:** 16.3.2023

Aikaisen vaiheen startupit usein iteroivat liiketoimintamalliaan innovoidakseen ja käyttääkseen niukat resurssit vastaamaan orastavan markkinan muuttuvia tarpeita. Liiketoimintamallin voidaan katsoa olevan tiimin yhteinen kognitiivinen skeema. Mitä parempi yhteinen ymmärrys koko tiimillä on liiketoimintamallista, sitä paremmin yritys menestyy. Nykytutkimus kuitenkin tarjoaa vain vähän tietoa siitä miten tällainen yhteisesti jaettu kognitiivinen malli oikeastaan syntyy organisaatiotasolla.

Tämä tutkimus pyrkii selvittämään miten orastavalla markkinalla tapahtuvan oppimisprosessin kautta startup tiimit muodostavat jaetun kognitiivisen skeeman – eli liiketoimintamallin. Tutkimus on toteutettu laadullisena tutkimuksena ja aineistona on käytetty kolmen startupissa toimineen päätoimittajan haastatteluita. Aineiston keräämiseksi on yhdistelty kolmea eri tutkimusmetodia; narratiivinen-, visuaalinen- ja haastattelututkimusmetodi. Haastattelun ensimmäisessä osassa haastateltavia pyydettiin kuvaamaan yrityksen matkaa alkuvaiheesta nykypäivään. Lisäksi toisen tutkittavan yrityksen haastateltavat piirsivät yrityksen kehityskaaren valkotaululle kertoessaan tarinaa. Haastattelija antoi tähän osioon vain hyvin vähän ohjeistusta, jotta tehtävänanto ei ohjannut haastateltavaa keskittymään vain johonkin tiettyyn aihealueeseen. Haastattelun jälkimmäinen osa suoritettiin puolistrukturoituna haastatteluna, jossa tartuttiin ensimmäisen haastatteluosion tarinassa esiin nousseisiin tapahtumiin.

Tutkimuksen empiirinen aineisto tukee suurelta osin olemassa olevaa kirjallisuutta ja tarjoaa tämän lisäksi uusia löydöksiä siitä miten nuoret yritykset muodostavat jaetun kognitiivisen skeeman orastavilla markkinoilla. Tutkimuksen löydökset yhtenevät aiemman kirjallisuuden kanssa siinä, että startupit näyttävät käyttäytyvän kuin esikouluikäiset oppiessaan ympäröivästä maailmasta. Parallel Play niminen teoreettinen viitekehys on tuttu lasten kehityskirjallisuudesta, ja sitä voidaan soveltaa jäsentämään startupien oppimista. Esikouluikäiset lapset, kuten startupitkin, leikkivät toistensa vierellä, mutta eivät keskenään, ja pysähtyvät toisinaan tarkastelemaan leikin tuotoksia ennen jatkamista. Leikki on myös aina käytännönläheistä. Lisäksi aiemmasta kirjallisuudesta tuttu 4I organisatorisen oppimisen viitekehys tarjoaa syvällisemmän selityksen oppien muovautumisesta yksilön intuitiosta kohti organisaation yhteistä tietoa ja toimintamalleja.

Paitsi että tutkimuslöydökset tukevat olemassa olevaa kirjallisuutta, on tämän lisäksi havaittavissa tuoreita löydöksiä. Näyttäisi siltä, että konkreettisella havainnoinnilla on suuri rooli siinä mitkä opit organisaatio valitsee integroitavaksi osaksi yhteistä kollektiivista skeemaa. Kaikkien on ensin nähtävä miten uusi oppi vaikuttaisi yrityksen toimintaan ja vasta sen jälkeen liiketoimintamallia on mahdollista muuttaa. Empiirisen aineiston perusteella liiketoimintamalli on kollektiivinen skeema, joka muovautuu kategorisoimalla uutta tietoa. Tutkimuslöydösten jäsentämiseksi tutkimuksessa verrataan Piaget'n vaiheteoriaa lapsen kehityksestä tutkimuksen empiirisiin löydöksiin. Piaget'n vaiheteoria kuvaa, että 2–7 -vuotiaiden lasten ymmärrys ympäröivästä maailmasta kehittyy nimenomaan kategorisoimalla opittuja asioita. Samalla tavalla startupit kategorisoivat uutta tietoa ja tätä kautta muovaavat liiketoimintamalliaan. Tämä tutkimus tarjoaa syvemmän ymmärryksen siitä, miten liiketoimintamalli syntyy orastavalla markkinalla.

**Avainsanat:** startup, orastava markkina, liiketoimintamalli

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## 1 Introduction and background

In their early stages, start-ups often modify their business model to innovate (McDougall & Oviatt 1996; Ghezzi & Cavallo 2020) and align their scarce internal resources to the evolving market's needs (Hanlon & Saunders 2007; Katila & Shane 2005). Start-ups deliberately experiment with different approaches to find a viable business model (Felin et al. 2019) that, according to prior research, predicts firm performance (Zott et al. 2011; Lambert and Davidson 2013; Foss and Saebi 2017; Massa et al. 2017). Moreover, a new venture team's collective understanding of its business model determines the start-up's success (West III 2007). However, there is a lack of studies investigating how a mutually recognized business model takes shape through a learning process in nascent markets when there is just a vague idea of an arising market need.

McDonald & Eisenhardt's (2019) theoretical framework of Parallel Play explores how start-up teams learn about a nascent market and design novel business models accordingly. The theory springs from child development literature, saying that parallel play is a learning process for pre-schoolers. Pre-schoolers are interested in what others are doing, mimic their actions, and sometimes grab others' toys. According to McDonald & Eisenhardt (2019, p. 483), this is precisely how start-ups in nascent markets behave to design a business model: "--they (1) borrow from peers and focus on established substitutes for their services or products, (2) test assumptions, then commit to a broad business-model template, and (3) pause before elaborating the activity system". However, even though the theoretical framework of Parallel Play offers a comprehensive process description of how cognition, action, and timing intersect to enable business model design, it lacks a deeper explanation of how the start-up team forms a mutual understanding of their business model. In this study, the process description – Parallel Play – is accompanied by the 4I organizational framework that explains how new venture learnings transform from individual intuiting into an organization's shared understanding. The theoretical framework of parallel play and the 4I framework together helps understand the new venture team's collective learning mechanisms in nascent markets.

Current entrepreneurial literature provides little information about organizational-level learning in new venture teams. Moreover, it does not offer prior evidence for how start-up teams compose their individual learnings into a business model. Hence, this research aims to answer two research questions:

- 1) How do start-up teams learn about a nascent market?
- 2) How are these learnings composed into a mutually recognized business model?

This study focuses on start-up teams in nascent markets where learning about emerging customer needs, arising market, and appropriate business model become life-and-death questions. The empirical part of this study aims to answer research questions, and the data collection is conducted as a qualitative multi-case research approach combining narrative, visual, and interview-based research methods. First, the participating companies are asked to describe their venture's story from its inception to the present. Then, the researcher dives deeper into the story by asking semi-structured interview questions about learnings in some of the most significant culmination points in the venture's journey. The qualitative data collection aims to offer one possible conceptualization for how a mutually recognized business model takes shape through start-up team members' learnings and interaction. This study complements the theoretical framework of Parallel Play by providing a more in-depth explanation of business model design on a team level. This research helps understand how individual interpretations of new venture learnings turn into a shared understanding of reality and, further, into a business model that guides the company's direction.

Terms *start-up*, *nascent market*, *new venture learning*, and *business model* are worth defining briefly. This thesis uses the terms new venture and start-up interchangeably, and, according to Blank (2010), a start-up is an organization formed to search for a repeatable and scalable business model. A nascent market is characterized by an ambiguous environment, unclear customers, undefined product attributes, and a lack of a well-established industry value chain (Santos & Eisenhardt 2009). New venture learning is seen as a prerequisite for forming a mutually recognized business model, and it means an accumulation of knowledge that happens through developing the business (Ravasi & Turati 2005). A business model is considered a cognitive schema that includes a value proposition (e.g., a product or a service) desired by the customers and an activity system to deliver that value (McDonald & Eisenhardt 2019).



## **2 New venture learning in nascent markets**

This study aims to understand how entrepreneurial teams form a mutually recognized business model through a learning process in a nascent market. This chapter first defines a business model and how it is designed in nascent markets. Since new venture learning is considered a prerequisite for developing a novel business model, this theory section gives an overview of entrepreneurial learning in new ventures. A deeper dive into the 4I framework is offered to recognize the collective aspect of learning. The 4I framework explains how knowledge transforms from individual intuition to organizational practices.

### **2.1 Business model design in nascent markets**

Considering business models in nascent markets is crucial, since finding a viable business model fast enough can become a life-and-death question for new-born start-ups. Business model design means the introduction of “novel, non-trivial changes to the key elements of a firm’s business model and/or the architecture linking these elements” (Foss and Saebi 2018, p. 201). At the early stages of high-tech start-ups, novel business model seems to link to the growth performance of the company, but it has only limited impact on the later performance. It seems that sticking with the initial novel business model is not enough and, at the later stages, companies need to start optimizing the business model to improve the effectiveness. (Balboni et al. 2019) Hence, firms need to regularly alter their business model over time while they learn and grow their business (Chesbrough 2010; Spieth, Schneckenberg & Matzler 2016).

Start-ups often use agile methodologies to iterate several approaches and design their business model according to the learnings. Agile methodologies are traditionally used in software development to incrementally improve the solution based on client feedback, and these methodologies can be applied to start-up business model design to validate and innovate the business model. (Ghezzi & Cavallo 2020) One of the most popular iterative business model design approaches grounded in an agile way of working is the Lean Start-up method introduced by Ries (2011). The purpose of the Lean Start-up method is to create a constant build-measure-learn loop by conducting rigorous market experiments to collect feedback from early customers (Ries 2011). While practitioners widely adopt the Lean Start-up method, it has gained critique for its quasi-scientific approach that seeks validation only where it is easy to observe and, hence, yields only incremental improvement and not radical innovations (Felin et al. 2019).

### 2.1.1 What is a business model?

A business model is a system connecting organizational activities performed by a focal firm – and by its users and partners – to create value (Zott et al. 2011). Table 1 illustrates that a business model has two intertwined components: a value proposition and an activity system. A value proposition captures the critical value of a product or service that the customers appreciate over the existing solutions, and an activity system is the group of associated resources that construct and deliver the value. (Afuah and Tucci 2000; Amit and Zott 2015) In addition to these two core business model elements, companies need a revenue model to capture the value created (Amit and Zott 2012).

Table 1. Components of a business model adopted from McDonald & Eisenhardt (2019)

<b>Business model</b>	
Value Proposition	Product or service that the customers value over existing solutions.
Activity system	A group of associated resources that construct and deliver the value.
<b>Linked component</b>	
Revenue model	E.g., a subscription-based or another model to capture the value created.

A business model is considered a cognitive schema that is embodied in the value proposition and activity system. In nascent markets, these cognitive schemas point out the direction for the rough product or service prototypes that enable companies to engage with their audience to advance learning. (McDonald & Eisenhardt 2019) Along with the learnings, start-ups align their scarce internal resources to the external requirements (Hanlon & Saunders, 2007; Katila & Shane, 2005), modify their business model accordingly (McDougall & Oviatt 1996; Ghezzi & Cavallo 2020), and, eventually, commit to the most promising value propositions and activity systems (McDonald & Eisenhardt 2019).

### 2.1.2 Parallel play: A framework for business model design in nascent markets

New ventures in nascent markets usually start with an identified problem in the market and a rough idea of the value creation (Ries 2011). Then, in the lack of a solid business model, the companies engage in adaptive learning processes – such as bricolage, trial-and-error, or experimenting – to develop a viable business model (McDonald & Eisenhardt 2019).

McDonald & Eisenhardt (2019) studied five nascent social investment industry start-ups and found out that start-ups that successfully design an effective business model engage in behavior familiar from the child development literature called parallel play. The parallel play process is illustrated in figure 1, and it is “characterized by self-focus and disinterest in comparisons with peers, hands-on building, and an ability to pause and reflect before continuing (McDonald & Eisenhardt 2019, p. 495).” When pre-schoolers learn about a new world, they engage in parallel play, fusing cognition, action, and pacing. Similarly, start-ups that succeed in building a viable business model:

- borrow from peers. Rather than seeing peers as competition to resemble or stand out, they see peers as treasure troves and mimic and borrow from them.
- test several different hypotheses and then commit to a broad business model template.
- pause and reflect before further developing the activity system (=business model).

In figure 1, *adjacent play* means playing next to one’s peers but not with them. As start-ups in nascent markets, children might sometimes borrow from their peers but do not compete or compare themselves to others. Instead, they focus on learning through their play. Nascent markets are characterized by ambiguity and uncertainty. Hence, it does not make sense to adopt the traditional strategy formation process of differentiating and outperforming competitors in a situation where no one has yet proven the winning business model. Borrowing runs counterintuitive to the conventional strategy of optimal distinctiveness, but it is a cheap and fast way to build working prototypes. Solely borrowing is not likely to lead to an ideal business model but enables building a good-enough solution for quick learning. (McDonald & Eisenhardt 2019) What start-ups in nascent markets should see as their primary competition are the established substitutes. For example, in McDonald & Eisenhardt’s (2019) study, successful fintech start-ups in the nascent social investment market considered established investment and wealth-management firms as their competition instead of competing with other new market entrants.

*Hands-on learning* and experimenting have become the industry standard for early-stage start-ups (Bocken & Snihur 2020), and start-ups engaging in parallel play in nascent markets make no exception. According to McDonald & Eisenhardt (2019), successful

start-ups did not just experiment and learn but committed to a broad activity model and spent their scarce resources only on that. The failed start-ups either wavered between several activity models or committed to some model without testing. When young children play, they also test multiple toys, play for a while, and then commit to the one that excites them the most.

