# The Adoption Of Design Thinking And Lean Startup In An Agile Organisation

A case study of a global financial institution

Master thesis
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Charles

# Summary

Background: GFI was a global financial institution. An innovation methodology, DTLSA, was created for GFI through the integration of Design Thinking, Lean Startup, and Agile/Scrum software development. Signs of a low-level adoption for DTLSA were witnessed internally, despite ongoing promotion efforts.

Objective: This project aimed at improving the DTLSA adoption at GFI through empirical research and design intervention (directions). First, an investigation was needed to validate the potentially low-level adoption of DTLSA and to analyse different aspects of the DTLSA adoption status quo. Then, barriers and enablers for DTLSA adoption were sought out in pursuit of a better understanding of DTLSA adoption. Furthermore, the contextual information gathered in empirical research was used to inspire the design process for potential improvement concept directions.

Research methods: A mix of different research methods were used to achieve a holistic understanding of the topic: literature and existing knowledge study, group session, interview, and survey.

Research results: The low level of DTLSA adoption was confirmed, despite the positive aspects of DTLSA adoption such as sufficient understanding, and high motivation at GFI. A variety of barriers and enablers were found, the majority of which were related to 2 significant factors: team autonomy, and team engagement. 3 growth stages for DTLSA adoption were identified regarding the different levels of these 2 factors. Team autonomy at risk caused by multiple barriers was considered the most pressing issue that led to the low level of adoption.

Design: The design problem was defined as empowering the ambassador figures who emerged in teams during the DTLSA adoption. A storyboard of a possible current situation and an imaginative narrative of an ideal situation was created. 3 concept directions were proposed.

Keywords: Combined approach, Design Thinking, Lean Startup, Agile software development, Organisational adoption, Innovation transformation.

Disclaimer 1: This report was anonymised due to the sensitive nature of the project and parts of the report can be found in a confidential appendix based on an agreement with the case client.

Disclaimer 2: The empirical research of this project was conducted in 2021, despite the report being made public at a later date. The knowledge generated from the project remains relevant, however, the information captured by this project may or may be reflective of the situation at the client company anymore after the research period.

# Glossary

GFI: the case company, a global financial institution.
DTLSA: The combined innovation approach of Design Thinking, Lean Startup, Agile/Scrum developed for and used by GFI.
CES: Customer Experience Specialist, a function at GFI.
IT Engineer: It covers both Development engineers and Operations engineers.
DA: Data Analyst.
UX Designer: User Experience Designer.
Combined approach: Different methodologies/frameworks that combine Design Thinking, Lean Startup, and Agile/Scrum.
CX: Customer Experience.
Regional Leader: the combination of the 2 business units where GFI currently has leading market positions.
DT: Design Thinking.
LS: Lean Startup.
Business Cluster: A collection of teams working towards the same business purpose; the agile equivalent of "department" in the context of this project.
Chapter: Within a business cluster, people with the same job function and similar responsibility/mission are gathered as a chapter for coordination and skill development.
CoE: Center of Exellence.

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# 1. Introduction

This chapter established the starting point of the project with background information on the project, the assignment, and the approach this project had taken.

Organisations and businesses need to transform to be more innovative in adaptation to the current world with technological change and rapidly shifting customer expectations. This also holds for all the established financial institutions, with Fintech companies disrupting the way how people operate financially.

## 1.1 Case company: GFI

GFI is a global financial institution. It has strong positions in some European countries and has a global presence. The broad customer base of GFI includes individuals, small and medium-sized businesses, large corporations, institutions and governments.

Different (regional or business) divisions at GFI are called different business units. Regional Leader refers to the combination of the 2 business units where GFI currently has leading market positions. They are a strategically important part of GFI and have tens of thousands of employees.

## 1.2 Innovation at GFI: Purpose, department & approach

(Baregheh et al., 2009) proposed to define innovation as the multi-stage process whereby organisations transform ideas into new/improved products, services or processes, to advance, compete and differentiate themselves successfully in their place. Innovation has been on the agenda of a lot of companies, including GFI.

### Innovation purpose

[See Confidential appendix - B]

### Innovation area & project client

[See Confidential appendix - B]

### Innovation approach: DTLSA methodology

DTLSA methodology is GFI's structured innovation process, which combines Design Thinking, Lean Startup, and Agile methods into one process. (In-depth explanation of the methodology will be provided in Chapter 2.) It encourages the rapid launch of customer-validated new products and services developed by small, autonomous, multi-

functional teams. DTLSA ensures that GFI follows a common process and terminology globally.

## 1.3 Problem: (Potentially) low level of innovation methodology adoption

The adoption of DTLSA (that is used in this project) refers to a more frequent application of DTLSA methodology in the daily job of GFI employees. [See Confidential appendix - B]

What is worth mentioning here is that this project originally had a different focus, which was investigating the adaption of former intrapreneurs after returning to their prior job from the boot camp or the venture they created. However, despite the ongoing efforts within GFI to facilitate the DTLSA adoption, signs of a low-level adoption were witnessed during the period after the author was onboarded and granted access at GFI. The low level of adoption was reflected by the results of the different metrics (which will be further elaborated in the following chapter). And the DTLSA Coaches constantly got requests for coaching despite their limited capacity. Therefore, the project focus shifted towards validating the (potential) low level of DTLSA adoption and investigating the possible causes for that.

## 1.4 Assignment: (Service) design for adoption facilitation

The assignment was described as follows:

### How can a design intervention help the GFI Employees to better adopt the DTLSA methodology by boosting the application of DTLSA methodology in their daily job?

As a Master's graduation project at Industrial Design Engineering Faculty, TU Delft, the assignment was required to include a design research component and a concept design and development component. The design research component would be further defined in Section 2.5. The design intervention, which would be the result of the concept design and development phase, can be described as follows:

As a result of the project, a set of (service) design directions would be given for the better and more frequent utilisation of DTLSA methodology among GFI employees. The form of the proposed design directions was yet to be decided through the development of the project.

## 1.5 Project relevance

The project would provide a lens to look into the topic of innovation transformation in general beyond the case of GFI, as a lot of organisations went/were going through the implementation of Design Thinking and Lean Startup in an Agile setting, such as PayPal

(Meingast et al., 2013). The findings and interventions at GFI could, to some extent, shed light on these organisations undergoing similar situations.

## 1.6 Project approach

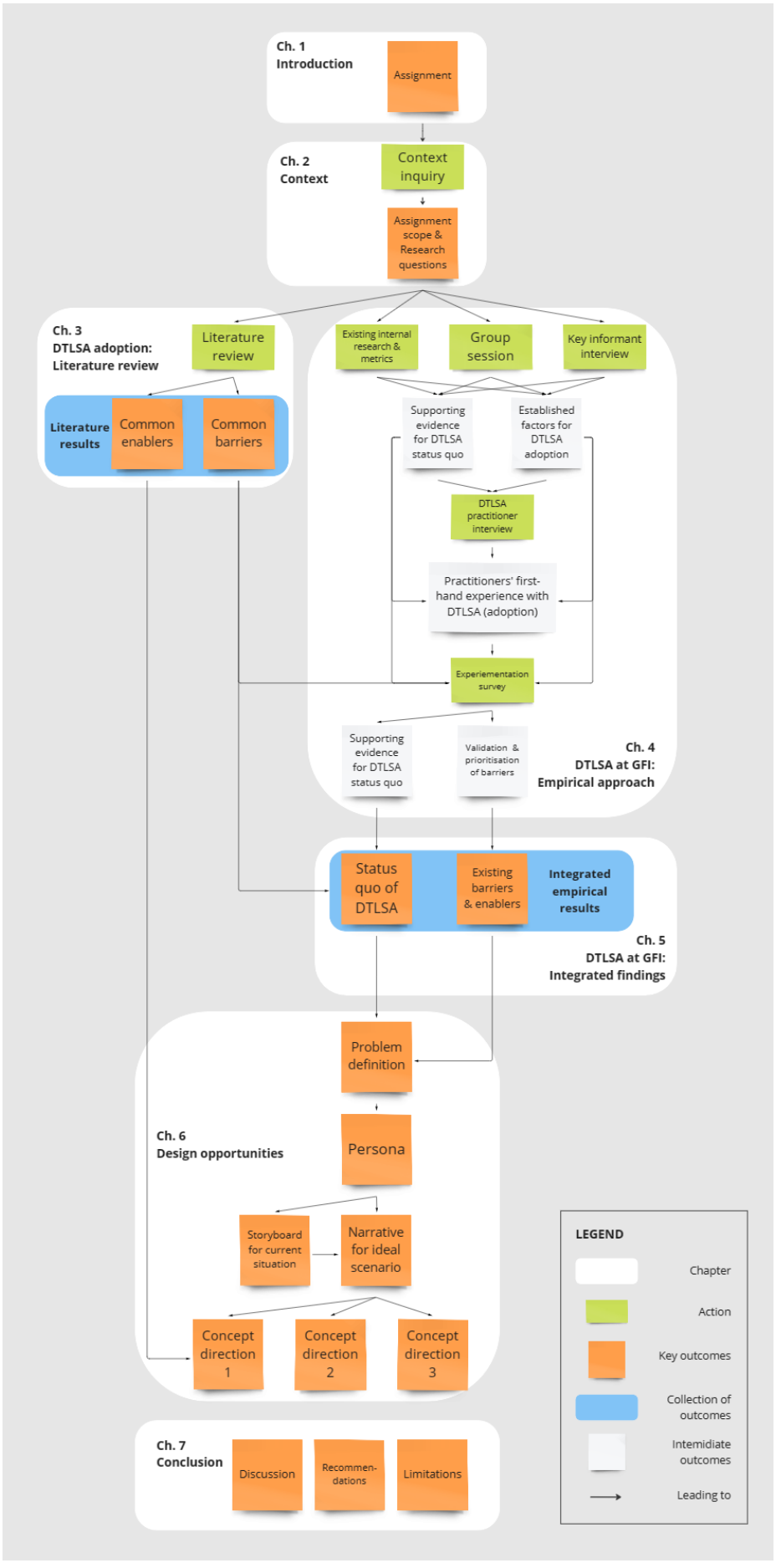
This section chronicled each major step taken in the project approach. An overview of the project approach and the associated chapter is demonstrated in Figure 1.1.