Successful start-ups in nascent markets pause for reflection before continuing and optimizing the initial general business model they committed to. If the business model is nailed too early without waiting and looking around, it can become very costly to pivot the whole business model later. Start-ups can define, for example, their product and have a vague idea of delivering and capturing value, but a deliberately unfinished business model gives the flexibility to adapt to the evolving market need. Also, pre-schoolers engaging in parallel play stop and reflect on their projects. (McDonald & Eisenhardt 2019)

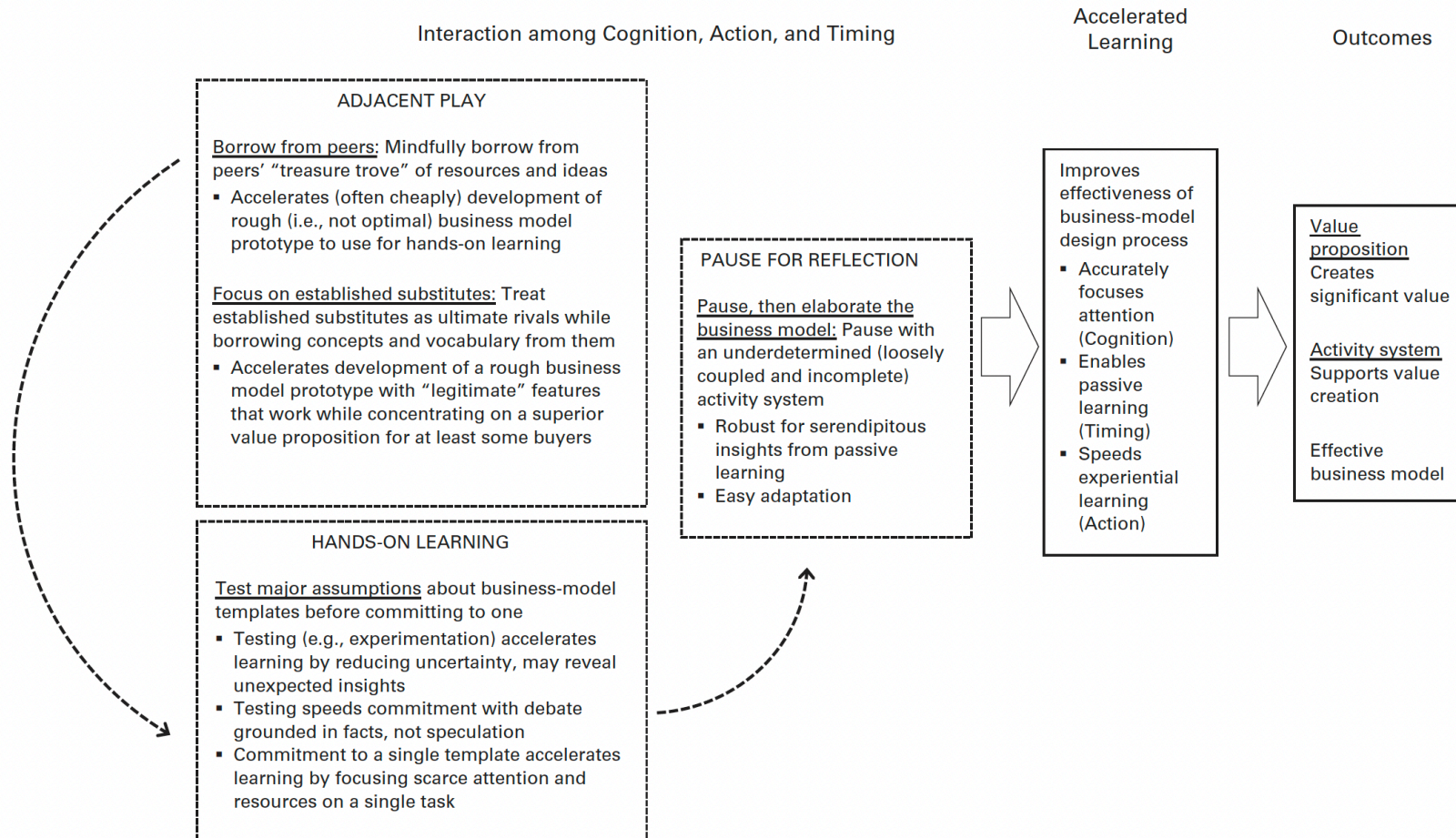


Figure 1. Parallel Play: A process for effectively designing business models in nascent markets (McDonald & Eisenhardt 2019, p. 512)

Figure 1 illustrates that for start-ups, the aim of the process of parallel play is to learn about the new market and understand how to create value. Cognition, action, and timing intersect to accelerate learning resulting in a value proposition and an effective activity system (e.g., a business model) suitable for a nascent market. According to McDonald & Eisenhardt (2019), parallel play is a novel pathway to optimal distinctiveness and effective business model design.

## 2.2 New venture learning

Entrepreneurial learning is an emergent research area that has increasingly interested researchers for the last couple of decades (Wang & Chugh 2014). In this study, entrepreneurial learning is conceived as a process that happens through the new venture development (Ravasi & Turati 2005) and incorporates the learning of the whole venture team (Berglund et al. 2007). Furthermore, Minniti and Bygrave (2001, p. 7) state that ‘entrepreneurship is a process of learning, and a theory of entrepreneurship requires a theory of learning.’

According to Wang & Chugh (2014), prior entrepreneurial learning research can be divided into three pairs of learning types briefly described in Table 2: 1) individual and collective learning, 2) exploratory and exploitative learning, and 3) intuitive and sensing learning.

Table 2 Entrepreneurial learning types according to Wang & Chugh (2014)

Pair	Entrepreneurial learning types	Description
1	Individual learning	“--considers how entrepreneurs themselves acquire new skills and gather new information (Capello 1999, p. 354) --”
	Collective learning	“--social process of cumulative knowledge, based on a set of shared rules and procedures which allow individuals to coordinate their actions in search for problem solutions (Capello 1999, p. 354).”
2	Exploratory learning	“Experimentation with new alternatives (March 1991, p. 85).”
	Exploitative learning	“Refining and extending existing competencies, technologies, and paradigms (March 1991, p. 85).”
3	Intuitive learning	“--abstract thinkers (Wang & Chugh 2014), who form knowledge through discovering possibilities -- (Felder and Silverman 1988).”
	Sensing learning	“--sensing learners are practical thinkers (Wang & Chugh 2014) who form knowledge through external

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physical sensation that can be identified as a fact  
(Felder and Silverman 1988)."

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Individual learning considers how entrepreneurs themselves acquire new skills and gather new information. In contrast, collective learning is a 'social process of cumulative knowledge, based on a set of shared rules and procedures which allow individuals to coordinate their actions in search for solutions' (Capello 1999, p. 354). March (1991, p. 73) identifies individuals as a source of learning that is then accumulated at an organizational level and stored in the organization's procedures, norms, rules, and forms. Dutta & Crossan (2005) highlight the organizational side of entrepreneurial learning and describe collective learning as incorporating two essential processes: 1) 'the process of developing shared understanding amongst individuals and taking coordinated action through mutual adjustment' and 2) 'the process of ensuring that routinized actions occur.' This study focuses on a new venture team's collective learning, and it is primarily this social and interactive nature of learning that distinguishes collective learning from individual learning.

Explorative learning is about assimilating new learning, which is especially needed in uncertain environments (Wang & Chugh 2014), whereas exploitative learning is about making use of what has already been learned (Dutta & Crossan 2005). Exploitation concerns developing new knowledge based on the existing assets – network, markets, product, skills – whereas exploration is about generating novel knowledge beyond what is already known (March 1991).

Intuitive and sensing learning offer another point of view for understanding how new venture learning occurs (Eckhardt and Shane 2003; Venkataraman 1997). Intuitive learners are seen as abstract thinkers (Wang & Chugh 2014) who form knowledge through discovering possibilities and understanding the relationship of facts (Felder and Silverman 1988). Sensing learners are practical thinkers (Wang & Chugh 2014) who form knowledge through external physical sensations that can be identified as fact (Felder and Silverman 1988). E.g., intuitive learners are likely to form a new concept based on theoretical thinking, whereas sensing learners find opportunities by analyzing the conditions around them (Wang & Chugh 2014). Shane (2003) argues that entrepreneurial opportunities might exist in the world, but it requires an entrepreneur's subjective

comprehension and acts to exploit the opportunity. Hence, exploring and exploiting an entrepreneurial opportunity may require both intuitive and sensing learning.

### 2.2.1 New venture team's collective learning

The importance of entrepreneurial teams is recognized, for example, by venture capitalists who usually stress the value of a well-functioning founding team (Cyr et al. 2000; Zacharakis & Meyer 1998) and entrepreneurship teaching that often highlights the significance of the team in the start-up process (Timmons 1994). The founding team's collective understanding enables team cohesion, steers the company's development, and positively correlates with the success of a new venture (West III 2007; Chen et al. 2017).

This study aims to comprehend how new venture learnings are transformed into a mutually recognized business model. And since the business model is seen as a collectively shared cognitive schema (McDonald & Eisenhardt 2019), collective learning is especially interesting in this study's context. Therefore, one can expect that collective learning must happen for the collective schema to form and evolve. To bring clarity to the new venture team's collective learning and shared cognitive schema, two terms are worth explaining:

- 1) cognition and
- 2) cognitive schema.

According to Ulrich Neisser, sometimes titled 'a father of cognitive psychology', cognition means "all the processes by which the sensory input is transformed, reduced, elaborated, stored, recovered and used (Neisser 2014)". Whereas a cognitive schema is a single unit of categorized knowledge that helps interpret information about an event or a subject (Piaget 1976) and allows people to take shortcuts in decoding information (Cherry 2023). Entrepreneurship scholars tend to mix and use both terms interchangeably. De Mol et al. (2015, p. 243), for example, describes both cognition and schemas in their definition of a new venture team's cognition: "[New venture team's cognition] is an emergent state that refers to how knowledge is mentally organized, represented and distributed within the team and allows entrepreneurial team members to approach problem-solving and make assessments, judgments or decisions concerned with milestones and outcomes relevant to the entrepreneurial process, such as identifying and evaluating different opportunities or defining and implementing launch and growth strategies."



Figure 2 illustrates that learning through interacting with others and the environment leads to collective cognition (Weick and Roberts 1993), a central concept for processing, storing, and using knowledge. In turn, a shared cognitive schema is a single unit of knowledge and a sub-concept of the new venture team's collective cognition.

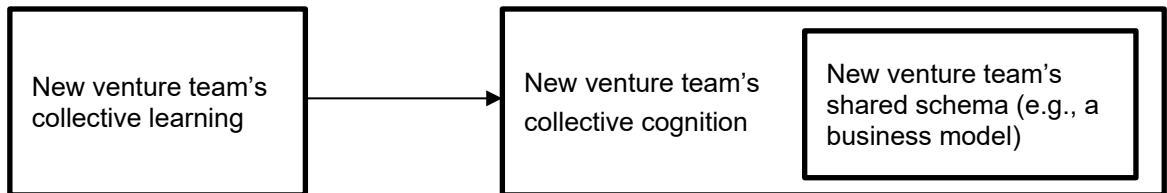


Figure 2. Relation between collective learning, collective cognition, and collective schema

West III (2007, p. 79) describes that entrepreneurial team collective cognition means the collective perspective of the venture in the marketplace that 'facilitate or impede organizational alertness, intentions, transactions, and other dimensions important in successfully carrying out the work of the venture.' In the new venture setting, collective cognition is informed by individual cognitions, changes in the core team, organizational processes, and other industry information, as illustrated in figure 3. West III (2007, p. 83) states that a venture team's collective cognition is 'an antecedent to new venture performance because performance will be a by-product of the cause-effect strategic understandings and actions embraced by the team.' Cumulative knowledge defines how new ventures operate in their environment and how the new information is treated and integrated into existing schemas that trigger action (West III 2007).

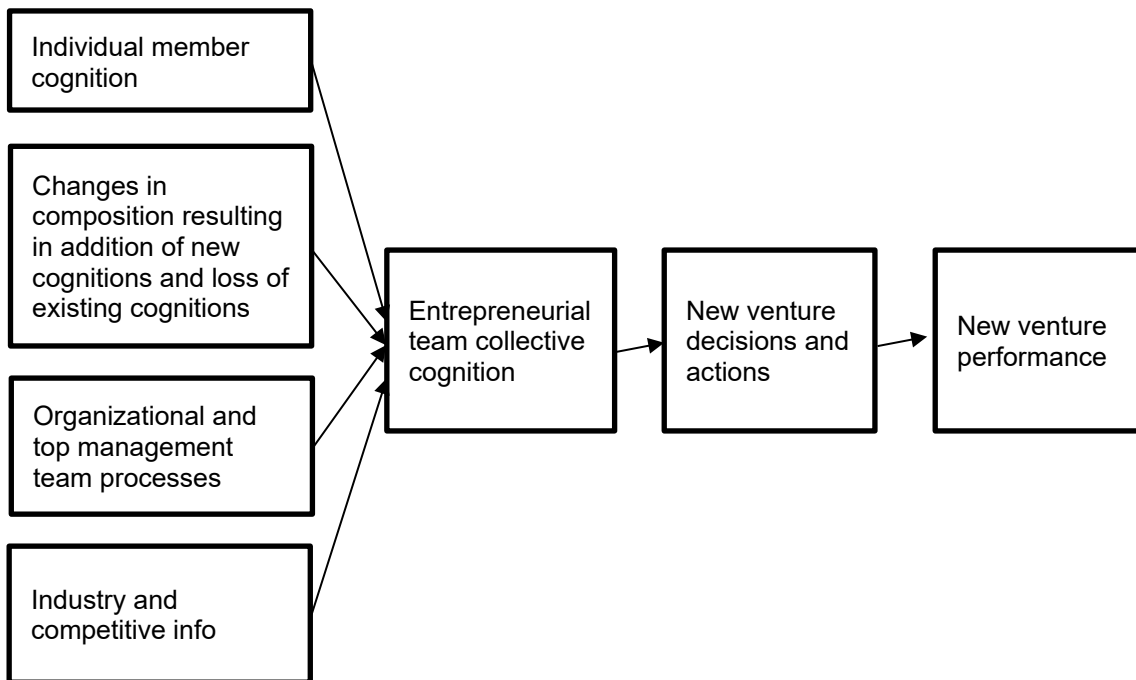


Figure 3. Model of entrepreneurial collective cognition (West III 2007, p. 83)

While it might be tempting to conclude that a collective schema is a sum of individuals' mental models, this is not the case (de Mol et al. 2015; West III 2007). The collective congregated schema seems to include only the concepts that make sense for all individuals (Cossette & Audet 1992). Even though individuals bring their varying learnings and viewpoints to the group, teams eventually develop a shared understanding (Mohammed & Ringseis 2001) to ground their future actions and decisions. Entrepreneurial team's collective schemas define what activities are pursued, how resources are allocated, and how new challenges are faced (West III 2007). Hence, it can be concluded that collective schemas are an outcome of collective learning. Shared schemas enable effective operations, which is vital for venture success especially in the early days when scarce resources must be used wisely.

### 2.2.2 The 4I framework of organizational learning

The 4I framework – initially created by Crossan, Lane, and White (1999) – is an organizational learning theory that can also explain how collective learning happens in an entrepreneurial setting (Dutta & Crossan 2005). The 4I organizational framework lays out four processes that morph individual learnings into organizational knowledge, and Dutta & Crossan (2005) apply this framework in depicting entrepreneurial learning. The 4I framework describes how 'learning occurs at multiple organizational levels' (Dutta &

Crossan 2005, p. 433). These levels are four separate sociopsychological processes: Intuiting, Interpreting, Integrating, and Institutionalizing, illustrated in Figure 4.

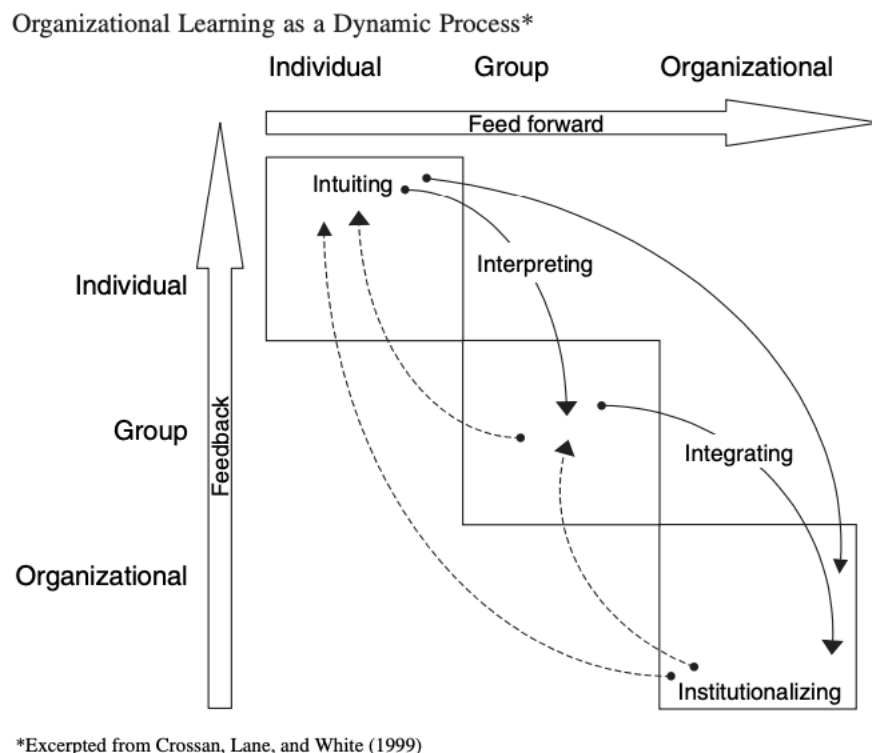


Figure 4. 4I framework (Dutta & Crossan 2005)

*Intuiting* happens preconsciously on a personal level when an individual senses an opportunity based on her experience and recognizes a pattern. *Interpreting* happens when an individual makes sense of the situation and verbalizes her findings and leanings. *Integrating* is initially an ad hoc dialogue between individuals that sets in motion the process of developing shared understanding and presumably leads to coordinated action. If the coordinated action produces meaningful results, the insight that started as individual intuiting is *institutionalized* into a routinized organizational process, system, or strategy. (Crossan, Lane, White 1999, p. 525)

In the context of entrepreneurship, *intuiting* can arise from expert intuition or entrepreneurial intuition – through exploitation or exploration. Expert intuition arises from identifying patterns based on an individual’s previous experience and knowledge. In comparison, entrepreneurial intuition is based on an individual’s creative capacity to recognize possibilities. Intuiting is a preconsciously phase of learning where an entrepreneur identifies a pattern in her environment – e.g., a viable business idea – that intuitively holds the potential to meet a customer's needs. At this point, the idea can still

be vague, and there is only a feeling and an assumption that the idea is worth pursuing. Hence, the intuiting process employs intuitive opportunity creation and pattern recognition-based opportunity discovery. (Dutta & Crossan 2005)

Dutta & Crossan (2005) suggest that *interpreting* is the next step in understanding how entrepreneurial opportunity takes shape. Interpreting, as intuiting, happens on an individual level, but it includes a social aspect in that the individual starts creating language, images, and meaning in their mind but also communicates her insights to other stakeholders. Through this discourse, the entrepreneur further defines and refines the concept and engages with others – co-founders, investors, government agencies, etc. – to implement the idea.

The third step of the 4I framework is *integrating*, which is closely related to the previous interpreting process. Whereas interpreting is about structuring the individual's thoughts around the identified opportunity, integrating is about taking collective action. Dutta & Crossan (2005, p. 438) write that they 'see interpreting and integrating as integral processes that crystallize the several interim steps that arise between the generation of a new business idea in the entrepreneur's mind and its successful implementation as a new venture.' This means that pursuing entrepreneurial opportunity might always require interaction between interpreting and integration processes where the insight is transformed from an individual's vague idea into actionable steps to achieve a shared goal with the stakeholders. Dutta & Crossan (2005) propose that if an opportunity has gone through intuiting, interpreting, and integrating, it is more likely to be implemented than if it had gone through only one or two of these processes.

The final process in the 4I framework is *institutionalizing*, which means operationalizing learnings to the structures and processes at the organizational level. In the context of entrepreneurial opportunity exploitation, this process can be seen happening in ventures that are already thriving and want to, for example, institutionalize intrapreneurship into their corporate venturing units. On an individual entrepreneur's level, institutionalizing means that the entrepreneur herself learns about successful venture creation that then benefits her in future venture creation efforts. (Dutta & Crossan 2005)

Entrepreneurship scholars have identified similar patterns in knowledge transformation from individuals into organizational cognition. West III (2007) describes that a new venture team's collective cognition is facilitated by individual-level cognition, and de

Mol et al. (2015) summarize that entrepreneurial team cognition is an emergent state that takes shape through complex interactions among individuals and originates from individuals' cognitions. Individual entrepreneurs (e.g., co-founders) play a role in discovering and exploiting opportunities (Venkataraman 1997), but it is noticed that entrepreneurial teams drive the entrepreneurial process – also in start-up companies (Kamm et al. 1990).

### 2.3 The initial framework of the study

This sub-chapter combines the literature review into the theoretical framework that guides this research. The framework in figure 5 builds from understanding how start-ups learn and come up with a viable business model in a nascent market by engaging in parallel play and how the four sociopsychological processes of intuiting, interpreting, integrating, and institutionalizing interplay in business model design. To answer the research question, “how does a mutually recognized business model form through a learning process in nascent markets” it is vital to understand how learning in a nascent market and the accumulation of organizational knowledge link together. This study's findings are linked to the compounded theoretical framework in the concluding chapter.

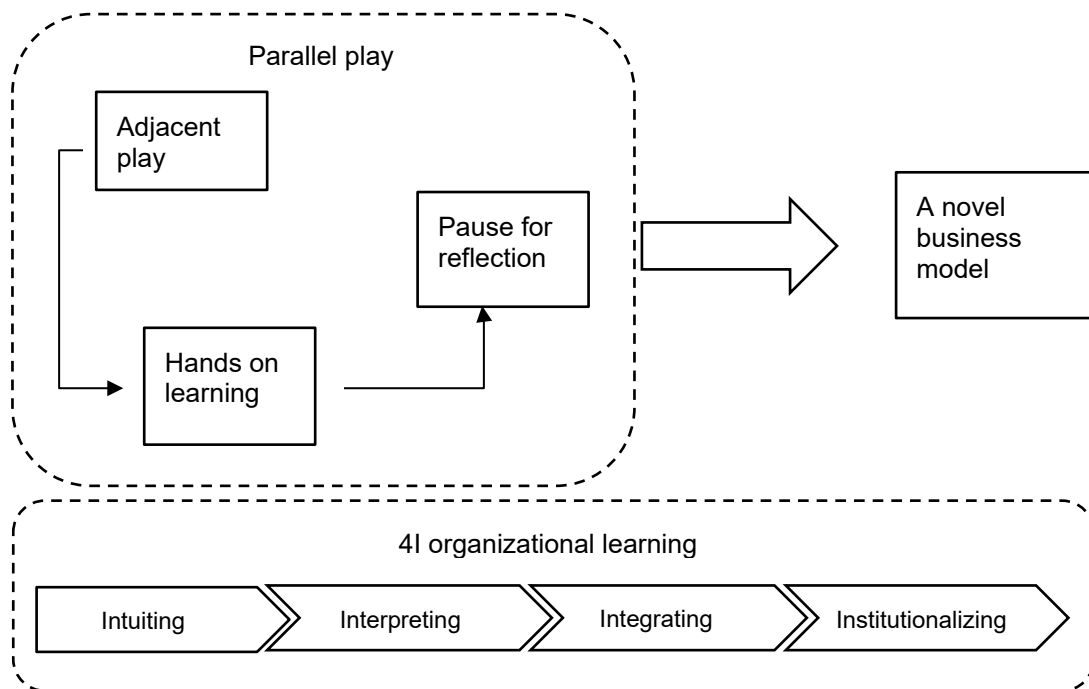


Figure 5. The initial framework of this study based on the literature review

The theoretical framework of Parallel Play states that by engaging in a behavior familiar to child psychology, start-ups find their way to the novel business model (McDonald & Eisenhardt 2019). However, the theoretical framework of Parallel Play does not take a stance on how start-up teams together form a collective understanding of their business model, which is a prerequisite of effective performance (West III 2007). Therefore, the theoretical framework of parallel play is accompanied by the 4I organizational learning theory to give depth to the learning mechanisms on a team level. One could consider parallel play as the physical level of the new venture learning, and the 4I organizational learning theory explains what happens on a more intangible cognitive level. Parallel play is the behavior that a researcher could easily observe by just monitoring the start-up teams. In comparison, abstract accumulation and structuring of new knowledge are harder to perceive by both the researcher and the team members themselves. But since a business model is considered a cognitive schema (McDonald & Eisenhardt 2019), both physical and cognitive levels are meaningful in studying how start-ups in nascent markets come up with a viable business model.

### 3 Research design

The theoretical framework of Parallel Play describes the process of designing business models in nascent markets by acting like pre-schoolers when learning about a new world. However, the theoretical framework of Parallel Play is more like a process description and does not explain how individual team members' learnings morph into a mutually recognized business model. After all, not all ideas and experiments end as part of the final business model.

This multi-case study concerned how the start-up founding team (including the critical decision-makers in the early days of the venture) structured new learnings in a nascent market and formed their business model. The research design is illustrated in figure 6. The research approach was qualitative, and two methods were used to gather the data in two different interview sections. First, a narrative research method was used to let the interviewee describe the company's story from the idea stage to finding a viable business model. This phase of the interview was used to identify the culmination points where the founder or the founding team learned something significant about the market or the business. Then, the second section of the interview was conducted as a semi-structured interview focusing on a few of the most crucial culmination points chosen based on the first section. The data collection was conducted in interplay with the theoretical concepts of business model design in nascent markets and new venture learning.

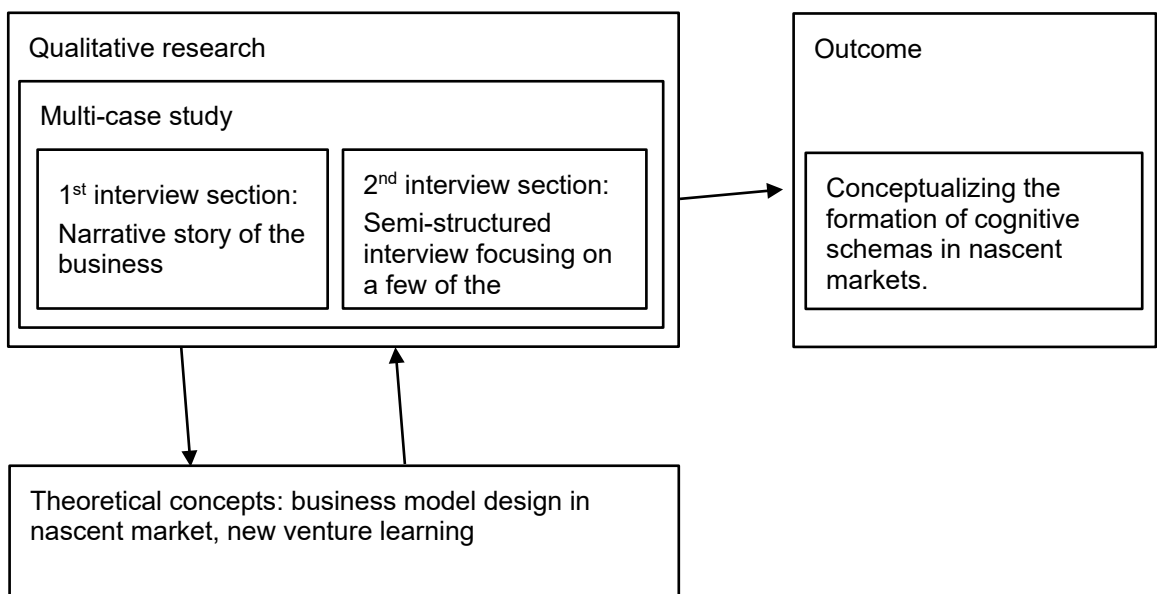


Figure 6. The research design and its linkage to theory and outcome of the study

This research design chapter explains how the empirical part of the research was conducted, why the specific methodologies were chosen, and the justification behind the research design. This part also details the selection of interviewees, data analysis, and evaluation of the study's trustworthiness.

### **3.1 Research approach**

Research approaches are defined by the purpose and meaning of the study (Hirsjärvi et al. 2007, 133). In this study, the purpose was to understand how a business model takes its shape through a learning process in a nascent market. The qualitative research approach was suitable for this kind of study that focuses on cases and narratives (Creswell 2003, 19) and aims at in-depth understanding and interpretation of a phenomenon (Eriksson & Kovalainen, 2008). In addition, Eriksson & Koistinen (2014, 5) write that qualitative study is suitable, especially when there is not much prior study on the topic, which is the case here. Designing business models in nascent markets is a recent research area, and the theoretical framework of Parallel Play was published only in 2019. Also, very few entrepreneurial learning scholars focus on learning at a team level. This study does not aim to make statistical generalizations, but the objectives are related to understanding the learning of a start-up team, and hence, the qualitative approach is apposite (Oinas, 1999). From the epistemological point of view, qualitative research approach reality as socially constructed (Morgan & Smircich, 1980), which is in line with the theory section describing that a business model is a shared cognitive schema that forms through relations between the start-up team members. A collective schema is thus a social construct that guides the actions of the start-up team.

This study relied on an abductive research approach which means that the theoretical and empirical sections were advanced in turns by reflecting on the earlier findings learned during the research process. Abduction means 'moving from the everyday descriptions and meanings given by people to categories and concepts that create the basis of an understanding of the phenomenon described (Eriksson & Kovalainen 2008).' The evolution of the research questions is an example of an abductive research approach in this study. The initial research questions, illustrated in table 4, were defined at the beginning of the study, knowing that they might be modified as the study proceeds and new findings emerge during the interviews. Theory gave a basis for the initial research questions and interview guidelines, but a more thorough dive into the theoretical concepts



was conducted based on the initial interview findings. This also led to re-shaping the research questions.