Contextualisation and scoping: In Chapter 2, contextualised information relevant to the project was introduced. As a result, the assignment was scoped to a tangible problem, and research questions related to the problem were raised.

Research: Literature review and empirical research were run in parallel. In Chapter 3, Literature around the organisational adoption theories, theory-based agile adoption studies, and studies of combined approach (Design Thinking, Lean Startup, and Agile/Scrum) were investigated to provide reference points of common barriers and enablers for adoption similar to the DTLSA one. Then, a mix of different research methods was used in the empirical study at GFI. The empirical methods were explained in Chapter 4, and the integrated empirical results were presented in Chapter 5. The empirical results provided a grounded answer to the research questions and rich insights that inspired the design exploration.

Design opportunities: The design problem was first defined in Chapter 6. A persona of the intended user was then developed. The intended users' current and ideal situations were explored through a storyboard and a written narrative. In the end, 3 concept directions were identified at different moments of the ideal scenario.

Figure 1.1: Flow chart of the project approach.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Intemidiate outcomes
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# 2. Context

The contextual information around the assignment was collected from internal communication & documentation at GFI. And the author took the DTLSA online training, in order to better understand the assignment. Among others, the content of the DTLSA methodology and the existing effort of GFI on DTLSA adoption, which were elaborated on in the chapter, were the most crucial for understanding the assignment. The contextual information was then used for assignment scoping and raising research questions. At the end of the chapter, the overview of different research methods used in this project was presented.

## 2.1 DTLSA methodology

[See Confidential appendix - B]

## 2.2 DTLSA-related initiatives

[See Confidential appendix - B]

## 2.3 Assignment scoping

The assignment scope was further specified with the knowledge of the aforementioned contextual information. The assignment was described as follows:

How can a design intervention help the **GFI Employees** to better adopt the DTLSA methodology by **boosting the application of DTLSA methodology** in their **daily job**?

### GFI Employees: Delivery area of Regional Leader

The GFI Employees within the scope of the assignment were specifically the ones within the delivery area of the Regional Leader.

This project focused on the employees at the Regional Leader of GFI for several reasons: 1) Regional Leader covered a big part of GFI with a vast number of employees, which was representative of the usually complex situation of corporate innovation. 2) Regional Leader scored fairly low in the Maturity Survey, which meant that the legacy way of working was still largely in place. 3) Regional Leader currently had a high registry for DTLSA online training enrolment, ensuring a good shared basic understanding of the subject of DTLSA.

As mentioned before, the delivery business clusters at GFI were tasked to handle the development and maintenance of different (digital) services of GFI, which was directly what the DTLSA methodology is intended for. The delivery business clusters were also structured in an agile manner and equipped with relevant human resources for DTLSA. DTLSA online training was open to the whole GFI to learn from but it was much more natural for employees to blend those activities into their daily job. Therefore, the delivery business clusters made a perfect case for DTLSA adoption.

### Boosting the application of DTLSA

Applying DTLSA here referred to conducting activities that are part of the DTLSA methodology. Based on the DTLSA online training curriculum, a list of defined DTLSA activities and involved artefacts was extracted (Table 2.1).

Table 2.1: DTLSA activities

| | |
|---|---|
| **Discovery/Scoping phase**<br>• Stakeholder mapping<br>• Data & Metrics<br>• Scoping canvas | **Problem fit**<br>• Customer Research:<br>  ○ Interview<br>  ○ Survey<br>• Persona (canvas)<br>• Customer Journey Mapping<br>• Value Proposition Canvas<br>• Service Blueprinting<br>• How Might We… (Canvas) |
| **Solution fit**<br>• Ideation/Brainstorming<br>• Concept design<br>• Assumption & Experimentation:<br>  ○ Assumption ranking (canvas)<br>  ○ Experiment loop canvas<br>  ○ Hypothesis formulation<br>  ○ A/B Testing<br>  ○ Landing page<br>• Prototype & Evaluation<br>• Making evidence-based decisions | **Market fit**<br>• Business model canvas |

### The daily job

The daily job here meant what the employees had been doing for their job contractually, with or without DTLSA methodology. Sometimes in DTLSA training or practices, there would be hypothetical or standalone projects for the employees to work on. Those existed for valuable reasons but were not exactly integrated with the daily job of the employees. On the one hand, GFI expected the employees to use DTLSA more in their daily job and saw it as a sign of a high level of adoption; but on the other hand, there had been complaints from some employees about the difficulties of finding a connection between DTLSA and their job context, out of different reasons. Therefore, the assignment focused on the integration of DTLSA and employees' daily job.

## 2.4 Research questions

To achieve this assignment, the following questions need to be answered with research.

In order to validate the potential low level of DTLSA adoption, research question 1 was raised:
**RQ1: How is DTLSA currently being applied at GFI?**

In order to investigate the causes for the potential low level of DTLSA adoption, and provide relevant information for design, research question 2 was raised:
**RQ2: What are the key barriers and enablers to applying DTLSA?**

## 2.5 Overview of research activities

Based on the assignment and research question, the overview of the research activities for this project was presented (see Table 2.2).

There were 4 types of research with different purposes. Firstly, a literature review was conducted to search for a theoretical foundation and discovered common factors for DTLSA adoption. Secondly, existing internal research, a group of DTLSA coaches, and a key informant were consulted in different ways to make an initial exploration of the research questions. Then, a number of DTLSA practitioners were interviewed to gain a grounded understanding of their perspective. Lastly, a survey was conducted with the participation of a number of GFI Delivery employees to help converge and validate the findings of the previously done research. The logic sequence of all the research activities can be found in Figure 2.1.

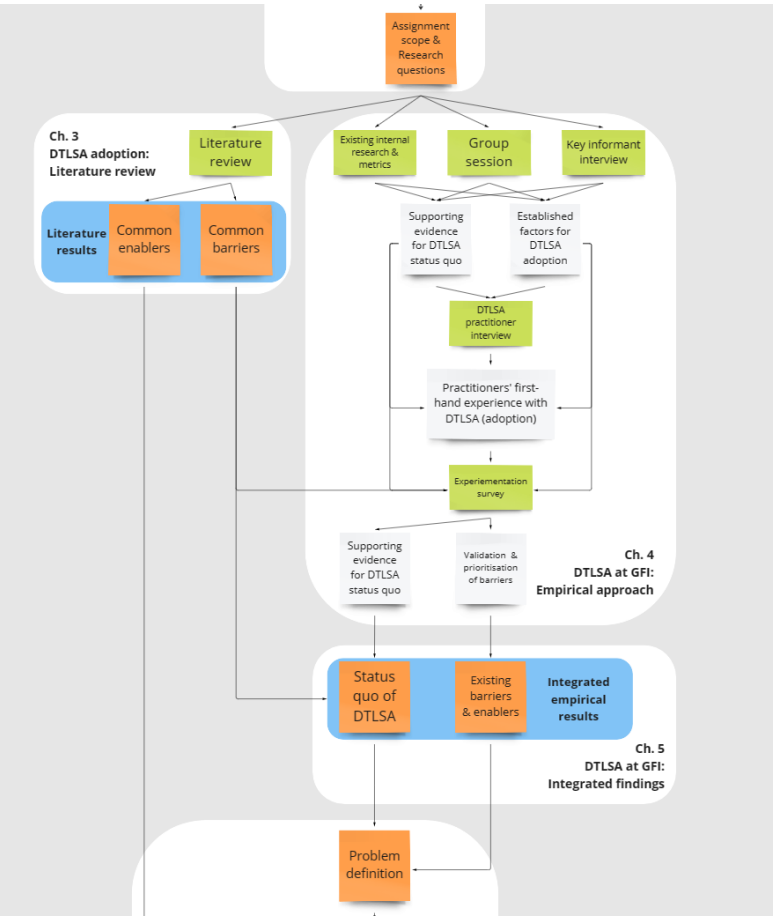


Figure 2.1: Research activities breakdown.

All the research activities involving the GFI context were conducted during the period March 2021 - January 2022 when access to internal personnel and communication was granted through the author's internship at GFI. The internship was created solely for this research, and the author did not participate in any operational activities of the case client (innovation management) or research participants (software development).

Albeit presented in a clear sequence in the overview, the research components were not executed exactly in a linear manner. The research components were put together in adaption to the different changes and new findings throughout the project. For example, the sampling strategy was adjusted after finding out the interview participants of round 1 were clustered around the less mature side of DTLSA adoption (reasoning for each research component and the shifting subjects can be found in Chapter 4). The literature review process spanned throughout the process of the empirical research, based on the consideration of (Glaser, 1978) that a major literature review in the same area of Grounded Theory study (used by the interview components of the empirical research) during the early stages could potentially be undermining. The literature review results informed, not the set-up, but the analysis of the empirical research.