Table 3. Evolution of the research questions

<b>Initial research questions</b>	<b>Final research questions</b>
<b>Main research question</b>	
How do start-up teams make decisions about the business model in nascent markets?	<ol style="list-style-type: none"> <li>1. How do start-up teams learn about a nascent market?</li> <li>2. How are learnings transformed into a mutually recognized business model?</li> </ol>
<b>Sub-research questions</b>	
How do start-up teams design their business model in nascent markets?	
How are the decisions about which business model experiments to engage made?	
How is the knowledge gained through business model experimenting shared?	

The initial theoretical focus was on decision-making and knowledge sharing, but these turned out to be less critical concepts for start-up teams in nascent markets and had to make room for topics related to new venture learning in nascent markets. It is typical for qualitative research approaches to apply this kind of inductive approach (Hirsjärvi et al. 2007), where the theoretical concepts are not strictly predetermined at the beginning of the study to leave room for surprising findings in the interviews, which also happened in this study.

Qualitative data is collected by interacting with people or by analyzing the data that people have created (Hirsjärvi et al. 2007). This study concerns business model design during the early days of the venture, and a case study method is suitable for capturing such real-life events (Yin 2003, 1-2). Generally, case studies investigate and interpret a particular phenomenon by studying individuals or groups in their environment (Hirsjärvi et al. 2007, 130–131). A multiple-case study approach was adopted to include multiple perspectives and, hence, more insight (Morgan & Smircich 1989) to back the outcome of this study. The interviewees were from two different companies.

### 3.2 Data collection

The most common data collection methods for qualitative research are interviews, surveys, observations, and interpreting the information gathered from documents and physical artifacts (Yin 2003, 83). Data collection methods can be used together depending on the research questions and the available resources (Tuomi & Sarajärvi 2018). This study adopted three different methods that were used abreast: narrative research method, visual research method, and semi-structured interview. The researcher decides the number of cases, and no imperative number of interviewees exists (Pratt 2009). Sometimes it might be enough to study just a single case closely (Hirsjärvi et al. 2007, 177) since the depth of the gathered information is more important than the number of cases (Patton 2002, 227). The qualitative data in this study was collected by interviewing three people. A founder Chief Information Officer and a non-founder Chief Operative Officer from an early-stage start-up (later called Company A). And one founder Chief Marketing Officer from a company that had already reached a unicorn stage (later called Company U). A unicorn means a privately owned company with value over 1 billion US dollars. Having two cases – one that has already proven to be successful and one that still has an uncertain future – produced a versatile view of the research questions and gave more validity to the findings instead of interpreting just a single case.

The first section of interviews was conducted as narrative research that considers understanding reality constructed by language and communication (Eriksson & Kovalainen 2008). Stories are the basis of narrative methodologies (Eriksson & Kovalainen 2008), and interviewees were asked to describe, in the form of a story, their path from inception to a viable business model. The purpose was to map the most relevant culmination points where the start-up team felt they got closer or further away from a functioning business model and learned something new about their market. For interviewees from the early-stage start-up, this first narrative section of the interview was coupled with the visual research method. Interviews were held on the early-stage start-up's premises, and interviewees were asked to draw a storyline of their business model design trajectory while verbally describing their story. Images of their drawings can be found in appendices 2 & 3. Due to the busy schedules of the unicorn company founder, the interview was conducted by phone, and hence the visual part was out of the question for her.

Narratives and stories are about human experiments and actions (Eriksson & Kovalainen 2008), and they offer context and are rich in information (Clandinin & Connelly 2000; Elliott 2005; Riessman, 1993, Eriksson & Kovalainen 2008). For this reason, the narrative research method was well suited for understanding the trajectories leading to an increased understanding of the nascent market and the business. Interviewees' stories already gave a hint about how their learnings were transformed into a mutually recognized business model that was discussed in detail in the second section of the interview.

The second section of the interview was conducted as a semi-structured interview focusing on a few culmination points where the interviewee learned something new about the nascent market or the business. Interviews were chosen as a research method mainly due to their aptitude for creating a picture of interviewees' thoughts, feelings, and experiences and finding motives behind the answers (Hirsjärvi & Hurme 2001). The semi-structured interview was chosen to steer, but not to dictate, the discussion toward the desired direction. Despite the freedom that the semi-structured approach offers, there always needs to be an interview structure in place, and an interview guide was prepared to include the interview themes and questions (Appendix 1). The semi-structured interview can include two levels of questions: main themes and follow-up questions. The main themes included questions about decision-making and knowledge sharing – topics that were initially supposed to be at the core of this study – and interviewees freely described their experiences related to these. In general, follow-up questions can be planned before the interview or be spontaneous and reciprocate the interviewee's answers. One of the main advantages of using semi-structured interviews is to give freedom to address even the unexpected topics that emerge during the discussion (Kallio et al. 2016, 2955), and for this reason, the follow-up questions were not pre-designed in this study. Interesting conversation courses were continued through spontaneous follow-up questions (Kallio et al. 2016, 2960) that allowed shifting the course of discussion when it became evident that the most important findings of this study would not be related to decision-making and deliberate knowledge sharing.

### **3.3 Choosing the interviewees**

Instead of using random sampling, it is common for qualitative approaches to pick the interviewees that best represent the target of the study (Hirsjärvi et al. 1997, 165). Tuomi & Sarajärvi (2009) point out that it is essential to collect the data from persons who have

experience on the matter under research. For this study, it was important that the interviewees had themselves started and worked at a start-up in a nascent market and – since it is essential to pick the most suitable participants (Eriksson & Kovalainen 2008) – the interviewees were founders and active members of the start-up teams under research.

Since the research questions concern start-ups in nascent markets, the start-ups chosen as the research subject operate or have operated in new markets that did not exist when the start-up was founded. The interviewees of this study are listed in Table 5.

Table 4. The companies in nascent markets that were studied

<b>Pseudonym</b>	<b>Industry</b>	<b>Founding year</b>	<b>Market establishment</b>	<b>Employees</b>	<b>Funding stage/ Funding collected</b>	<b>Turnover (2021)</b>	<b>Title of the interviewee</b>	<b>Founder / Employee</b>
<b>Company A</b>	Machine learning tool	2016	2020	15	A/ 2.5M€	321k€	CIO	Founder
							COO	Employee
<b>Company U</b>	Supply chain platform	2005	2008	1500	Unicorn/ 785M€	134M€	CMO	Founder

The early-stage start-up, Company A, was building software for machine learning developers. The company was founded in 2016 when the machine learning and machine learning tooling industry was fragmented and, for the most part, non-existing. Nowadays, the industry term for machine learning tooling is Machine Learning Operations (MLOps), and the Google Trends report in Figure 7 shows that this term started gaining popularity in 2019 – three years after the case company was founded. Therefore, it is safe to say that the company started in a nascent market and fits this study's phenomenon.

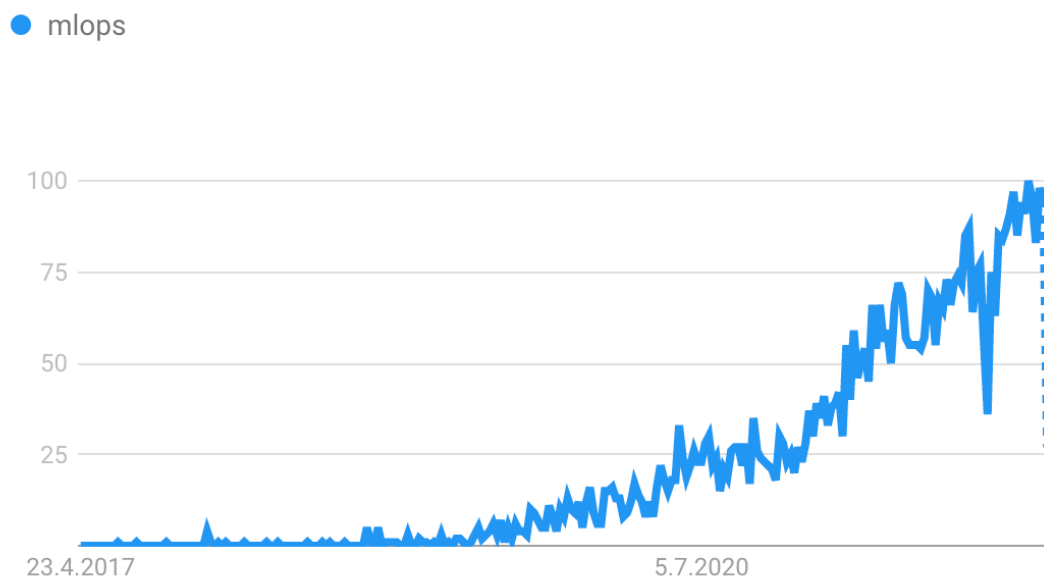


Figure 7. Google Trends report for keyword MLOps on November 15th, 2022

At the time of the interviews, Company A employed 15 people, had raised 2.5M€ worth of investments from venture capitalists, and had 327 000€ turnover in 2021. Two people were interviewed from Company A: 1) a founder and 2) an employee who was a key decision-maker and was hired in the early stages of the venture. Founders and the first employees contributed to forming the business model in the venture's early stages; hence, it was essential to include both viewpoints. They were interviewed at their office in separate interview sessions, and both drew the company's timeline while orally describing their business's evolution.

The second case company, Company U, was founded in 2005 and had raised 785M€ from venture capitalists. Company U was building a data-driven supply chain platform for retailers. While supply chain platforms already existed when the company was founded in 2005, the use of machine learning technologies on those platforms was just emerging. Company U was one of the first to bring automation and sophisticated machine learning

algorithms to supply chain management. At the time of the interview, they had reached a unicorn phase, operated globally, employed 1500 people, and had a 134M€ turnover in 2021. The interviewee from Company U was a technical co-founder operating as Chief Marketing Officer.

### **3.4 Data analysis**

Collecting and analyzing data are often intertwined during the research process, and researchers start analyzing the data already during the data collection phase (Eriksson & Kovalainen 2008, 127-128). For multi-case studies, it is typical to analyze the cases separately before pulling the findings together (Yin 2003, 53-54), which was also done in this research.

This study aims to understand how new venture teams transform their learnings into a business model in a nascent market and is based on process data collected from the start-up founders in their real-life context. Process data consists of sequences of events that have multiple layers, and it is very intricate to analyze processes due to the complexity and ambiguity of the data and interdependencies of events (Langley, 1999). The first section of the interview was focused on identifying the critical events in business model design, whereas the second section of the interview was dedicated to understanding the layers of collective learning and knowledge sharing between team members.

First, the empirical data from the interviews were divided into groups of similar information – this is called coding the empirical data (Eriksson & Kovalainen 2008, 128). Coding means diving the empirical findings into classified groups with a theme as a common denominator. Coding is an inductive-oriented research approach, and the themes are usually extracted from the empirical data, but they can also represent the concepts presented in the prior literature. (Eriksson & Kovalainen 2008, 128-129) This study's themes – or codes – were derived from theoretical concepts, as illustrated in table 6. There were two groups of codes. The first group included the critical characteristics of the theoretical framework of parallel play, and the second group consisted of themes related to the 4I framework. Interviews were transcribed and then color-coded based on these themes. Coding can be open, axial, or selective (Boeije 2010, 15), and in this study, it was a combination of selective and open approaches. In applying the selective coding approach, two theoretical concepts were chosen based on the literature review, and then the empirical data was divided according to these. However, one finding did not fit these

theoretical concepts and was chosen as a separate category: perceivable learning. This represents open coding, meaning the theme was derived from qualitative data findings.

Table 5. Coding of this study

Group	Code
Parallel Play	Nascent market
	Pausing before elaborating
	Borrowing from peers
	Self-focused operations
	Competition with established substitutes
	Hands-on learning
4I framework	Intuiting
	Interpreting
	Integrating
	Institutionalizing
Empirical finding	Perceivable learning

After analyzing the data, the empirical findings were used to contribute to the existing literature on business model design in nascent markets. This is explained in detail in the concluding chapter 5.

### 3.5 Evaluation of the study

One suitable and common option for evaluating a qualitative study's trustworthiness is to use four evaluation criteria by Lincoln and Guba (1985, 300): Credibility, transferability, dependability, and confirmability.

*Credibility* is considered the most crucial criterion for evaluating the study's trustworthiness (Sinkovics et al. 2008, 699). Interviewees were given minimal guidance on how to describe the company story, illustrate the narrative as a drawn picture, and answer the questions asked. This prevented the interviewer from introducing the concepts that seemed promising from the theoretical point of view and gave more room for the interviewees' interpretation of the most important learnings. Interviews included nondirective questions focusing on events and avoided leading and speculative questions to improve accuracy. This study is built based on established theories of business model design in nascent markets and new venture learning from well-known and cited researchers in the business and entrepreneurship literature, which increases credibility.



*The transferability* of the study means that it should be possible to transfer and apply the findings to other similar contexts (Tuomi & Sarajärvi 2009, 138). For this study, transferability was achieved by defining the research context – business model design in nascent markets – and ensuring that the interviewees represent the phenomena under research. The focus of this study was to understand how start-up teams transform their learnings into a mutually recognized business model in nascent markets, and transferability was considered in the interview guide by not making the questions industry specific. Also, case companies match the desired audience and represent the typical start-up in a nascent market, providing accurate insight into new venture learning despite the industry or company.

*Dependability* means how well the study's findings produce a truthful and reliable interpretation of the phenomenon under study (Lincoln & Guba 1985, 299), and this comes down to choosing the samples and data collection methods. Dependability is addressed by describing the research approach in detail and providing the interview guide (Appendix 1).

*Confirmability* means that the study's findings should be clearly explained, and the linkage between the data and the interpretation should be transparent (Eriksson & Kovalainen 2008, 294). Confirmability means that the researcher should approach the phenomenon from an objective point of view (Lincoln & Guba 1985, 300). The researcher has worked for Company A between the years 2018-2020, and, depending on the viewpoint, this can be seen to increase or hinder the confirmability of the study. On the other hand, the interviewees could not rationalize and sugar-coat the company story since the researcher was present in the start-up's early days. Familiarity with the case also allowed the researcher to understand the events described on a deeper level, given that she knows the company culture and other organizational habits and values. The downside of the familiarity of the case is that the interviewees might not explain their thoughts thoroughly, assuming that the researcher had background information. However, this was considered at the beginning of the interviews when the interviewees were asked to describe the story as they would describe it to someone who does not have any prior information about the company. The confirmability of the research was also increased by studying two cases. Company U's founder and the researcher did not know each other prior to this study. Including two case companies made it possible to compare and confirm the findings between the two cases.

Using the above criteria and reasoning related to each, it can be concluded that this research is credible, transferrable, dependable, and confirmable. One critique, however, is that the interviews could have more depth and richness in describing such an intangible and multifaceted concept as a mutually recognized business model. Therefore, in addition to this study, ethnographic research could be conducted next. Ethnographic research would allow studying a start-up team closely for a more extended period to observe how the new learnings shape the business model in practice and what are the intangible forces behind the change.