Table 2.2: Overview of research activities.

| **Relevant prior knowledge collection** | | | | |
|---|---|---|---|---|
| **Component** | Literature review | | | |
| **Duration** | Continuously | | | |
| **Subject** | Organisational adoption theories, Agile adoption, Combined approach adoption | | | |
| **Samples** | 23x literature | | | |
| **Purpose** | 1) Common factors finding<br>2) Design inspiration | | | |
| **Empirical research - Exploration** | | | | |
| **Component** | Existing internal research | Group session | Interviews | |
| **Duration** | Continuously | June 24, 2021 | June to September 2021 | |
| **Subject** | DTLSA adoption | | Experimentation adoption | DTLSA adoption |
| **Samples** | 5x internal research | 5x DTLSA Coaches | 1x key informant | 18x DTLSA Practitioner |
| **Purpose** | 1) Exploring prominent or expected themes around research questions and barriers through existing research and the experience/knowledge of the key informants;<br>2) Gaining a general impression of the status quo of DTLSA due to the wide reach of different internal research and the rich experience of the key informants | | | Gaining a grounded, contextual understanding of DTLSA adoption from the point of view of GFI employees |
| **Empirical research - Validation** | | | | |
| **Component** | Survey | | | |
| **Duration** | September 28, 2021 - October 6, 2021 | | | |
| **Subject** | Experimentation adoption | | | |

| | |
|---|---|
| **Samples** | 73x employees at GFI Delivery |
| **Purpose** | 1) Validate discovered insights<br>2) Prioritise significant barriers to be solved<br>3) Provide quantified evidence to the status quo of DTLSA |

# 3. DTLSA adoption: Literature review

Relevant literature was examined to understand the mechanism, barriers and enablers for methodology adoption similar to DTLSA adoption. This was accomplished by looking at literature both from the organisational (agile) adoption field and about the combined approach of Design Thinking, Lean Startup, and Agile.

First, the literature findings around organisational innovation adoption laid the theoretical background, with agile adoption being used as an example to demonstrate the implication of the theories. Then specific knowledge about the adoption of the combined approach was presented. The difference between the 2 fields was compared.

## 3.1 Purpose

The literature review served 2 purposes as detailed below:

1) Understanding: Theories and frameworks from existing literature could inform the understanding of the current state and mechanism of DTLSA adoption (RQ1).
2) Referencing: Common barriers and enablers for organisational adoption or combined approach transformation from the literature acted as pointers for research and design (RQ2).

## 3.2 Methodology

### Samples

A total of 23 literature items of journal articles, conference papers, books, and (master) thesis were examined for the literature review. 7 items were about innovation adoption by organisations and specifically agile adoption. 16 items were about the organisation's adoption of the combined approach of design thinking, lean startup, and agile.

### Data collection

The initial round of literature searches was conducted on Google Scholar. Some of the search strings can be found in Table 3.1. After the initial round, more relevant literature was also found through the citation of collected literature or articles cited in the collected literature. For both rounds, literature with relevant theories and frameworks that describe the 2 themes and common barriers and enablers applicable to the 2 themes were sought after.

Table 3.1: A partial display of the used search strings in the literature search.

| Organisational adoption | Combined approach |
|---|---|

| | |
|---|---|
| "Organization adoption literature review"<br>"Organization Agile adoption"<br>"Organization technology adoption"<br>… | "Design thinking lean startup agile adoption"<br>"User-centered design lean startup adoption"<br>"UX lean startup adoption barriers"<br>… |

## 3.3 Organisational adoption

The adoption process is a sequence of stages a potential adopter of an innovation passes through before acceptance of a new product, service or idea (Frambach & Schillewaert, 2002). Rogers (Rogers, 1995a) defined the adoption process as "the process through which an individual or other decision-making unit passes from first knowledge of an innovation to forming an attitude toward the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision." For organisational adoption, two main stages could be distinguished: the initiation stage (awareness, consideration, and intention) and the implementation stage (adoption decision, and continued use) (Lafreniere et al., 2011). For the case of DTLSA adoption at GFI, knowledge around the implementation stage, which consists of adoption decision and continued use, was relevant, since the initiation stage had concluded with the managerial intention of promoting the adoption of DTLSA.

### 3.3.1 Organisational adoption frameworks

To examine innovation adoption on the organisational level, the diffusion of innovation (Rogers, 1995b) and technology-organization-environment (Tornatzky & Fleischer, 1990) framework (Figure 3.2) were most commonly used (Senyo et al., 2018). Institutional theory (Scott, 2004) had also been used to emphasise the social and cultural effects in the adoption context. On the individual level, there were frameworks widely used for the evaluation such as the theory of planned behaviour (Ajzen, 1985), the technology acceptance model (Davis, 1989) and its extension (Venkatesh & Davis, 2000) (Figure 3.3), unified theory of acceptance and use of technology (Venkatesh et al., 2003), and so on, with the diffusion of innovation also covering the individual level.

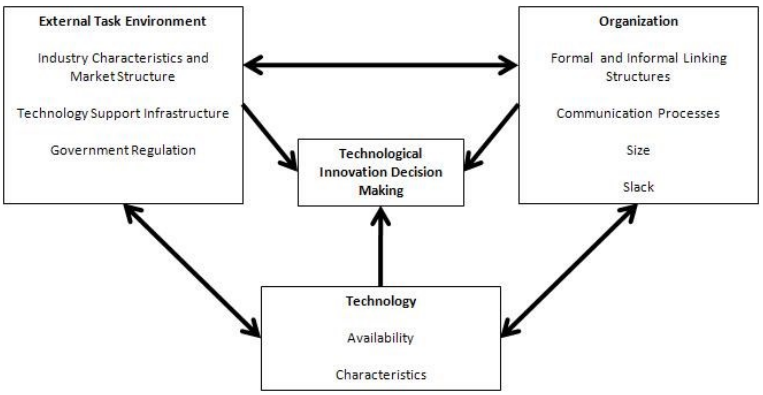



Figure 3.2: technology-organization-environment framework (Tornatzky & Fleischer, 1990).

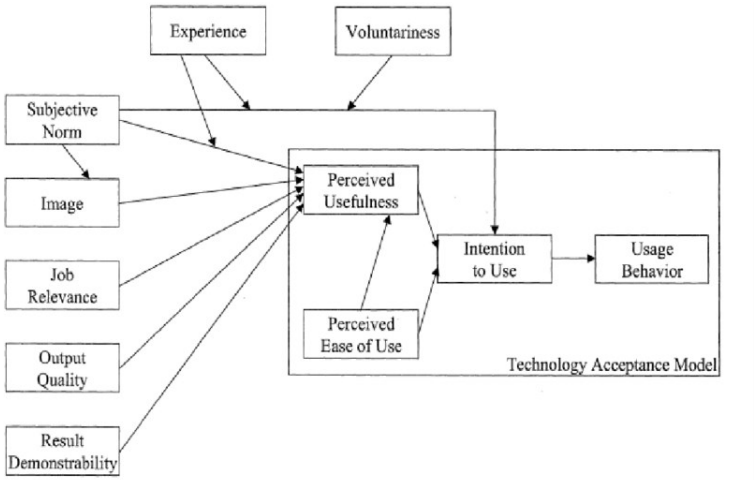



Figure 3.3: Extended Technology Acceptance Model (Venkatesh & Davis, 2000).

### 3.3.2 Agile adoption: Through the lens of organisational adoption theories

To demonstrate how the organisational adoption theories could be used to approach the adoption of a structured development methodology like DTLSA, it was relevant to look at the literature about Agile methodology adoption as an example since 1) Agile provided the foundation for the DTLSA since the design and experiment activities could only happen (regularly) when integrated into the agile rhythm; 2) Agile as a structured software development methodology was comparable to DT and LS as methodologies, therefore its adoption (which required an extensive amount of effort and changes at the organisation) could bring relevant knowledge to the integration of the latter 2 to the organisation; 3) Agile manifesto (Kent Beck et al., 2001) was published more than 2 decades ago, and since then many companies had gone through their Agile adoption, which allowed the accumulation of a rich amount of research conducted on the topic.

The topic of introducing and adopting agile methodology in organisations had been widely researched, and a large amount of these studies were anecdotal and qualitative with sometimes inconsistent findings (van Manen & van Vliet, 2014). However, (Chan & Thong, 2009) revealed the lack of theory-based empirical studies on the adoption and acceptance of agile methodologies. Furthermore, it was discovered during the literature search that there was a very limited amount of existing effort in examining agile transformation through the lens of organisational adoption, which was in line with the general lack of a theoretical basis for Agile studies, and those that had a theoretical foundation chose a wide variety of theoretical perspectives including different behavioural and mathematical theories (Dingsøyr et al., 2012).

3 journal articles that utilised organisational adoption theories were found during the literature search to examine the factors relevant to agile adoption or acceptance:

- (Chan & Thong, 2009) investigated the acceptance of agile methodologies through the critical review of prior work on Agile and other structured development methodologies, and proposed a conceptual framework for the acceptance. The authors integrated the literature stream of the acceptance of traditional system development methodology before Agile into the theoretical

foundation, which was mostly based on organisational adoption frameworks such as the Technology Acceptance Model and Theory of Planned Behaviours. The proposed conceptual model contained factors related to ability, motivation, opportunity, and agile methodology characteristics.

- (Vijayasarathy & Turk, 2012) provided a comprehensive, theory-based study on the driving factors of agile methodology use through online surveying. They hypothesised 7 factors having an influence on agile acceptance based on prior theory-based literature and drew on intention-based theories. It was found that perceived benefits and perceived hindrances had a dialectic interplay on agile use: if there were no perceived hindrances to the use of agile methodology (which was rather unlikely), then perceived values of Agile methods wouldn't affect the use of the agile methodology. However, if there was a certain level of hindrances sensed by the employees, then perceived benefits became effective in increasing agile use.
- (Batra, 2020) conducted a survey study on the acceptance of large-scale Agile methodology based on 5 significant factors found in the theory-based literature.