### **3.6 Ethical implications in data collection**

Every research has some ethical considerations (Bell & Bryman 2007). This study follows the European Union's General Data Protection Regulation (GDPR, EU 679/2016) and ethical guidelines that include informed consent, a duty of confidentiality, anonymity, and risk management (Wiles 2012). The researcher made a data collection plan according to GDPR, and interviewees' first names, last names, emails, and company associations were stored securely, and only the researcher had access to the information. Other information about the company – like the number of employees, funding, and turnover – was collected from public sources, and data protection principles do not apply to this information if the interviewees can't be identified through the company information. The study's purpose, usage of the interview material, and data collection principles were orally described and verified at the beginning of each interview. Interviewees were told that they could skip questions or abort the interview at any time.

Spontaneous follow-up questions were presented as part of this study, which can pose an ethical dilemma since some ethical boards want to assess every interview question in advance (Kallio 2016). But the topic of this study was non-sensitive, causing minimal risk to participants, and hence, an ethical board was not needed to assess this study. Nonetheless, the interviewees' names were not disclosed as part of the study, and the identifiable information about the interviewee and the company were removed. In the spirit of the duty of confidentiality and anonymity, the information that was not relevant to the study was not collected, and the statements that the interviewees requested not to be part of the study were excluded from the analyzed interview material. Upon completion of this study, all the personal information and interview records were deleted.

Ethical implications assessment concerns the whole research process (Eriksson & Kovalainen 2008) – also analyzing and reporting the results of the research. The findings of a qualitative study are always filtered through the researcher's worldview (Tuomi & Sarajärvi 2018), and special attention was paid to objective analysis of the interviews and neutral approach in reporting the outcome of the research. The interviews were recorded and transcribed to convey the findings exactly as the interviewees described them. Coding of the interview materials was used as a basis of this study's findings, and coding was solely based on the literature review and empirical findings. The research material was analyzed as it is, and no other material outside the interviewees' point of view was used.

## 4 From new venture learning to a business model

This thesis concentrates on unraveling how new venture teams form mutually recognized business models through a learning process in nascent markets. This chapter describes how the case companies structured their understanding of the nascent market and came up with their business model. Interview findings are explained, analyzed, and reflected on the theories described in chapter 2. First, case companies' link to the theoretical framework of Parallel Play is described and then, similarities and differences between the interview findings and the 4I framework are described to understand how case companies transformed learnings from individual intuiting to organizational understanding. The last sub-chapter discusses the role of jointly perceived impact that commence the business model design. The information gathered from empirical data is used to conceptualize the formation of a mutually recognized business model that takes shape through a new venture learning process.

### 4.1 Business model design in nascent markets in case companies

According to McDonald & Eisenhardt (2019), parallel play is a novel pathway to an effective business model in nascent markets, and this is illustrated in figure 8. It is “characterized by self-focus and disinterest in comparisons with peers, hands-on building, and an ability to pause and reflect before continuing (McDonald & Eisenhardt 2019, p. 495).” This sub-chapter describes how the elements of Parallel Play were present in the case companies.

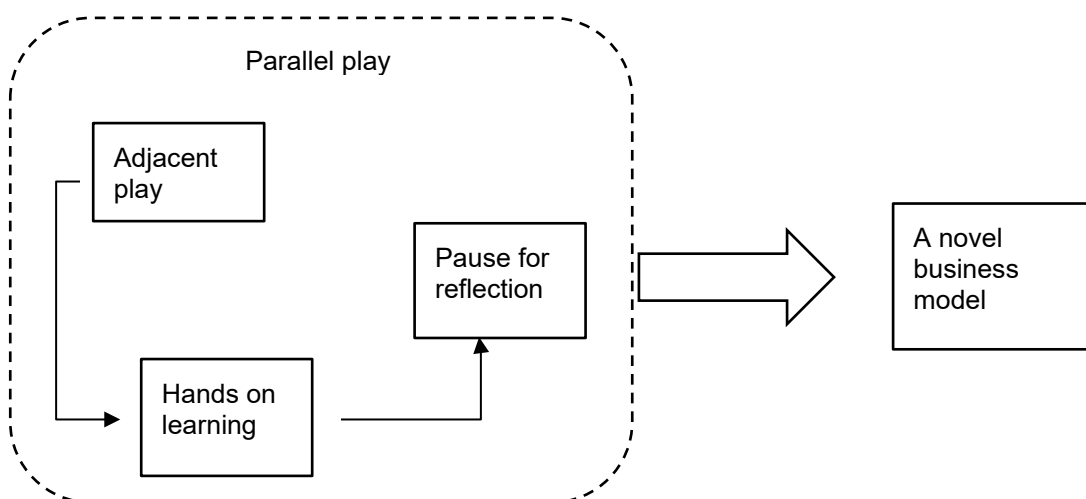


Figure 8 Abstracted version of the Parallel Play process

*Nascent market*

One selection criterion for the case companies was that they must have initiated their operations in a nascent market and both companies did start in a market that was non-existent at the time of their inception. Company U was one of the first ones to bring advanced machine learning into supply chain management, and Company A saw an early need for machine learning operations tooling. Both of their prospective clients had to first be educated about their product offerings. During the interview, Company A's founder describes:

“When we started, the market was not mature. The sales prospects did not understand what we had to offer.”

Some of the sales cases that were lost in the early days, are now opened again when the clients are ready for more mature machine learning solutions and turn back to Company A. Also, Company A's COO talks about enterprise customers' needs and understanding of the machine learning space around the time of the company inception:

“When we approached enterprises, they were interested but their needs were not well defined or on a concrete level. Management consultants had already done their fair share to get board member excited about AI but there was no understanding on how to build the solutions and what capabilities and resources would be required.”

Enterprise customers had the initial interest in working with machine learning solutions, but it took some years for those needs to crystallize. When describing experimentation, the COO characterized also the market:

“—we were in a situation where the market did not exist and then you just work with early adopters to explore their needs. Especially when the market has not taken its shape just yet, it's important to leave room to discover novel pathways.”

Company A was founded in 2016 and in 2021 more clients started to get interested in their offering and only lately, at the time of the interview, there has been more traction. The COO continues:

“It seems that the market is ready now.”

Company U's founder mentions one competitor's role in developing the client need in nascent market. This indicates that there wasn't that much competition and that the buyers had an emerging need, but further education was needed.

“In our local market there was a start-up like ours. It was very beneficial when there was another player educating our customers.”

### *Pause*

Although Company A’s founder recognized that the market was not mature enough for their offering, he firmly believed they were on the right path; they just needed to wait for some time.

“You can think that start-ups are either doing the wrong thing or are operating in the wrong market. It was clear that we were in the right market, but we just needed to wait for the market maturity.”

Another example of pausing was Company A’s partnership sales model. The COO explained that they had tried setting up a partnership model in 2018, but that did not yield meaningful results partly because the company was not ready to manage the partners, and their solution documentation was not comprehensive enough to make sense for outsiders. As a result, they stopped focusing on sales partnerships for some years but still knew that they just take a break from the partnership model and get back to it later. At the time of the interview, they were starting a partnership program again now that their operations had matured, and they had managed to acquire a few sales partners organically.

Pausing was also present in the early days of Company U. Company U was established in 2005, and still, in the spring of 2006, two of the founders were only part-time entrepreneurs, and the third founder was in research exchange abroad.

“In 2005 we were full-time researchers and in spring 2006 we spent half of our time in building the company with one other co-founder. The third co-founder was still in research exchange and joined the operational team only later.”

So, they kicked off things slowly and waited to see if their idea sticks before jumping in full-time. They got their first solution delivered to a customer in autumn 2006 which indicated that they are on a right track, and it would make sense to dedicate more time in building the company. Another example of pausing in Company U was when defining their ideal customer profile.

“At first, we focused on tiny scandic companies that no bigger solution provider was interested in and arouse from there – from the ground up. We did talk with huge retail chains right at the beginning but, from their point of view, we were too small and weakling so that they did not dare to purchase any mission critical solutions from us. Now they of course are our clients.”

They went knocking on the large retail chains' doors even though their solution offering was not ready for those clients just yet. They just needed to pause approaching that customer segment for a while, develop the solution further with smaller clients, and then get back to large retail chains.

### ***Borrowing from peers***

According to the theoretical framework of Parallel Play, peers – other start-ups – are seen as treasure troves, and sometimes the companies borrow ideas from them (McDonald & Eisenhardt, 2019). For example, company A's CIO described that even though their software had similar features to other start-ups in their field, they did not directly copy from them.

“Maybe someone could argue that we copied a feature, but I do not see it this way. We try to understand our customers' needs and then build the solution based on those needs.”

Company A's COO shared this opinion. He described that in the early days, there were not that many companies to copy from. Only in recent years, four to five years after the company's inception, they have started to benchmark some key competitors more as competitors and the market mature. At the time of the interview, some of the start-ups in their field had already ceased their operations, whereas the remaining ones had developed their software in slightly different directions leading to differences in their feature offerings. Only now, in the company's later stages, it did make sense to do more thorough competitor mapping and follow what other start-ups are working with.

McDonald & Eisenhardt (2019) also specifically mention that, in their study, the start-ups learned about the competing products from their clients, which is in line with the findings of this study. Company U's founder says they did not borrow ideas from their competitors but were aware of their competitors' offerings through their clients.

“You always think that companies need to make competitor comparisons, but we really focused only on building our offering based on client feedback. We learned about our competitors from our clients and sales prospects who might, for example, ask if we had a specific feature that our competitor had. I think we never borrowed any ideas from our competitors.”

Although McDonald & Eisenhardt (2019) states that start-ups in nascent markets borrow from peers, this behavior was not identified in the case companies. However, this leaves one to ponder whether borrowing is seen as unwanted behavior and, hence, the case

companies do not want to admit such conduct. After all, they both had similar feature offerings to their peers and both admitted that they had second-hand information about competitors' feature offering. Perhaps the clients asked for some specific features that the competitors already had which then led to "borrowing" competitors' features.

### *Self-focused operations and competition*

According to the theoretical framework of parallel play, start-ups in the nascent market focus on their own 'play' (McDonald & Eisenhardt, 2019), and this aspect was strongly present in the interviews without even asking a specific question related to self-focus. Company U's founder recognizes that in every region, there was a company like theirs, but continues by underlining:

“-- we paid basically no attention to them and focused on our own thing.”

Company A's founder acknowledges that a handful of companies already offered similar solutions in the early days, but he sees them more as motivation to do better.

“We focused on finding our product-market-fit and were not too interested in our competitors.”

Also, the COO of Company A describes that they knew their start-up competitors on a very high-level.

“We were one of the first ones who started doing this and there were only a few start-ups that would have done something that we did not.”

Both Company A and Company U were focused on building their own business and did not see other start-ups as competitors. However, Company U's founder says that there already were big players in the market, like SAP. Many of the clients they discussed within the early stage were already using some enterprise-grade software that had broad offerings for everything but did not cover the more specific supply chain optimization needs. Hence, the incubating big companies were seen as the competition, and clients needed to be convinced not to use the 'good enough' solutions that the enterprise-grade software offered but to take a leap of faith and try a novel product offered by a start-up company.

Company A entered a scene where the big cloud providers (Amazon, Google, Microsoft) ruled the market, and almost all prospective clients already used some of the big cloud providers' offerings or were aware of their solutions. But, similarly to Company U's



situation, these tech giants could not tackle the more advanced and specific customer needs well enough. Company A's COO thinks that large cloud providers are not that good in building software solutions.

“Cloud vendors can do some unattached building blocks here and there but they don't produce good, easy-to-use products. We have gotten clients who switch off from the cloud vendors offering.”

The broad focus of the incubating companies gave room to enter the market with a niche offering. The theoretical framework of Parallel Play states that start-ups in the nascent market do not see their peers as competition, but the competition springs from the established ways of doing things, and this was also visible in the case companies (McDonald & Eisenhardt 2019).

### *Hands-on testing*

McDonald & Eisenhardt (2019) found that successful start-ups in nascent markets engage in hands-on experimenting but then commit to an initial broad activity system. Both companies studied for this thesis did engage in experimenting but still nailed their broad business model quite promptly after the company's inception. Company A's founder said that their offering did not change that much along the road even they did experiment on other areas of their business:

“If I look back, our initial product idea had not changed that much. When the industry terms started to become more established, we just changed what we call our offering.”

Company A was first planning to sell their software online through self-signup at a relatively low price per user and, in addition, they were playing with the idea of usage-based pricing tiers. Around a year after the company's establishment, they had increased their price per user almost tenfold positioning them into a different price category and approached sales through a hybrid model of online and face-to-face sales – an approach that is roughly speaking in use still today. Despite engaging in hands-on testing in multiple areas of their operation, the core functionalities of Company A's product have not changed up to this date, even though its feature offering has evolved.

Company U was established in 2005, and their original idea was to do consulting. They thought they would build just a supply chain optimization plugin for existing enterprise resource planning systems, but they quickly realized there was nothing to optimize. So,

in 2006 they decided to build an end-to-end supply chain optimization tool that gathers the data and does the optimization itself. Today, fourteen years later, this is the path that they still are on.

Table 6. Elements of Parallel Play in the companies studied

	<b>Company A</b>	<b>Company U</b>
<b>Operated in a nascent market</b>	x	x
<b>Pausing before elaborating</b>	x	x
<b>Borrowing from peers</b>		
<b>Self-focused operations</b>	x	x
<b>Competition with established substitutes</b>	x	x
<b>Hands-on learning</b>	x	x

Many elements of Parallel Play are very intangible and, hence, perhaps sometimes hard to describe in words. Nonetheless, theoretical framework of Parallel Play seems to describe how start-ups in nascent markets design their business model. Table 6 illustrates how the elements of the theoretical framework of Parallel Play apply to the companies interviewed for this thesis. Both companies operated in a nascent market, paused before elaborating on their plans, focused on their own operations, considered established substitutes as competition, and engaged in hands-on learning. Neither of the companies admitted borrowing ideas from their peers but might be that borrowing, if it happened, was unintentional and occurred when clients asked for similar features than what the competing companies already had.

#### **4.2 New venture learning in the case companies based on the 4I framework**

This study focuses on understanding how individual entrepreneurs' learnings are transformed into a mutually recognized business model. The 4I framework was initially created to structure organizational learning in general and to understand how learnings transform from individual intuiting into organizational knowledge. This framework is also helpful in understanding how a mutually recognized business model takes its shape and evolves in an entrepreneurial team. This chapter explains how the 4I framework's four sociopsychological processes – intuiting, interpreting, integration, and institutionalization – were present in the case companies' early days. The first three processes of intuiting, interpreting, and integrating were present in the empirical data and

are discussed first. Then, findings about the fourth process, institutionalization – or the lack thereof – is described second.

#### 4.2.1 Individual intuiting and interpreting

Intuiting is the first of four sociopsychological processes in the 4I organizational learning framework. In the intuiting phase, an entrepreneur has just a vague idea that something is worth testing (Dutta & Crossan 2005), and case companies have trialed product features, target audiences, different pricing, and sales approaches. All of which had been initiated from the founders' or the first employees' intuition. When asked why a particular element of the business model was chosen to be explored, Company U's founder admitted that they were never sure if some path was worth taking.

“Someone just chose to do something, and to me, every direction is good until it's proven bad.”

Company A's CIO also points out:

“You don't know whether the decision is good or not. You learn that only afterward.”

These quotes indicate that since, in the nascent market, there is no evidence for validating a specific path ex-ante, founders need to use their intuition to decide which opportunities to engage with. For example, Company A's CIO described that they have a self-steering organization, and if someone notices a problem, they can just invent a solution for this problem by themselves.

Intuition can originate from expert intuition building on an individual's previous experiences or entrepreneurial intuition counting on the entrepreneur's creative capacity (Dutta & Crossan 2005). Expert intuition was present, for example, in Company U's initial business idea. The founders had built something similar in their research projects before and, hence, had earlier experience in their field. The CMO describes:

“At the beginning, we didn't have a product that would fulfill our clients' needs. We had some elements and learnings from our research projects and an idea of how to solve customers' problems.”

Sometimes identifying the opportunity requires both expert and entrepreneurial intuition. An example of mixing explorative and exploitative approaches in the intuiting phase was when Company U started iterating their price point. They had to start the iteration by just

guessing. Company U's CMO described that there was no clear price point where to start the initial experiments. She described that:

“Software pricing is just magic.”

Company U started testing what their clients would pay and refined the price point according to learnings. Initially, pricing was set by guessing, and later, by experimenting based on the previous learnings. By combining explorative and exploitative approaches, they found a robust way of calculating software pricing based on the value delivered.

Another example of combining both explorative and exploitative approaches can be found in Company A's early days. Two of the founders started discussing that they would want to start a software company. They had been working with technology companies before and identified that AI would be one of the future megatrends, so they started to search for opportunities on that front. They did not have specific experience developing machine learning solutions, and these initial ideation sessions can be seen more as a creative approach employing entrepreneurial intuition. A call to their friend, soon-to-be a third co-founder, brought on the expert intuition. This third founder was working for a computer vision company in Silicon Valley, and he was building an internal tool to support their machine learning capabilities. Together the three founders anticipated that once more companies start adopting machine learning techniques, they would need some tools for the internal AI development work. This gave birth to their start-up idea.

“He [the third founder] had seen that there was a problem in operating machine learning in production. So, through this, we knew that at least one company in the world needs this kind of software, and perhaps others would need it too.”

These three entrepreneurs were initially intuiting on their own and then started to discuss their ideas to create a shared language and morph their intuitions into a shared understanding. This discussion phase is the second of four sociopsychological processes of the 4I framework and is called interpreting. Interpreting happens when an entrepreneur starts structuring her thoughts and verbalizing her initial findings. Then, she creates language, images, and meanings about the occurrence she was intuiting and communicates her ideas to others (Dutta & Crossan 2005). For example, Company U's founders were originally intuiting that they would build software that is integrated into the existing ERP systems and would then optimize retail planning based on the existing

data. But through verbalizing this idea and explaining it to potential customers, they came to another conclusion.

“Through client discussion, we found out that there is nothing to optimize, and we had to build a full-blown system that collects all the data itself.”

By verbalizing their intuition, the founders learned that this time intuition had led them in the wrong direction, and they needed to adjust the course. This steered Company U to the path they are today.

#### 4.2.2 Perception precedes integrating

The interpretation process happens on an individual level, but it is closely related to the third sociopsychological process of the 4I framework, integrating. In the integrating phase, entrepreneurs form collective understanding and act together. According to Crossan, Lane, and White (1999), integrating starts with ad hoc dialogue between individuals. This ad hoc nature was shown, for example, when Company U’s founder described how they shared knowledge across team members.

“At the early stages, we did not have any specific way to report what we were working with. So, we just trusted each other. If someone said they would handle something, they either take care of that issue or ask for help if needed.”

If there were no systematic ways to share the knowledge and learnings across the whole team, how were the case companies able to integrate the individual learnings into a mutually recognized business model? The learnings did not always reach the whole team. One example where the ad hoc discourse did not happen, and the learnings were not morphed into the business model, was Company A’s attempt to enter a new market. The CIO describes:

“Two salespeople from our Finnish team spent half of their time in market x, and there was no systematic way to share the learnings. They went there and they came back. Maybe because there were no kick-ass results from that market, we didn’t dig deeper at that point. If something seems to work like a charm, we focus more on that.”

Another interviewee from Company A, COO, was one of the two who spent almost a year going back and forth between Finland and the market x. He described that they gained many valuable insights from that market. Nevertheless, it seems like those learnings largely remained between these two who were present in the market x; hence, the gained knowledge was not integrated into collective know-how at this point. It was only years

later when this excursion paid off. Table 8 illustrates how the learnings from the market x transformed through intuiting, interpreting, and integrating as time passed. The CEO and COO were intuiting that the home market is too small, and the local companies were not mature enough for their start-up to grow in this market. They started interpreting their intuitive thoughts into words in 2018. They had discussions with other start-up entrepreneurs, asked advice from their investor, and involved CIO in the decision-making. CEO and COO spent half of their time abroad, and during this time, crumbs of knowledge were shared with the team. Then in 2020, the COVID pandemic forced the CEO and COO to return to Finland, and Company A focused on building global online sales capabilities, and the new market excursion was paused. This example is also aligned with the theoretical framework of Parallel Play, stating that sometimes companies pause before elaborating on some specific plan (McDonald & Eisenhardt 2019). For Company A, it was only in 2022 that everyone could see that the efforts abroad paid off. A well-known person in their industry joined Company A's advisory board, and this was a person that they would not have met and befriended without their excursion abroad. When the learnings became perceivable, they were integrated as part of the collective understanding. This was also visible in the interviews. The COO, who spent time in the market x, drew this market excursion on the whiteboard for 2018 to 2019, while CIO, who stayed in the home market, drew the market excursion on the whiteboard only at the point when the advisor joined the board.

Table 7. An example of an entrepreneurial learning in Company A

	2018	2019	2020	...	2022
<b>Intuiting</b>	The Finnish market is too small and immature	CEO & COO spends half of their time in Finland and abroad			
<b>Interpreting</b>	Discussion between a few colleagues to set up an office abroad.	Crumbs of knowledge are shared with the team now and then.			
Perception					
<b>Integrating</b>					Getting an advisor well-known in the industry whom the CEO met abroad.

Perception seemed to play an integral role in transforming the learnings from the individual level into the knowledge of the whole entrepreneurial team. The interviewees were asked how they knew some trajectory was worth continuing or integrating as part of their business. Company U's founder described why they chose to continue building software instead of consulting that was their initial business model:

“We delivered our first system, which clearly indicated that we were on the right path. If no one wants to talk to you, it’s a sign that maybe your product is not that good, or you are talking to the wrong audience.”

The founder discussed visible cues to identify whether some trajectory was working for them. She continues:

“It was painful to make our offering work with one client, but everything worked well with the other. So, then we continue working with the ones with whom the collaboration seems easy.”

And when talking about communicating the company’s offering, she noted:

“--then you notice that, ok, with this messaging, something starts happening.”

When asked why the interviewees chose to pursue some specific trajectory further, they did not even quite understand the questions since the answer was so self-evident: everyone in the team saw the impact, and it was clear that this path was worth pursuing further. ‘A clear sign,’ ‘if no one talks to you’, ‘it is a pain’, ‘feels easy’, and ‘something starts happening’ were the words that Company U’s founder used to describe moments when she knew something was working and worth integrating as part of their operations. Perception played an integral role also when Company A made decisions – for example when they tested different pricing tiers.

“We increased the price incrementally until companies didn’t want to pay that price anymore. Then we saw that we had hit the limit.”

So even if a decision to engage with some experiment felt vague and unsure at the time of the decision, the companies seemed to ‘just know or notice’ when they hit the sweet spot. Visible cues that the whole entrepreneurial team could perceive triggered changes in the business model; something was proven to work (or not), so it was self-evident to shape the business model.

### 4.2.3 Institutionalizing

Institutionalizing is the last sociopsychological process in the 4I framework, where the shared learnings are operationalized in the organizational structures and processes (Crossan, Lane, White 1999, p. 525). This step does not seem relevant for early-stage start-ups in nascent markets. There are two points of view: 1) with scarce resources, it does not make sense to build rigid processes when there is no certainty that the market will unfold as imagined, and 2) in the early stage, many things are done for the first time, and building processes becomes essential only when specific actions are repeated. For Company A, institutionalization happened when market validation was done, they had a handful of customers, and they needed to scale what they were doing to get more customers.

“Nowadays, we have this growth team that does systematic lead generation experiments. So, there is a clearly defined process where they come up with a hypothesis, execute experiments, and measure the outcome.”

This growth function was established around the spring of 2020, and the market started to mature around 2019. The more systematic experimentation and institutionalizing of the ‘growth process’ were possible only in the later stages four years after inception. Company A founder describes:

“The critical mass in the market has evolved lately, and  $n$  starts to be big enough to test things systematically. When we had one customer, it was impossible. This world of systematic experimenting has opened only lately.”

Also, Company U’s founder describes that nowadays, when their volumes are enormous, they must be able to predict their operations, and there are transparent processes for measuring, for example, sales efforts. Predicting and sharing information was not that important when only the founders were working for the start-up. Structures were needed when operations grew, and more employees were hired.

“10% error in sales prediction would affect the whole company, and we have come up with processes around these kinds of mission-critical operations.”

However, institutionalizing concerns not only the venture's learning but also the entrepreneur's personal learning (Dutta & Crossan 2005). Company A’s CIO describes his entrepreneurial journey combining the company's learning and personal learning. He admits that he would do things differently if he started a new company. However, the



focus of this study is on designing a business model in nascent markets. Hence, institutionalizing personal learning was not meaningful for the findings of this study.

### 4.3 The role of jointly perceived impact

To recap, the entrepreneurial team's collective understanding of their business model takes its shape through sociopsychological processes that include three of the four phases in the original 4I framework: intuiting, interpreting, and integrating. Institutionalizing is the fourth step, but it seems irrelevant for a start-up in a nascent market and is not included in Figure 9. Figure 9 illustrates that, in the *intuiting* process, there is a pool of stimuli (that are symbolized as dashed rectangles) from which an individual chooses certain occurrences to act upon (black rectangles) and then picks the meaningful transactions to be explained and *interpreted* to their team members. In the interpreting stage, the individual puts her insights into words, pictures, and meanings that she communicates to other team members (Dutta & Crossan 2005). If the interpretation makes sense to all involved parties, understanding of this particular occurrence and related learnings are further deepened into collective cognition (Cossette & Audet 1992) and *integrated* as part of the start-up's business model.

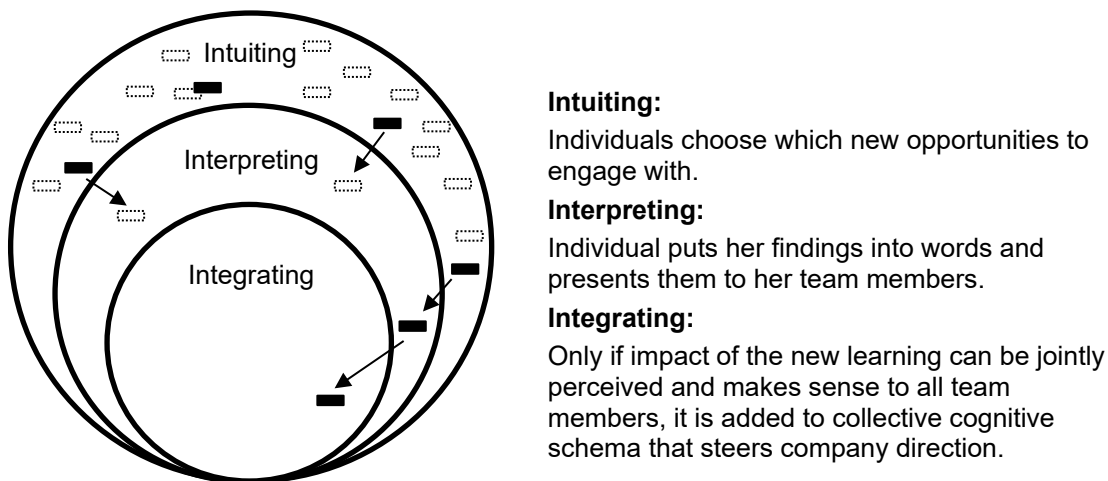


Figure 9. 4I framework applied to entrepreneurial learning in nascent markets in case companies. The 4I framework adopted from the organizational research helps structure how start-up teams in nascent markets form collective schemas. Based on the interviews, jointly perceived impact plays a crucial role in transforming the learnings from the individual interpretation phase into the integrated understanding of the whole organization. Especially customers' willingness to pay or, in other ways, give value to what a start-up

was doing seemed to be an essential indicator of whether something was working or not. Company U's founder summarizes:

“[In the early stages] -- we adjusted the direction through concrete, tangible occurrences, and learning happened organically.”

The role of jointly perceived impact was also evident, for example, when Company A's Chief Information Officer described the development of their customer success function:

“Our clients constantly asked for help from our software developer, who then did not have time to do his actual programming work. It was important that our customers prosper in their work, but without programming, the tool does not exist. We then hired a dedicated person to help our clients, and the software developer was able to concentrate on his work. This gave birth to our customer success function.”

This indicates that constructing an integral part of their business model – the customer success function – was not planned far ahead but was more about solving problems that were perceived and causing pain in the current moment. The Chief Information Officer characterized the evolution of the customer support function as ‘organic and not systematic.’

“It was a very self-steering and organic moment when we realized that there was a problem visible to everyone in the company – our software updates were behind schedule. Our programmer said he couldn't do the software development and customer support simultaneously, so someone else had to take something off this plate. -- We did not decide, 'hey, let's build a superb customer success function,' but it has just grown into this. The process was not systematic.”

Case companies also faced occasions when something stayed on an individual intuition or interpretation stage, and the learnings were not adopted as part of the mutually recognized business model. One of these occasions was a new feature created by a single developer. The developer saw an opportunity and came up with a feature that would solve a customer problem, but perhaps the benefits were not clearly communicated to the team, and this feature stayed as a rather detached effort that did not shape the company's business model. Dutta & Crossan (2005) propose that if an opportunity has gone through intuiting, interpreting, and integrating, it is more likely to be implemented than if it had gone through only one or two of these processes. Also, according to the interviews, if the learnings go through intuiting, interpreting, and integrating processes and, in addition, are

tangible, and the impact is jointly perceived, they are integrated as part of the entrepreneurial team's collective schema – e.g., the business model.