### 3.3.3 Barriers and enablers of Agile adoption

Synthesising the hypotheses of the 3 articles, we could arrive at a list of potential factors that influence agile adoption (Table 3.2). What was worth noting here was that this synthesising effort was by no means meant to achieve an overview of all the factors influencing Agile adoption, but mostly to provide a glance at how the organisational adoption theories would manifest themselves categorically in a context close to DTLSA adoption. The factors were first clustered based on which level of abstraction they were the closest related to: the organisational level, team and inter-team level, Agile methodology level, and individual level. 3 levels, organisation, Agile, and individual, were in line with the existing frameworks for organisational adoption (Figure 3.2 & 3.3). Due to the emphasis of Agile methodology on self-organising teams (Kent Beck et al., 2001), therefore factors such as shared understanding, and subjective norm would be heavily influenced by the team, hence the emergence of the team or inter-team level. Then specifically for the organisational level, which contained different themes, the themes from (Saghafian et al., 2021): organisational culture and structure, leadership and management, and organisational interventions, were used.

Table 3.2: Factor of influence for the adoption of the Agile methodology.

| Factors | ± | Definition |
|---|---|---|
| **Organisational level** | | |
| Theme: Organisational culture and structure | | |
| Organizational culture | + | Organizational culture can be described as a set of beliefs created, uncovered or cultivated by a particular group to resolve external adaptation and integration issues. Once successful, these principles are then passed on to new members as the appropriate way to think, feel and respond to those issues (Schein, 1990). |
| Organizational size | - | The size of the organization was calculated with three factors – yearly income, total number of workers, and amount of software developers. (Vijayasarathy & Turk, 2012) |
| Theme: Leadership and management | | |
| Top management | + | The consistent and enthusiastic approval of upper-level management for an idea |

| | | |
|---|---|---|
| support | | or concept that requires innovation (Sultan & Chan, 2000). |
| Theme: Organisational interventions | | |
| Training | + | A set of formal procedures that an organization uses to teach employees so that their performance can help the company reach its goals and objectives (William & Thayer, 1961). |
| External support | + | Hiring trainers or seeking advice from expert consultants (Roberts et al., 1998). |
| Mandatoriness | - | The compulsion of the desired behaviour to be fulfilled (Iivari & Huisman, 2007). |
| **team and inter-team level** | | |
| Theme: Social factors | | |
| teamwork | + | The collective willingness to cooperate and collaborate with other team members and across teams (Ruiz Ulloa & Adams, 2004). |
| Communication | + | An activity by which people transmit knowledge through a shared method of conduct (Myers, 1972). |
| Shared understanding | + | How close the values, expectations, beliefs, problem-solving techniques and collective job experience of a dyad are to each other (Gerwin & Moffat, 1997). |
| Subjective norm | + | The effect that referents have on someone's acceptance of an SDM (Hardgrave & Johnson, 2003). |
| Arduous relationship | - | Emotional difficulty and detachment between the two parties involved (Szulanski, 1996). |
| **Agile methodology level** | | |
| Theme: Perceived characteristics of Agile methodologies | | |
| Perceived usefulness | + | An individual's belief that utilizing an SDM will help them be more successful in their job function (Hardgrave et al., 2003). |
| Perceived ease of use | + | How effortless one perceives it will be to use a particular software development method. This includes the mental and physical input required from the user. (Hardgrave et al., 2003). |
| Perceived compatibility | + | How an individual judges the extent to which the utilization of a software development methodology fits in with their existing programming practice. (Hardgrave et al., 2003). |
| Result demonstrability | + | How well an invention is seen to prove its usefulness or the extent to which it can be shown to have tangible benefits. (Mathieson, 1991). |
| Perceived hindrance | - | The obstacles and limitations (e.g., lack of encouragement and backing from peers and institutions) stand in the way of agile adoption (Vijayasarathy & Turk, 2012). |
| Perceived limitation | - | How the use of agile software development processes is seen to negatively impact a project, such as inadequate documentation, increased bugs/defects, or lack of standards. We anticipate that the presence of these limitations would be negatively correlated with greater use of agile techniques (Vijayasarathy & Turk, 2012) |
| Perceived maturity | + | A function of technology uncertainty and inexperience (Lee & Kim, 1998). |
| **Individual level** | | |
| Theme: Individual characteristics | | |
| SDM self-efficacy | + | An individual's assessment of their ability to employ a Structured Development Model (Compeau & Higgins, 1995). |

| | | |
|---|---|---|
| Experience | - | Relevant previous technical knowledge an individual possesses (Brooks, 1980). |
| Career consequences | + | The dimension of long-term results of utilisation refers to consequences that have a payoff in the future, such as increased flexibility in changing jobs or increased opportunities for more fulfilling work (Thompson et al., 1991). |

## 3.4 Combined approach adoption: Design Thinking, Lean Startup & Agile

Considering the nature of DTLSA being the combination of Design Thinking and Lean Startup in an Agile setting, the literature review, therefore, required an examination of literature about this combined approach to uncover the existing knowledge on the organisational adoption of it.

There were different motivations behind the origin of various combined approach models. Some models were prompted by the software development side: using user-centered Design Thinking and business-centered Lean Startup to overcome the observed drawbacks of Agile methodology (Vilkki, 2010). While some other models were framed as an enhanced UX design approach (Gothelf & Seiden, 2021) or a methodology for the generation of innovation (Grossman-Kahn & Rosensweig, 2012). Overall, studies on these models show that there is value in combining the three different approaches (Dobrigkeit et al., 2020).

Albeit the presence of different combined approach models, there was a lack of studies thoroughly examining the organisational adoption of the combined approach. The existing combined approach literature was mostly experience reports or case studies without theoretical consideration of organisational adoption. This may be caused by the limited amount of research on Lean Startup compared to the other 2 pillars (Zorzetti, Moralles, et al., 2021). Literature on Agile adoption was examined in the previous section, and while it could be assumed that the adoption of the combined approach shared similar factors of influence (if not more complicated, given its three-pillar method), there is currently no evidence supporting this. (Signoretti, Salerno, et al., 2020)

### 3.4.1 Existing combined approach models & studies

6 models for the combined approach were found in the literature, namely Lean UX (Gothelf & Seiden, 2021), Converge (Menezes, 2015), Discovery by Design (Grossman-Kahn & Rosensweig, 2012), InnoDev (Dobrigkeit et al., 2019), MoIT (Paula, 2015), ORG (Zorzetti et al., 2022). An overview of the existing combined approach models along with DTLSA was presented in the table below (Table 3.3).

Table 3.3: Comparison of different models for the combined approach. "-" stands for "unspecified". Adapted from (Zorzetti, Signoretti, et al., 2021)

| Model | Foundation and Development | Evaluation | Representation | No. of Techniques | Functions & Roles |
|---|---|---|---|---|---|
| Lean UX | Based on the foundation of Design | Practised in the industry | Text descriptions, | - | Product Designer, Software Engineer, |

| | | | | | |
|---|---|---|---|---|---|
| | Thinking, Lean Startup, and Agile software development methodology | and evaluated in research studies or experience reports | diagrams, canvas | | Product Manager |
| Converge | Based on previous work combining Agile, Lean Startup, and Design Thinking and adjusted through the opinions and empirical observation of an undergraduate student team | Empirically evaluated with an undergraduate student team | Text descriptions, a high-level diagram | 9 | Developer (inferred), Project Lead |
| Discovery by Design | Iteratively built upon by the innovation team of a large fashion retailer as difficulties and needs arose by combining Agile and Lean Manufacturing principles, Design Thinking, and Lean Startup | Empirically evaluated along its development on an industry case | High-level diagram | 5 | - |
| InnoDev | Combines DT@Scrum and MoIT into a process model that spans Design Thinking, Lean Startup, and Scrum | Surveys and workshops (not executed yet) | Text descriptions, a high-level diagram | 31 | InnoDev team, InnoDev Facilitator, Process Master, Product Owner, Project-specific Expert, Project Sponsor, Scrum Master |
| MoIT | Based on empirical observations and opinions of two student teams running Discovery by Design and Hildenbrand and Meyer's model | Empirically evaluated with an undergraduate student team | Text descriptions, a high-level diagram | 8 | - |
| ORG | Mapped from two industry teams' accounts of their specific use of Pivotal Labs, which spans Extreme Programming, Lean Startup, and User-Centered Design | Empirically evaluated with two industry teams from a multinational organisation | Text descriptions, high-level diagrams, process model (BPMN) | 32 | Product Designer, Product Manager, Software Engineer |
| DTLSA | Implementing Design Thinking and Lean Startup activities on the existing Agile rhythm and team structure | Practised at GFI, ongoing monitoring | Text descriptions, high-level diagrams | 20 | Customer Experience Specialist, Data Analyst, IT Engineer, Product Owner, Product Designer, DTLSA Coach |

Most of the models had visual illustrations of the process that was specified to different stages or different pillar usage. Lean UX only had an abstract diagram and a canvas as its manifestation. The process of different models are largely similar: heavy utilisation of Design Thinking (double diamond framework) followed by Lean Startup (build-measure-learn cycle) and agile development work, although ORG teams specifically involved all the team members in an "iteration 0" instead of having designers working "one iteration

ahead" of the developers in the upfront design phase (Zorzetti et al., 2022). Despite having a structured workflow and process, both (Grossman-Kahn & Rosensweig, 2012; Zorzetti et al., 2022) argued that the teams need to use it in an "organic" fashion and should be allowed to adapt the approaches to their need.