## 5 Conclusion

This chapter summarizes the contribution of the empirical research findings to the current academic literature. Also, there are insights into how start-up founders as a team should approach learning in nascent markets. Finally, at the end of this section, there are suggestions for future research and discussion about the limitations of this study.

Table 9 summarizes and connects the findings of this study to the research questions. Insights are derived from an interview with two start-up founders, one key decision-maker who is not a founder, and utilizing the researcher's own experiences working in start-ups for eight years.

Table 8. Summary of the key findings related to the research questions

Research questions	Summary of the findings
How do start-up teams learn about a nascent market?	Engaging in a process called Parallel Play – acting like pre-schoolers when learning about the world.
How are learnings transformed into a mutually recognized business model?	Perception leads the way in shaping the business model. The business model is essentially a collective cognitive schema organized into categories.

The theoretical framework of Parallel Play suggests that start-ups act like pre-schoolers when learning about a new world by playing next to their peers, pausing before elaborating on a certain play, and engaging in hands-on experimenting (McDonald & Eisenhardt 2019). Start-ups studied for this research learned about a nascent market through parallel play. But how are the learnings transformed into a mutually recognized business model? Answering the second research question based on the empirical findings proposes that:

- perception is required to transform the new venture learnings into a mutually recognized business model, and
- a business model is a collective schema that takes the shape of organized categories.

Start-up team members act on opportunities and impulses around them to gain learnings about the nascent market, but perception is required to introduce the new insight on an organizational level; to form and shape a collective cognition. If a business model is

essentially a cognitive schema (McDonald & Eisenhardt 2019) and, for a collective schema to form, the learnings must make sense for all the team members (Cossette & Audet 1992), it can be concluded that start-up teams must first form a collective cognition which then informs what aspects are incorporated as part of the business model. In summary, a business model takes the shape of a collective cognitive schema that evolves through engaging in parallel play and by perceiving and categorizing the new learnings together with the start-up team.

## **5.1 Theoretical contribution**

The theoretical contribution is to deepen the understanding of the business model design in nascent markets and shed light on how collective cognitive schemas take shape in the new venture learning process. Start-ups are said to conduct iterative experiments to find a viable business model (Felin et al. 2019) and one of the most popular iterative business model design approaches is the Lean Start-up method (Ries 2011). In the Lean Start-up method, the early-stage companies set up a build-measure-learn loop to collect tangible feedback from the early customers. The purpose of the feedback is to validate the market need before even building the final solution. (Ries 2011) While this kind of objective experimentation for shaping the early-stage business model may sound intuitively reasonable, it has gained critique for its quasi-scientific approach that seeks validation only where it is easy to observe and, hence, yields only incremental improvement and not radical innovations (Felin et al. 2019). In addition, according to this study's findings, the learning happens through much more sporadic and random experiments instead of setting systematic hypothesis-feedback process.

This study's findings align with the theoretical framework of Parallel Play in that the start-ups under research engaged in 'parallel play,' meaning that they did not consider other similar companies as competitors and focused on building their business. The case companies' interviewees did not concede consciously copying elements from their competitors, as Parallel Play suggests, but copying might have still happened indirectly through the insights gained from client discussions. Also, case companies paused many times before elaborating on their business model, another core feature of Parallel Play. However, the theoretical framework of Parallel Play does not explain how the collective schema – e.g., the business model – takes shape through the learning process. The 4I organizational framework is helpful in explaining how an entrepreneurial team's

collective cognitive schemas take shape through individual intuiting and interpreting and organizational integration. According to this study's findings, 1) perceiving the possible impact together plays a crucial role in transforming the individual intuition into the new venture team's cognitive schema, and 2) the cognitive schema takes the shape of organized categories.

### 5.1.1 Theorizing: Piagetian stage theory

If a business model is considered a cognitive schema (McDonald & Eisenhardt 2019), it seems vital to understand how this cognition takes shape to ensure effective business model design. The relationship between the 4I organizational learning framework and the theoretical framework of Parallel Play in nascent markets is illustrated in the theoretical framework of this study (figure 10). The original 4I organizational learning framework included a fourth step, institutionalizing, but that seemed not to be relevant for start-ups in nascent markets and is therefore left out from the adjusted illustration. The two frameworks together offer a hint of how cognitive schemas take shape. By engaging with the findings learned in the process of parallel play, the knowledge transforms through individual intuiting and interpreting and, finally, gets integrated into the organizational level – into the business model.

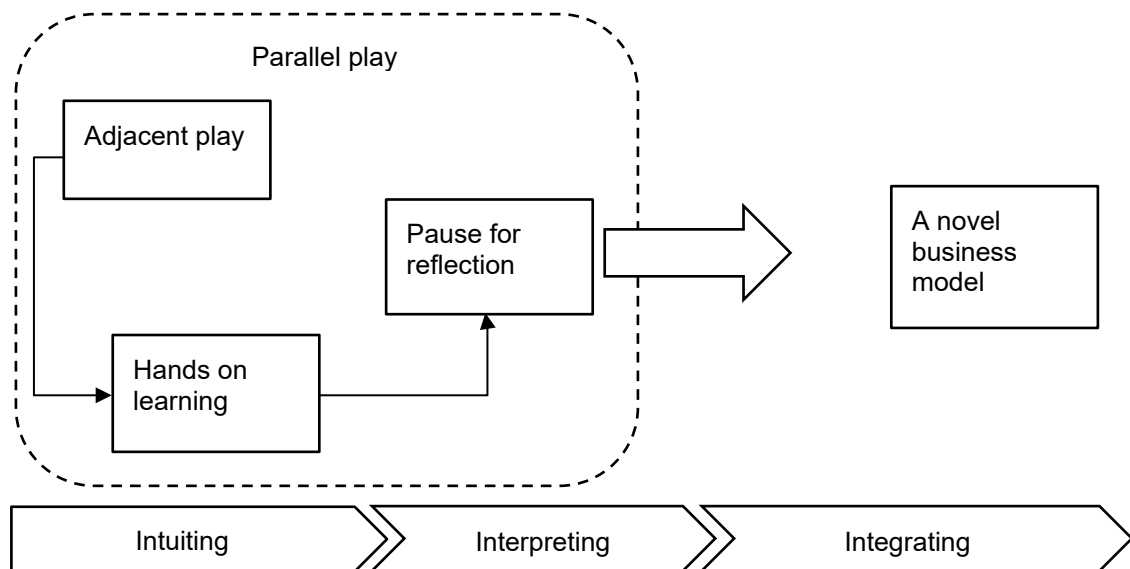


Figure 10. Adjusted theoretical framework of this study

Since the concept of parallel play springs from the child development literature, stating that pre-schoolers learn about the world by playing next but not with each other, we may probe child psychology to comprehend how understanding about the new world is established and organized. Suppose the theoretical framework of Parallel Play could be

an answer for how start-ups engage with opportunities and accumulate new understanding to design business models. In that case, the Piagetian stage theory could complement and help explain how start-ups organize this new information to form collective cognition (figure 11).

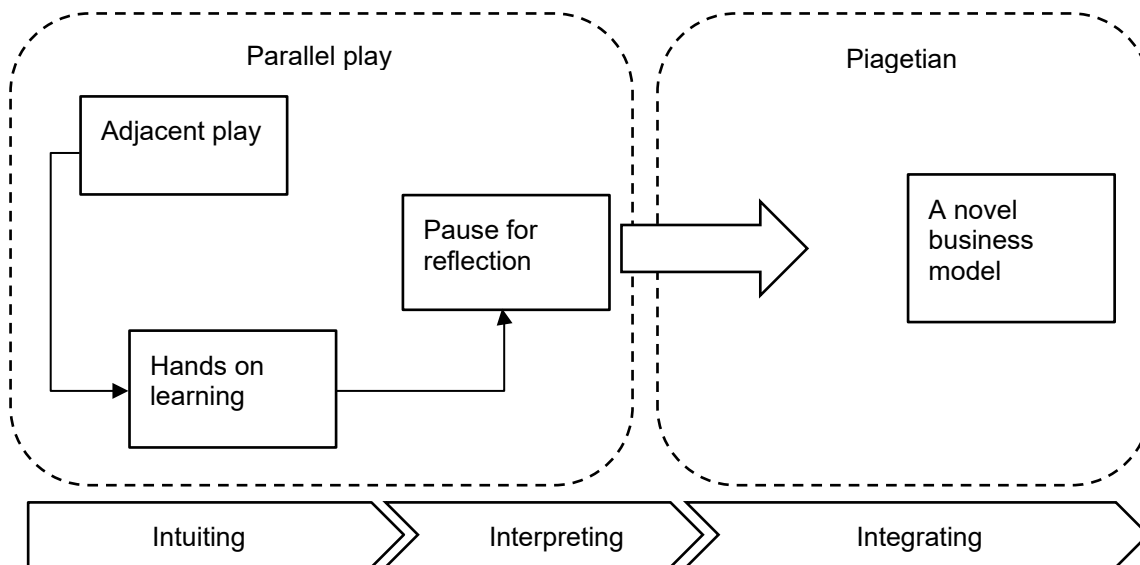


Figure 11. Linking research findings to the theoretical framework of this study

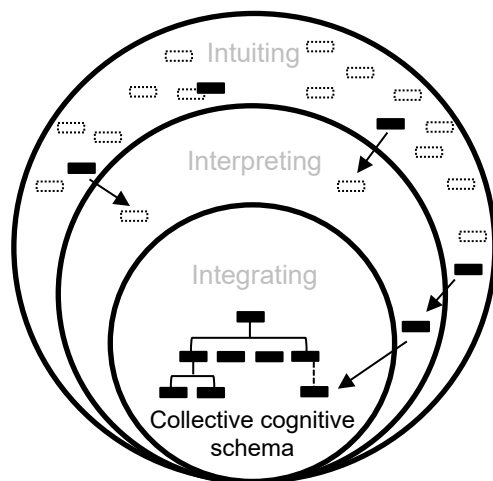
What characterizes this ‘Piagetian way’ of thinking about new venture learning is the concept of learning by categorizing. According to Piaget, pre-schoolers lack the conceptual structures that enable hierarchical classification skills, and educators should provide children with concrete materials to explore and learn to categorize (National Research Council 2001, 40). To truly comprehend what, for example, *the city of Helsinki* means, children need to learn that we live on this planet called earth, where there are specific continents, inside which there are countries, and countries are divided into cities.

Classification is something that pre-schoolers, as well as start-ups, need to learn while facing new situations – be it conceptualizing the world or a nascent market. Categorizing the new information was also present in the interviews when interviewees illustrated the company story on a whiteboard. The interviewees did not draw a single timeline – as the interviewer hinted at the beginning of the discussion – but they visualized several different concurrent trajectories, including, for example, customer support function development, different sales approaches, and experiments for new product features. Some of the trajectories lasted from the company’s inception to the date of the interview, while others lasted only for a short while. This indicated that categorization was present, and exploration and learning happened ‘inside’ categories by dividing them into smaller sub-

categories. Individual knowledge is structured as categories, schemas, and scripts (Fiske & Taylor 1991), and individuals rely on mental schemas as a heuristic aid for interpretation and decision-making (West III, 2007). According to this study's findings, it might be possible that team-level knowledge in a nascent market is organized in a similar fashion; a business model is a collective cognitive schema that is organized as categories, and it is used to interpret the new learnings and make relevant decisions.

### 5.1.2 Jointly perceived impact leads the way

Start-ups in nascent markets start with 'tabula rasa' with no clear understanding of the customer needs or the business model, and hence, they must form the collective cognitive schema from scratch. As children, also start-ups in nascent markets, start constructing the reality around them into meaningful categories. Individual entrepreneurs have existing cognitive schemas, but still, the collective schema takes shape through first engaging in parallel play to learn and then transforming the individual learnings into organizational knowledge through the sociopsychological processes of intuiting, interpreting, and integrating, as illustrated in Figure 12. Empirical findings of this study point out that team members needed to first perceive the impact of a new aspect to adopt it as part of the collective cognitive schema. In other words, jointly perceived impact is required to morph individual learnings into the business model adopted by all team members.



#### **Collective cognitive schema:**

Collective cognitive schema takes shape through sociopsychological processes of intuiting, interpreting, and integrating. And perception plays a key role.

Figure 12. Relation of adjusted 4I framework and collective cognition

'From Piaget's point of view, the main accomplishments of the preschool period involve the development of symbolic abilities, language, imitation, symbolic play, and drawing' (National Research Council 2001, 40). In addition, Piagetian stage theory proposes that young children's thinking happens on a perceptual level and takes place in the current



moment and place (National Research Council 2001, 40). Figure 13 includes all the key findings of this study and illustrates that perception is the mediator between the iterative learning process parallel play and forming a collective cognition in a Piagetian way – e.g., by categorizing the new information.

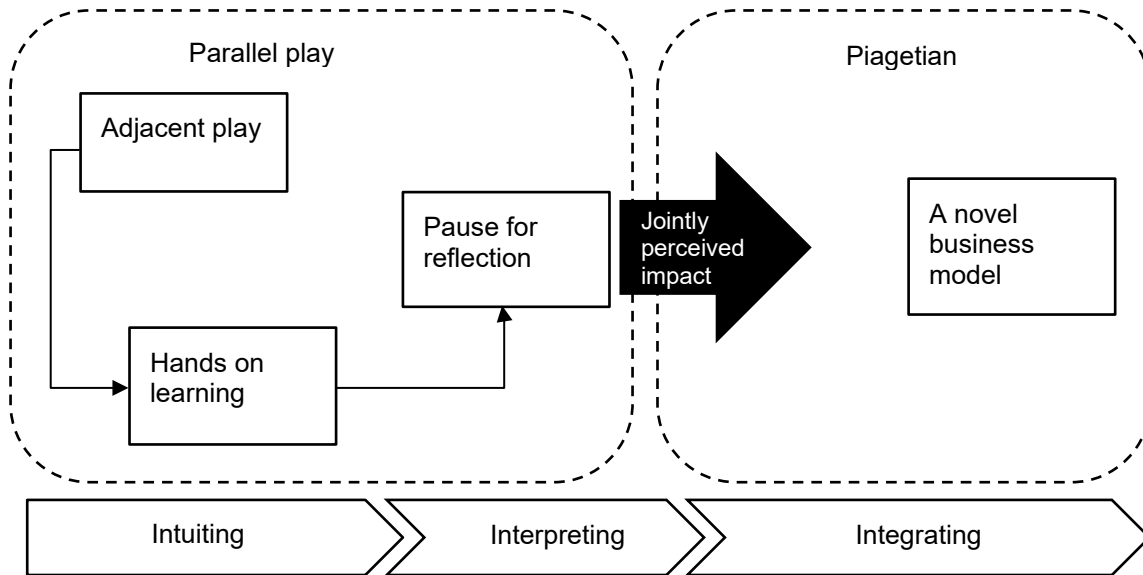


Figure 13. Key contributions of this study

Cossette & Audet (1992) suggest that the concepts must make sense to all team members for the collective schema to form, and this study proposes that the key decision-makers in the start-up must first concretely perceive the impact of a specific concept to adopt as part of the business model. It seemed not to be enough if one team member tried to convince others to back his ideas, but the effect of that idea needed to be tangible or concretely solve a problem at hand to trigger business model design. Therefore, perception plays a key role in dictating what learnings are included in the business model.