All the models use Scrum (Schwaber & Sutherland, 2020) for project planning. ORG specifically also incorporates Extreme Programming (Beck, 1999) for software development.

Most of the models (Lean UX, InnoDev, ORG) advocated for a multidisciplinary team that had representatives for each of the 3 pillars in the combined approach. Other models, limited by the evaluation study setting or the conducting location (e.g., Innovation Lab), did not have a team with all 3 backgrounds.

Except for Lean UX, most of the models were applied in a somewhat contained environment, such as academic labs, startups, innovation labs, or a limited number of trained teams specifically for the combined approach, with InnoDev being currently not backed by a case example. The case company of (Zorzetti et al., 2022) aimed at scaling the combined approach beyond the initial 2 teams, however, there was no follow-up report on that.

### 3.4.2 Barriers and enablers of combined approach adoption

The common barriers and enablers were gathered from the relevant literature on the combined approach (see Table 3.4). Whether the factors act as a barrier (+) or enabler (-) was also identified. These barriers provided possible pointers to look into the GFI context in empirical research. And the enablers inspired design ideation.

The factors were first clustered based on which level of abstraction they are closest related to the organisational level, team level, combined approach level, and individual level. These 4 levels were in line with the existing organisational adoption framework and previously presented Agile adoption findings. Then for the organisational level, the themes from (Saghafian et al., 2021): organisational culture and structure, leadership and management, and organisational interventions, were used. For the team level, the 2 prominent themes from (Signoretti, Salerno, et al., 2020), team engagement and team autonomy, were used. For the combined approach level, factors were grouped into the themes of the responsible pillar: Design Thinking, Lean Startup, or Agile methodology. There were also enablers for the combined approach adoption in the technical aspects documented in the literature, such as pair programming and unit testing (Signoretti, Salerno, et al., 2020). However, due to the scope of this thesis and the limitation of technical knowledge possessed by the author, those were excluded from this thesis.

Table 3.4: Factors of influence from the literature for the adoption of the combined approach.

| Factors | ± | Explanation |
|---|---|---|
| **Organisational level** | | |
| Theme: Organisational culture and structure | | |

| | | |
|---|---|---|
| Incompatible corporate policies | - | Legacy policies or policies of the rest of the corporate can often be unaccommodating for the adoption of the combined approach and threaten the autonomy of the teams (Signoretti, Salerno, et al., 2020). |
| Lack of buy-in from business | - | It is mostly caused by the conflict between decision-making power being contracted in the business area and the autonomy of the team to explore business-level issues advocated by the combined approach (Grossman-Kahn & Rosensweig, 2012; Liikkanen et al., 2014; Signoretti, 2020). |
| Proximity to the rest of the organisation | - | The teams expressed that the distance from the organisation helped them stay autonomous and away from the influence of the legacy way of working (Signoretti, Salerno, et al., 2020). |
| Change of culture | + | The implementation of the combined approach calls for a new organisational culture: Be humble, open, collaborative, no heroes mentality, and problem-oriented (Gothelf & Seiden, 2021). |
| Theme: Leadership and management | | |
| Lack of middle management support | - | A crucial factor for the combined approach adoption due to its impact on the autonomy of the teams (Gothelf & Seiden, 2021; Signoretti, 2020; Signoretti et al., 2019; Signoretti, Salerno, et al., 2020). |
| Top management support | + | It gives middle management the confirmation and pressure that they must cooperate with the combined approach teams now (Signoretti, Salerno, et al., 2020). |
| Theme: Organisational interventions | | |
| Prior Agile transformation | + | The teams that have implemented agile methods for their software development process prior would have an easier time with the adoption of the combined approach (Liikkanen et al., 2014). |
| Dedicated transformation team | + | The organisation created a transformation team in charge of defining strategies and their roll-out, connecting initiatives and personnel, and creating resources for the adoption of the combined approach (Signoretti, 2020). |
| Colocation and collaborative workspaces | + | The combined approach made co-locating the team in an inspiring physical workspace a necessity (Gothelf & Seiden, 2021; Meingast et al., 2013; Zorzetti et al., 2022). |
| Toolkit, training, and coaching | + | The studied organisation provided a toolkit (consisting of workshops, cookbooks, on-the-job training and coaching, and health assessment) as a means to guide piloting teams and kicking off the process (Signoretti et al., 2019). |
| Pilot teams Acting as Enablers | + | The studied organisation used the pilot teams as enablers in their strategy of snowballing training to scale the use of the combined approach (Signoretti, 2020). |
| Community of practices | + | The early adopters of the combined approach created their community meeting initiative that is open to all employees (Signoretti, 2020). |
| **team level** | | |
| Theme: team autonomy | | |
| team decision-making autonomy | + | The use of a combined approach benefits the team by having product and solution ownership and being able to decide what is best for the user based on the result of the combined approach (Liikkanen et al., 2014). |
| Cross-functional team structure | + | A team with each competence representing a pillar of the combined approach. It may not be the norm in organisations, especially the UX Designer or researcher (Gothelf & Seiden, 2021; Liikkanen et al., 2014). |
| Dependencies with other teams | - | The needs and requests from other teams can get in the way of the delivery of added value to their own products, or the multi-team structure slowing the pace of learning and delivery (Signoretti, Zorzetti, et al., 2020). |

| | | |
|---|---|---|
| Lack of stakeholder support | - | The stakeholders are also required to evolve their mindset and become active in product development with the adoption of the combined approach (Grossman-Kahn & Rosensweig, 2012; Meingast et al., 2013; Signoretti et al., 2019; Signoretti, Zorzetti, et al., 2020). |
| Theme: team engagement | | |
| Separate discovery and delivery silos | - | The team split into different silos and executed different parts of the combined approach. It undermines the shared knowledge, halts the pace of decision-making and stifles the team's unity, efficiency, and learning. (Gothelf & Seiden, 2021) |
| Shared responsibilities & participation | + | Making sure everyone on the team participates in the whole process and all the activities of the combined approach (to some degree at least) and share the responsibility collectively (Gothelf & Seiden, 2021; Liikkanen et al., 2014; Manwaring et al., 2017; Signoretti, 2020; Signoretti, Zorzetti, et al., 2020). |
| Miscommunication | - | Unvalidated assumptions would often be made due to someone's absence to move with the rapid pace of the combined approach, and the lack of UX design documentation can create confusion in the teams (Nudelman, 2018). |
| Feedback between team members | + | Mutual feedback between team members was necessary to promote team engagement (Signoretti, Zorzetti, et al., 2020). |
| **Combined approach level** | | |
| Problem-oriented mindset | + | Promoting a problem-oriented mindset can be extremely beneficial to the adoption. The combined approach allows the teams to not only generate and validate different solutions but also to understand whether it's the right problem to solve instead of doing what they are told (Signoretti, 2020). |
| The misconception of the combined approach | - | The misunderstanding of the approach or the disconnection with the value of the approach can lead to the misappropriation of the approach and a product contradicting its value proposition and detached from the user's need (de Paula & Araújo, 2016), or spending more time fixing the previously skipped steps (May, 2012). |
| Change of work habits | - | Cultural changes such as work habits (e.g., coordination needed with infrastructure, lack of delivery dates, and more work co-located) (Dikert et al., 2016; Karvonen et al., 2018) can be barriers to the adoption of the combined approach. |
| Theme: Design Thinking | | |
| Design(er) leadership | + | For a team to use the combined approach to thrive, the designers need to become a facilitator in the team next to the core design skills and activities (Gothelf & Seiden, 2021). |
| Define the UX vision as a team | + | Establishing a shared understanding at the onset of the project to make sure that everyone understands the needs of the users (Manwaring et al., 2017). |
| Conducting Design Thinking activities throughout the process | + | Certain Design Thinking activities such as using concepts as "GOOB" (Get Out Of the Building) to gather feedback from potential users can be very useful for product development (Signoretti, 2020). |
| User research challenges | - | The rapidness of the combined approach resulted in some user research challenges (Meingast et al., 2013). |
| Theme: Lean Startup | | |
| Having room to fail | + | Accommodating experiments and failure in team planning are important for the combined approach (Liikkanen et al., 2014). |
| Continuous testing and experimentation throughout the process | + | Constant testing at every step and all levels of the product development process: business assumptions, UX and product directions, and technical decisions, which is rooted deeply in the Lean Startup methodology (Liikkanen et al., 2014). |

| | | |
|---|---|---|
| Lack of Delivery - Discovery feedback | - | Continuously collect feedback on shipped features and use that information to regularly review the priority of their discovery work. (Gothelf & Seiden, 2021) |
| Theme: Agile methodology | | |
| Outcome-Based Road Maps | + | Planning product development work with outcomes instead of output. In the outcome-based roadmap, feature/product hypotheses were mapped out for each quarter using each team's best guesses as to how they will achieve the OKR goals (Gothelf & Seiden, 2021). |
| Unified backlog | + | The work of a development team is sometimes divided between one or more backlogs, which will inevitably lead to one of them being the "primary" one and less so for the rest. (Gothelf & Seiden, 2021) suggested tracking and managing all the work under one backlog and prioritising them with the entire team. |
| Start with introducing iterations and ceremonies | + | The gradual transformation approach typically commenced with introducing practices through iterations and ceremonies (Julian et al., 2019; Signoretti, 2020). |
| Continuous delivery | + | Frequent incremental delivery in production shows the team and their stakeholders the added value of the work without breaking the current deployment or the constraint of a fixed release date (Signoretti, Zorzetti, et al., 2020). |
| **Individual level** | | |
| Theme: Individual characteristics | | |
| Resistance to change | - | The team members who were not fully accepting the change were decreasing the team's autonomy and agility (Signoretti, Zorzetti, et al., 2020). |
| Higher dependency on soft skills | - | Principles of the combined approach such as rapid delivery, creating empathy with the stakeholders, or promoting feedback cycles would be difficult to achieve if a certain team member believes they are wiser (Signoretti, Zorzetti, et al., 2020) or has issues with reporting their work (Gothelf & Seiden, 2013). |

## Organisational level

Organisational culture and structure were revealed to be one of the aspects that can stall the adoption of the combined approach. Legacy policies or policies of the rest of the corporate could often be unaccommodating for the adoption of the combined approach and threaten the autonomy of the teams. In the case of (Signoretti, Zorzetti, et al., 2020), it manifested as project-based policies while the combined approach being problem-oriented and agility-focused, and excessive control of existing standard processes. The project-based planning and budget policies not only triggered conflict between the teams using a combined approach and the stakeholders over defined project schedules but also made the teams extremely worried about their financial backing since their planning was based on delivery capacity instead of projects. The resistance from the business side could be an obstacle to the adoption of the combined approach, which was mostly caused by the conflict between decision-making power being contracted in the business area and the autonomy of the team to explore business-level issues advocated by the combined approach (Signoretti, 2020). As suggested by (Liikkanen et al., 2014), the distribution of decision-making processes could be problematic when adopting the combined approach in larger organisations. The proximity a development had to the core business model would mean difficulty for them to act according to lean startup and pivot due to the large number of stakeholders involved. (Grossman-Kahn & Rosensweig, 2012) also experienced business resistance resulting in generated ideas being put on hold due to the disapproval of the business

area, therefore a big amount of effort went into convincing them of the benefits of the combined approach. (Liikkanen et al., 2014) suggested that giving more decisive control over product decisions to a product owner with the mindset and enough attentional capacity to support the team could be one of the solutions to this barrier. The combined approach team expressed concerns about being physically close to the organisation possibly due to the unaccommodating organisational culture and structure (Signoretti, Zorzetti, et al., 2020), and (Gothelf & Seiden, 2021) called for a shift in the organisational culture for the combined approach adoption to thrive.

Leadership and management support were found crucial at both the middle management level and the top management level. Middle management trust and support was seen as crucial factor for the combined approach adoption due to their impact on the autonomy of the teams (Signoretti, Zorzetti, et al., 2020). In the report of (Signoretti, Zorzetti, et al., 2020), the studied teams were displeased by the lack of middle management support due to the managers struggling with the newly gained autonomy of the teams granted by the combined approach. The teams exemplified that it could cause operational friction such as disagreement over code deployment. It was believed that the combined approach which demanded extensive customer involvement was causing the relocation of the power of their middle management since it used to be mostly their job to negotiate with clients (Signoretti et al., 2019). For trust and support to exist, middle management needed to understand and recognize the team's work and the combined approach itself (Signoretti, 2020). (Gothelf & Seiden, 2021) proposed a risk dashboard for proactively communicating with the management and establishing trust. Top management support gave middle management the confirmation and pressure that they must cooperate with the combined approach teams now (Signoretti et al., 2020). The support and involvement of higher management might be absent due to their limited understanding of the technicalities and requirements of development work (Signoretti et al., 2020). In the long term, (Gothelf & Seiden, 2021) advised the higher management that organisations should minimise the rigidity of structure to let teams organically develop their own efficient methods, within the framework of Agile values and rules, for operating successfully, and then scale those organisation-specific approaches gradually.

Some organisational interventions could be carried out to facilitate the combined approach adoption. The teams that implemented agile methods for their software development process prior would have an easier time with the adoption of the combined approach, especially if the time and financial benefits of the agile approach had been clearly demonstrated to the teams, though some learning and unlearning could still be necessary (Liikkanen et al., 2014). In the case of (Signoretti, 2020), the organisation created a dedicated transformation team in charge of defining strategies and their roll-out, connecting initiatives and personnel, and creating resources for the adoption of the combined approach. The combined approach made co-locating the team in an inspiring physical workspace a necessity. (Zorzetti et al., 2022) reported the teams' effort in setting up a designated workspace designed for collaborative work with facilities that accommodated activities in the combined approach such as coding in pairs. Open office designs allowed team members to stay in visual contact and make it easier for them to communicate when they need help. And cross-functional grouping in colocation could help remove disciplinary silos (Gothelf & Seiden, 2021). Common elements in a collaborative workspace were a (wall-sized) whiteboard, a breakout room, and a big screen. It was all about breaking down the physical obstacles between the team members that stopped communication and collaboration from happening, and this

principle should be carried over to remote/hybrid work situations too with digital collaboration tools. PayPal (Meingast et al., 2013) also found colocation important in the combined approach context, since the remote working conditions were seen as insufficient for collaboration. (Signoretti et al., 2019) reported that the studied organisation provided a toolkit (consisting of workshops, cookbooks, on-the-job training and coaching, and health assessment) as a means to guide teams piloting and kicking off the process. (Signoretti, 2020) reported that the studied organisation used the pilot teams as enablers in their strategy of snowballing training to scale the use of the combined approach: trained team members as enablers got grouped to work with other untrained new learners to not only teach the techniques but also shift mindset. This strategy was in line with the gradual transformation the organisation was committed to, and, although concerned to be risky at first, proved to be effective. In the case of (Signoretti, 2020), encouraged by the transformation team, the team members who were the early adopters of the combined approach created their own community meeting initiative that was open to all employees. The meetings primarily discussed the value and relevance of introducing the product designer, which was an organisational barrier for the adoption, and demystified the function.

### Team level

On the team level, team autonomy was found to be heavily impactful on the team's use of the combined approach. The autonomy of the team in decisions was listed as a prerequisite for the teams to adopt the combined approach (Liikkanen et al., 2014). The use of a combined approach benefited the team by having product and solution ownership and being able to decide what was best for the user based on the result of the combined approach. The autonomy of the team could be undermined by 3 major issues. The use of a combined approach required a cross-functional team, with each competence representing a pillar of the combined approach (Product Designer - UCD; Product Manager – Lean Startup; Software Engineer - Agile Methodology). But it might have not always been the norm in organisations, especially the built-in UX Designer or researcher position in the team (Gothelf & Seiden, 2021; Liikkanen et al., 2014). Sometimes (re)training and external (coaching) support was needed in order for someone to fill the functions needed but the resources available for that were limited (Liikkanen et al., 2014). The introduction and institutionalisation of the Product Designer were considered difficult in the case of (Signoretti, 2020), as the teams needed to convince the top management and expected to show the value of the Product Designer and define its integration into the organisation structure to take considerable effort and time. In the case of (Signoretti et al., 2020), dependencies with other teams were mentioned as a barrier to using the combined approach. Sometimes this meant that the needs and requests from other teams could sometimes get in the way of the delivery of added value to their own products, or it could be the multiteam structure slowing the pace of learning and delivery. (Gothelf & Seiden, 2021) suggested creating "full-stack" teams as a solution to make the teams more self-sufficient: specific disciplines could coordinate at their respective inter-team meetings to keep each other updated on their practice within the discipline, but the work happened locally in their own teams. The stakeholders were also required to evolve their mindset and become active in product development with the adoption of the combined approach due to its considerable focus on User-Centered Design and Lean Startup activities (Signoretti et al., 2019). (Signoretti et al., 2020) mentioned that the stakeholders of a team mistook them for "taking" their job due to a lack of understanding of the combined approach, which was alarming. At PayPal

(Meingast et al., 2013) some stakeholders were not used to the combined approach due to its training being optional. In Nordstrom's case (Grossman-Kahn & Rosensweig, 2012), the way of working differences contributed to the conflict between the combined approach teams and their stakeholders. (Signoretti et al., 2020) suggested increasing the trust and support of the stakeholders by strengthening communication and increasing their involvement. Some specific tips provided on this were frequent and proactive communication, face-to-face meeting, employing UCD activities during development and stakeholder communication, stakeholder involvement since product conception, mutual transparency, team proactivity in understanding the problem, user context and the bigger picture, mutual feedback, and code delivery in the production environment.