## 5.2 Learnings for start-up teams in nascent markets

Operating and making decisions in a nascent market is characterized by a low amount of data and several opinions (Szabo 2022) and, hence, many problems that start-ups face in designing their business model are caused by differing opinions among the key decision-makers. For example, one of the founders might embrace steady growth as the other wants to grow rapidly with venture capitalists' help. One might want to sell to enterprise customers, whereas the other thinks medium-sized growth companies are the optimal customers. But to make the most out of their scarce resources, the start-up team must form a shared understanding of their business, market, and customers. Specifically, it is the

mutually recognized business model that steers the company effectively in the desired direction. A business model can be considered a shared cognitive schema that takes its shape through hands-on experimenting and learning.

Start-up teams consist of individuals who engage in opportunities and make decisions by themselves before interpreting their findings for others. Their cognitive schema dictates what opportunities they engage with and which findings they consider meaningful for the company. Figure 14 illustrates that if the team members have differing cognitive schemas, they end up scattering their efforts. Whereas if everyone contributes to the same schema, they effectively elaborate the existing business model. Hence, it would make sense to ensure that individuals have a similar frame in mind when deciding what opportunities to engage with and interpret to their colleagues to ensure an effective business model design. But how to make sure that the individual, detached learnings are merged into the collective schema of the whole start-up team?

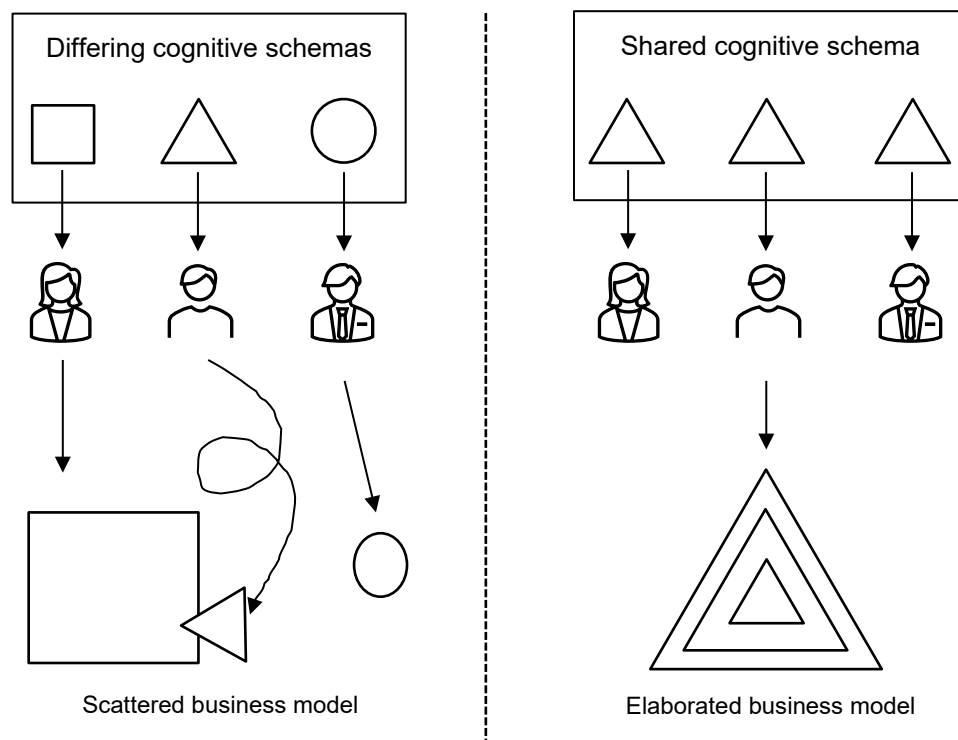


Figure 14. Differing versus shared cognitive schemas

Based on the findings of this study, merely arguing for your point of view is not enough to form a collective schema. Even testing the ideas alone and sharing the results with the start-up team might be insufficient in convincing others to back your point of view. Opinions and ideas alone seems not to be enough to shape a business model in nascent

markets. Indeed, the co-founders are open to experimenting and searching for new avenues, but for new learning to morph into a new venture team's collective schema – e.g., a business model – everyone needs to *perceive* the idea taking shape and see the impact. Examples of perceived matters could be finding a customer segment that buys the company's solution and money coming into the company's bank account. Or product feature launches that are constantly behind schedule because developers spend their time onboarding new clients and not developing the features. The first example shapes the preferred customer profile. The latter might lead to a new pricing model; hiring someone to dedicate her time to customer support and bundling the product offering with customer support with a unique price tag. Business model design in nascent markets starts with a clear, tangible opportunity at hand or a pain that is currently observed. Every team member must see the potential impact of adjusting the collective cognitive schema. A new venture team's cognitive schema is not merely a sum of individual cognitions. For adopting a concept as part of the shared understanding, the concept must first make sense to *all* team members (Cossette & Audet 1992).

Your start-up and its learning can be compared to a pre-schooler. Pre-schoolers learn about a new environment by perceiving the new items and categorizing the new information. Hence, for start-up entrepreneurs, it would make sense to include as many people as possible in the learning process and embody the learning in a tangible way. Start-ups must learn to categorize the various aspects of the nascent market, such as customer segments, value propositions, and revenue streams, to create a coherent and mutually recognized business model. Companies often have a written or visual business model, so there is nothing new in it, but this work shows that an entrepreneur cannot just add new aspects to the business model and expect that everyone understands things in a similar fashion. Instead, the impact of a new potential change in the business model must be first perceived by all team members and, only after that, added as part of the business model. Letting perception precede the business model design ensures that every team member has a shared understanding of the business model, which then guides their decision-making.

### **5.3 Limitations and future research suggestions**

This study was conducted as a qualitative study, and the data was collected through the narrative method and semi-structured interview. Considering the findings of the study,

the research methods can be said to fit for studying such abstract constructs as business models. The chosen methods served to settle the research problem and offer a possible conceptualization for shaping cognitive schemas in nascent markets. This research provides theoretical and managerial implications, but as qualitative studies usually do, also this study has some limitations. The first limitation is related to the subjectivity of the results. The researcher always interprets the findings of the study through her own lenses, which inevitably affects the conclusions. This calls for further research on business model design in nascent markets to include more points of view.

The second limitation is related to shifting the focus of the study during the research process. The original aim of this study was to understand knowledge sharing and decision-making in start-ups in nascent markets. However, through the interview findings, the focus shifted to understanding how a mutually recognized business model form through a learning process in a nascent market. Even the thematic analysis of interviews produces unexpected, new findings and can be regarded as successful, original interview questions did not thoroughly address new venture learning or forming a collective understanding of a business model. These themes were spontaneously present in the interviewees' narratives. Luckily, the empirical data collection was organized into three sections: 1) a narrative story about the company, 2) main questions, and 3) follow-up questions that were improvised based on the findings in the previous sections. This structure gave room to explore even surprising findings with unplanned follow-up questions. While the importance of jointly perceived impact in business model design was clearly present in the case companies, categorizing the new learnings was still discussed on a superficial level, and further research is needed to consolidate the findings further.

Based on this study, it would be interesting to continue examining the cognitive schemas in nascent markets with different research methods and a new set of questions to gain depth into the phenomenon. There could be a new round of interviews, and more companies could be studied. Also, an ethnographic study method would suit observing the start-up teams while they design their business model. The ethnographic study would allow inspecting the layers of new venture learning and identifying motives behind the business model design that might not be said out loud.

If the findings of this study are further confirmed and strengthened, the next natural avenue could be to understand how successful start-up teams facilitate the emergence of collective schema. Maybe successful start-ups form a collective schema in some particular way, whereas other companies might fail to form a collective schema and end up hampering their results with a lack of shared understanding and direction. Moreover, even though this study's context is business model design in start-ups in a nascent market, it could be further studied if the findings are applicable in other contexts, such as in innovating new solutions in established firms.

## 6 Summary

New ventures in nascent markets undergo change and design their business model through iterative experiments to find the best possible value proposition and activity system. A business model is considered a collective cognitive schema. To shape the shared schemas, the new aspects that ought to be added to the business model must first make sense to all involved parties. Current entrepreneurship literature provides little information about organizational-level learning in new ventures and is mainly focused on how individual entrepreneurs learn and make decisions. To fill the research gap, this study was set out to understand 'How start-up teams form a mutually recognized business model through a learning process in nascent markets'.

This research explores the theoretical framework of Parallel Play, stating that start-ups in nascent markets learn like pre-schoolers – playing next to each other but not competing, engaging in hands-on experimenting, and pausing before elaborating on a certain play. Since Parallel Play is more like a process description, it does not offer a deeper explanation of how entrepreneurial teams form a shared understanding of their business model. The 4I organizational learning framework was used to complement the cognitive side of organizational-level learning. The 4I framework explains that if learning goes through individual intuiting and interpreting and organizational integration, it is more likely to be implemented than if it would have gone through only one or two of these stages. The 4I framework includes a fourth step, organizational institutionalizing, but it seems not to play a role in new ventures in nascent markets.

To understand how start-up composes their business model, the empirical part of this study was conducted as qualitative research. Three key decision makers from two start-ups were interviewed: Company A and Company U. Data collection combined narrative, visual, and interview methods. In the first phase of the interview, interviewees described their company story from inception to this date. Little guidance was given for the first phase to not steer the founding story in the desired direction but give room for surprising findings. Company A's interviewees complemented their story by drawing a visual timeline on a whiteboard (Appendix 2 & 3). Due to the tight schedules, Company U's founder was interviewed by phone, and the visual research method was out of the question. The second interview phase was conducted as a semi-structured interview with pre-defined main questions and spontaneous follow-up questions.

The empirical research supports the existing literature to a large extent and provides further findings on forming a collective schema in nascent markets. The study's findings align with the current research in that start-up teams learn about nascent markets through a Parallel Play process. The 4I organizational learning framework seems to explain how case companies transform learnings from individual intuiting to first interpreting them with the team and then integrating the learning as part of their operations. In addition to supporting the current literature, results showed that start-up team members gain learnings about the nascent market, but perception is required to introduce the new insight on an organizational level to shape the mutually recognized business model. Also, according to the empirical findings, a business model seems to be a collective cognitive schema organized into categories.

The research explores the Piagetian stage theory to understand further how collective cognitive schemas take shape. The Piagetian stage theory is generally applied in child development, and it describes that 2- to 7-year-old children organize their understanding of the world around them through categorization, where they learn to sort and group objects and experiences based on shared characteristics. Start-ups, like pre-schoolers, need to learn to categorize new information when facing new situations, such as conceptualizing their activity system. Overall, this research contributes to a deeper understanding of the business model design in nascent markets and how collective cognitive schemas take shape in the new venture learning process.

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## Appendices

### Appendix 1 Interview guide

#### *Background questions:*

1. Company name
2. Company founding year
3. Number of employees
4. Company turnover
5. When was the company founded?
6. Who are the founders?
7. What was and is your role in the company?

#### *Narrative interview questions:*

Company A: Describe your company's story from inception to this date

Company U: Describe your company's story from inception to this date. Focus on the early stages when you were just looking for the right direction.

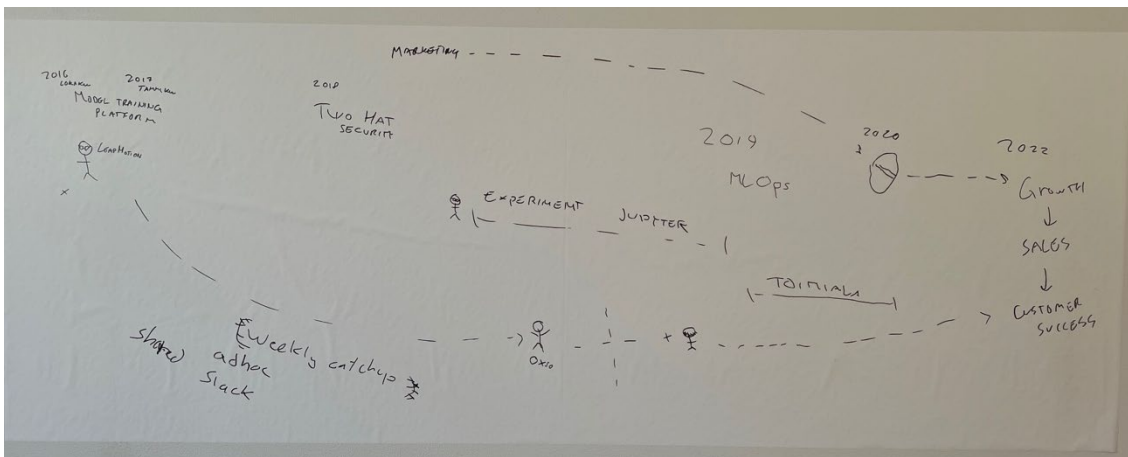
#### *Semi-structured interview questions:*

These questions are chosen based on what is discussed in the narrative section of the interview. Also, spontaneous follow-up questions may be asked.

Theme	Sub-theme	Questions
Business model design	Parallel play	<ul style="list-style-type: none"> <li>• Describe who the competitors were in your early days.</li> <li>• Did you copy something from your competitors?</li> <li>• After deciding to adjust something, did you just wait to see what happens?</li> </ul>

	Business model	<ul style="list-style-type: none"> <li>• When you learned something new, did it usually fit into the current business model? If not, how did you adjust?</li> <li>• At what point did you know that you were on the right path?</li> <li>• How to form a consensus about what needs to be done?</li> </ul>
New venture learning	Learning	<p>Think about specific new learning:</p> <ul style="list-style-type: none"> <li>• How did the learning happen?</li> <li>• Where did learning originate?</li> <li>• Why this specific learning resonated with the founding team?</li> </ul>
	Decision-making	<ul style="list-style-type: none"> <li>• How did you know that you had made the right decision?</li> <li>• Why was a specific approach chosen?</li> </ul>
	Communications	<ul style="list-style-type: none"> <li>• How did you share the new learning with team members?</li> <li>• Did you have systematic ways to report what you had learned?</li> <li>• Did you visualize the new information somehow?</li> <li>• How was the exciting knowledge updated?</li> </ul>

## Appendix 2 Company A, first drawing



Appendix 3 Company A, second drawing