Team Engagement also came into play when it came to the combined approach adoption. 2 situations were found to be harmful to team engagement, one of which is the team splitting into different silos and executing different parts of the combined approach. (Gothelf & Seiden, 2021) witnessed the emergence of a "Discovery team" (UX designer and/or product manager) and "Delivery team" (engineers) within a team, where they take the bulk of the work related to their respective job functions, or sometimes UX designers couldn't find time to fully participate in different scrum meetings due to the perceived irrelevance to their work. This phenomenon undermined the shared knowledge, halted the pace of decision-making and stifles the team's unity, efficiency, and learning. (Manwaring et al., 2017) also observed this phenomenon and argued that UX considerations should be present throughout the development process: everything, including development and quality assurance work, would impact the user experience of the product. In a heightened example in this matter, the siloed way of working at Nordstrom (Grossman-Kahn & Rosensweig, 2012) between the innovation lab and development teams which were in charge of discovery and delivery respectively led to the latter scaling a prototype to fully functioning product too fast while the former experimenting with different concepts, which caused the absence of customer and client involvement and the subsequent failure of the product. As a solution to that, making sure everyone on the team participate in the whole process and all the activities of the combined approach (to some degree at least) and share the responsibility collectively was one of the most important suggestions given by multiple sources (Gothelf & Seiden, 2021; Liikkanen et al., 2014; Manwaring et al., 2017; Signoretti, 2020; Signoretti et al., 2020). Designers should be in attendance at different scrum meetings in order to create effective backlog prioritisation, and encourage the developers to expose themselves to users (Gothelf & Seiden, 2021) Decisions about the product and development process should be made by the team together. And this way products could be assessed across different disciplines (Aarlien & Colomo-Palacios, 2020). Participation by all also promoted shared knowledge and vision about the problem and the product that the team was working on (Signoretti, 2020), which minimized arguments and redundant communication within the team on what should be done, and empowered independent work (Gothelf & Seiden, 2013), and promoted team ownership, especially for software engineers (Signoretti et al., 2020). The shared responsibilities not only promoted shared knowledge and vision of the product but also technical knowledge such as software architectural design which was previously contained within the silos (Signoretti, 2020). Another harmful situation to team engagement is miscommunication. In the use of the combined approach, constant communication was extremely important. (Nudelman, 2018) pointed out that unvalidated assumptions would often be made in order to move with the rapid pace of the combined approach if someone was absent at the meetings to

communicate, and the lack of UX design documentation can also threaten the use of the combined approach with confusion in the teams. (Manwaring et al., 2017) stated that the dynamic nature of the combined approach begged for constant alignment and coordination, and the "cooling off time" between communication occurrences would severely damage the quality of knowledge or task transfer with the loss of context and inertia. Moreover, poor communication would push the team members to work in silos or pass the buck to others, which could weaken the agility of the team or lead to misunderstanding feature requirements or user context. To combat this situation, it was emphasised that mutual feedback between team members was necessary to promote team engagement (Signoretti et al., 2020).

## Combined approach level

On the general combined approach level, 1 enabler factor and 2 barrier factors could be universal to all the pillars. Promoting a problem-oriented mindset could be extremely beneficial to the adoption of the combined approach, specifically for the Design Thinking and Lean Startup pillars. The combined approach allowed the teams to not only generate and validate different solutions but more importantly to understand whether it's the right problem to solve instead of doing what they were told (Signoretti, 2020). In this way, the team also saw an improvement in their relationship with the stakeholders since they are now seen as problem solvers rather than requirement developers (Signoretti et al., 2020). The misunderstanding of the approach or the disconnection with the value of the approach could lead to the misappropriation of the approach and a product contradicting its value proposition and detached from the user's need (de Paula & Araújo, 2016), or spending more time fixing the previously skipped steps (May, 2012). Cultural changes such as work habits (e.g., coordination needed with infrastructure, lack of delivery dates, and more work co-located) (Dikert et al., 2016; Karvonen et al., 2018) could be barriers to the adoption of the combined approach. In the case of (Signoretti, 2020), they were perceived as handleable on the development team level.

Specifically related to Design Thinking, 3 enabler factors and 1 barrier factor were found to influence the adoption of the combined approach. According to (Gothelf & Seiden, 2021), in order for a team to use the combined approach to thrive, the designers needed to become a facilitator in the team next to the core design skills and activities. To do so, designers must open up the design process and employ a variety of collaborative tactics in order to meet the needs of the team and advance the conversation around design and process. Moreover, designers needed to facilitate the co-creation activities with the teams and stakeholders, so the capabilities of the whole team could be synthesised to contribute to the design of the product. It was echoed by the report of (Signoretti et al., 2020) that the product designer was appreciated for engagingly communicating with the stakeholders with their skill and mindset, which helped the team a lot. UX professionals at PayPal (Meingast et al., 2013) found themselves critical for value delivery after the introduction of the combined approach by facilitation activities such as inviting teams to observe research or hosting alignment sessions on findings and were encouraged to do so more. (Manwaring et al., 2017) recommended establishing a shared understanding at the onset of the project to make sure that everyone understood the needs of the users, and how these needs would be addressed by the team. Visuals and prototypes could be effective communication tools for UX research findings. If the shared UX vision was established and the team is communicating well, then the work efficiency of the team could be increased due to the shared information between different tasks in parallel.

Certain Design Thinking activities such as using concepts as "GOOB" (Get Out Of the Building) to gather feedback from potential users could be very useful for product development (Signoretti, 2020). Moreover, (de Paula & Araújo, 2016) observed that using DT throughout the development process could boost the certainty of the product. Nordstrom's Innovation Lab (Grossman-Kahn & Rosensweig, 2012) used DT activities such as interviews after a product launch, uncovering its biases and using them to evolve their innovation process. At Paypal (Meingast et al., 2013), the rapidness of the combined approach resulted in some user research challenges, such as issues being overlooked due to limited time for the digestion and consolidation of findings, and more nuanced user research questions being pushed out of scope until launch.

Moving on to Lean Startup, 3 factors were found. Accommodating experiments and failure in team planning was important for the combined approach. "Team ready to fail early & to revise plans" was listed as a prerequisite for the teams to adopt the combined approach (Liikkanen et al., 2014). The combined approach called for a mindset shift towards continuous validation and embracing the chance of invalidation. The possibility of an immediate pivot on design and code after invalidation was different from the classic scrum view of seeing sprints as a delivery of product increments. (Hildenbrand & Meyer, 2012) also advocated for accommodating the "waste" and failures in the process in order to arrive at a more desirable product. (May, 2012) advocated for constant testing at every step and all levels of the product development process: business assumptions, UX and product directions, and technical decisions; which was rooted deeply in the Lean Startup methodology. (Aarlien & Colomo-Palacios, 2020) also argued that failing to thoroughly test in a Lean setting could result in issues with the product that could be detected at early stages, illustrating that testing was essential for the successful use of a combined approach. PayPal (Meingast et al., 2013) adopted the combined approach principles which allowed them to pivot to frequent user evaluations. It brought out, albeit some challenges, some of the best practices for their product development such as the instrumentation of the products to collect baseline analytics, A/B testing requirements, and the formation of reporting templates. This issue was indicative of an organisation that was stuck in incremental thinking. As soon as a feature made it from discovery to delivery and went live, it began to supply new data on how well it was performing which could be used to inform future discovery efforts. The team needed to pay attention and made sure to continuously collect feedback on shipped features and use that information to regularly review the priority of their discovery work. (Gothelf & Seiden, 2021)

The agile methodology provided the basic rhythm for the combined approach to implement, and 4 factors were found related to this. (Gothelf & Seiden, 2021) recommended planning product development work with outcomes instead of output. In the outcome-based roadmap they proposed, feature/product hypotheses were mapped out for each quarter using each team's best guesses as to how they would achieve this quarter's OKR goals. And the number of hypotheses realistically would decrease as the quarter goes by. It was a living document for the teams to revisit and adjust continually based on what they were doing, learning, and deciding. This approach focused on the team's learning and decision for optimal customer success, instead of defining a fixed set of goals for the upcoming year, which also drove the agility of the team and the business. This approach was also echoed by the suggestion of reserving time for the learning gained from DT and LS in the planning (Hildenbrand & Meyer, 2012). An antipattern for the combined approach could sometimes be observed: the work of a

development team was divided between one or more backlogs (design, development, experimentation…), which will inevitably lead to one of them being the "primary" one and less so for the rest. (Gothelf & Seiden, 2021) suggested tracking and managing all the work under one unified backlog and prioritising them with the entire team. This method ensured all the team members have the shared knowledge of what was necessary to be done, and highlighted the trade-offs in order for the discovery/design work to happen. (Julian et al., 2019) noted that the gradual transformation approach typically commenced with introducing practices through iterations and ceremonies, which was the case for the organisation studied (Signoretti, 2020). These little changes in their daily routine aided a shift in thinking as communication improved (e.g., standup meetings) (Barroca et al., 2019; Julian et al., 2019). Frequent incremental delivery in the production might take a lot of effort to achieve, but it showed the team and their stakeholders the added value of the work without breaking the current deployment or the constraint of a fixed release date or milestone, which was freedom needed by the team (Signoretti et al., 2020).

### Individual level

Finally, there are also individual characteristics of the team members that could make a difference in the combined approach adoption. All the team members needed to be on board for the combined approach adoption to thrive. As seen in the case of (Signoretti et al., 2020), the team members who were not fully accepting the change (e.g., senior employees who were not used to the more dynamic and less structured combined approach) were decreasing the team's autonomy and agility. The combined approach depended more heavily on the soft skills of the team members than technical skills sometimes. Principles of the combined approach such as rapid delivery, creating empathy with the stakeholders, or promoting feedback cycles would be difficult to achieve if a certain team member believed they were wiser (Signoretti, 2020) or had issues with reporting their work (Gothelf & Seiden, 2013).

### Team autonomy and team engagement

Looking at the overview, it was easy to see that, regardless of the levels and themes they were included in, almost all the factors contributed (positively or negatively) to either team autonomy or team engagement or, in some cases, both, making these two factors potentially significant determinants for the combined approach adoption.

Team autonomy was defined by the enablement received by the team to adopt the combined approach without interference from leadership, stakeholders, and other teams; and their ability to independently execute related activities. This covered both aspects: the competencies of the team members and the ability of the team to navigate through the combined approach process (e.g., cross-functional team structure, independence from other teams); and whether the conditions and environment the team operated under allowed them to flourish in the combined approach (e.g., middle management support and approval, compatible corporate policies).

Team engagement describes how the team interacted with and executed the combined approach. This covered both aspects: on the perception level, the conviction for the combined approach, and individual quality that made them (not) commit to the combined approach (e.g., resistance to change, and dependency on soft skills); and the

working level, the shared responsibility and active participation in all activities across the board (e.g., miscommunication, and working in silos).

Most of the organisational interventions addressed both of these determinants. For example, having experienced prior agile transformation not only created a team structure and work rhythm that were beneficial to the adoption of a combined approach but also made the combined approach easier for them to understand. Training and coaching for the combined approach increased both the practical knowledge that enabled execution and the conviction for the approach which drove engagement.

### 3.4.3 Compared to Agile adoption

The 2 sets of findings from agile adoption studies and the combined approach studies presented interesting similarities and differences between them. Considering the lack of richness in the agile adoption literature oriented by organisational adoption theories and the lack of theoretical engagement of the combined approach adoption literature, the comparison would be better to stay on the theme level instead of comparing each factor comprehensively.

Much overlapping on the themes was observed between the 2 sets of findings, such as organisational culture, management support, different adoption interventions, and the factors related to team and inter-team level interaction.

Differences were also found between the 2 sets. The current combined approach literature, drawing mostly from practical experiences, collectively advocated for a united and autonomous team, which was something not covered by the theoretically oriented agile adoption literature. Furthermore, the current combined approach literature hasn't thoroughly examined the adoption through the lenses of perceived characteristics of the combined approach, or the quality and attitude of each team member, which could be due to the participant selection and the small scale of the current studies. For example, part of the participants in the case of (Zorzetti et al., 2022) was already predetermined based on their performance and motivation for their initial overseas training, and the teams were somewhat isolated from the rest of the organisation, therefore individuals who were more critically influenced by the perceived characteristics of the combined approach and their individual quality and attitude might have not been reached by the study.

Comparing theory-based Agile adoption literature and empirically-informed combined approach literature might lead to some interesting connections. For example, the anecdote of the combined approach team member expressing concerns over returning to the physical setting of the company might be explained by the subjective norm factor from the organisational adoption theory. And the perceived result demonstrability factor in the theory could be important in the combined approach adoption considering the extent of communication and convincing needed on the stakeholders, business, and leadership side from the team members.

# Takeaways

- Several frameworks were popularly used in examining organisational innovation adoption. Factors involved in those frameworks were exemplified in the context of Agile adoption literature.
- 6 existing models and studies for the combined approach of Design Thinking, Lean Startup, and Agile Methodology were found, all of which were not assisted by the organisational adoption theories.
- The factors influencing the combined approach adoption under different themes were gathered from the literature, among which team autonomy and team engagement emerged as 2 significant factors.
- The factors for Agile adoption and the combined approach adoption were compared: Albeit much overlapping, the perceived characteristics of the combined approach and the individual characteristics were understudied in the combined approach literature.

# 4. DTLSA at GFI: Empirical approach

This chapter documented the purpose and set-up of different empirical research methods used in this project. The overview of different activities is presented in Figure 4.1. The separate findings of existing internal research & metrics, group session, key informant interview, and the experimentation survey can be found in the appendices. The DTLSA practitioner interview findings were used as the foundation for the integrated empirical findings, therefore were not presented separately in the appendices.

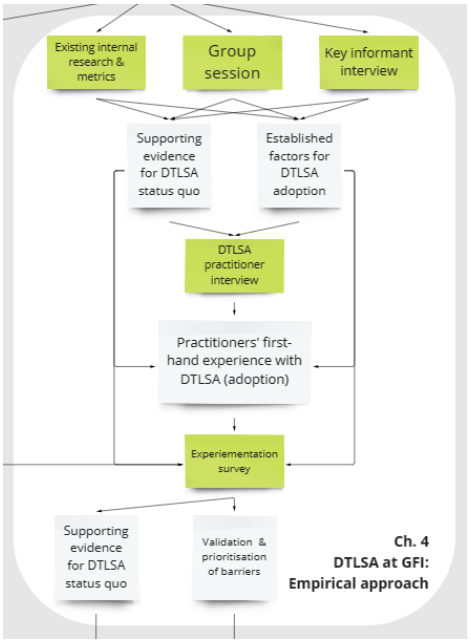



Figure 4.1: Illustration of different activities and their connection in the empirical research.

## 4.1 Existing internal research & metrics

Existing internal research and metrics were inspected to inform the project with prior evidence around the research questions. They provide insights into the status quo of DTLSA at GFI and detected barriers around DTLSA implementation.

### 4.1.1 Purpose

The investigation of existing internal research and metrics served 2 purposes as detailed below:

1) Exploration: Exploring prominent or expected themes around research questions (RQ1 and RQ2) and barriers through existing research, which gave an idea of the popular belief of people working on DTLSA adoption, and helped the clustering of the quotes from interviews with DTLSA practitioners quicker.
2) Preparation: Gaining a general first impression of the status quo of DTLSA (RQ1) due to the wide reach of different internal research.

### 4.1.2 Methodology

#### Samples

In addition to the aforementioned metrics such as CX Metric and Maturity Survey, other researches were relevant to DTLSA adoption on different levels with different focuses.

They were brought to the attention through the referral of colleagues in the case client team. The inspected internal research and metrics included:

- DTLSA Gap Research: This research was an assignment conducted at Regional Leader, prompted by the feedback received around the difficulty of applying DTLSA after DTLSA online training. The assignment aimed at bridging the gap between the theories taught in DTLSA online training and the practice. The research was a survey completed by 35 respondents among people who completed a certain amount of modules of DTLSA online training;
- DTLSA for IT: An interview-based research focused on the perception of DTLSA among the IT Engineers, conducted at Regional Leader;
- Research into the current low level of experimentation within GFI Regional Leader: An interview-based research specifically focused on finding the hurdles for the low experimentation (part of DTLSA) level. 25 employees at GFI were involved as interviewees.
- CX Metric
- Maturity Survey

All internal research and metrics data were conducted or extracted in recent years or during the empirical research period of this project.

#### Data collection and analysis

The inspection focused on the findings and conclusion part of this research. Findings and insights that shed light on the status quo of DTLSA at GFI and the barriers to DTLSA adoption are extracted. Findings and insights reflecting the same barriers were clustered together.

## 4.2 Group session

DTLSA Coaches from different business units were invited to a group session to examine the status quo of DTLSA and barriers to DTLSA adoption at GFI.

### 4.2.1 Purpose

The group session served 2 purposes as detailed below:

1) Exploration: Exploring prominent or expected themes around research questions (RQ1 and RQ2) and barriers through the experience/knowledge of the key informants, which gave an idea of the popular belief of people working on DTLSA adoption, and helped the clustering of the quotes from interviews with DTLSA practitioners quicker.
2) Preparation: Gaining a general first impression of the status quo of DTLSA (RQ1) due to the rich experience of the key informants.

### 4.2.2 Methodology

#### Samples

10 DTLSA Coaches from different business units were invited via email. 5 DTLSA Coaches participated in the session.

#### Data collection

The session was held online on June 24, 2021. The session followed a session guide (the full session guide can be found in the Confidential appendix - C) designed by the author on a Miro (digital collaboration platform) board. The non-affiliation with the GFI of the author as an external researcher was mentioned at the beginning of the session.

The session setup includes: 1) Introduction & what is DTLSA for you; 2) Guided fantasy: a future where DTLSA is fully adopted; 3) DTLSA Coach career & experience: motivator and barriers; improvement; 4) Current state and suggestion.

During the session, the participants were encouraged to put down their input on post-its based on the prompts, and then verbally share and communicate their inputs and their observation after seeing other participants' input.

#### Data analysis

During the session, the participants were encouraged to group the post-its that shared the same themes under certain prompts. After the session, all post-its were examined again. Post-its that supported the same barrier were clustered together.

## 4.3 Key informant interview

The key informant (K1) provided inputs and educated assumptions on the barriers based on their decade-long experience at GFI and their related research on the topic of promoting experimentation practice. Due to their experience, the interview was focused on experimentation specifically instead of DTLSA as a whole.

### 4.3.1 Purpose

The key informant interview served 2 purposes as detailed below:

3) Exploration: Exploring prominent or expected themes around research questions (RQ1 and RQ2) and barriers through the experience/knowledge of the key informants, which gave an idea of the popular belief of people working on DTLSA adoption, and helped the clustering of the quotes from interviews with DTLSA practitioners quicker.
4) Preparation: Gaining a general first impression of the status quo of DTLSA (RQ1) due to the rich experience of the key informants.

### 4.3.2 Methodology

#### Sample

The key informant was an expert and promoter of experimentation who worked at GFI for 13 years. Their frequent interaction with different teams across GFI and first-hand experience with promoting DTLSA adoption made him a key informant on the subject matter of this project. Their name was found in the internal daily newsletter about experimentation and was invited for the interview through email correspondence.

### Data collection

An unstructured interview with a focus on the experience of the key informant and their take on the DTLSA adoption was conducted. During the interview, the key informant also presented their own research on DTLSA adoption through presentation slides. Consent to recording for transcription purposes was asked for at the beginning of the interview. The non-affiliation with the GFI of the author as an external researcher was also announced. And the anonymity of their participation was agreed upon.

## 4.4 DTLSA practitioner interviews

Being the most important actors in the DTLSA adoption, DTLSA practitioners were interviewed for their hands-on experience around DTLSA.

### 4.4.1 Purpose

The interviews with DTLSA practitioners served the purpose of gaining a grounded, contextual understanding of DTLSA adoption from the point of view of GFI employees around the research questions (RQ1 and RQ2), rather than the point of view of management or internal communication. It would not only give insights into how the potential users of the final design would work and think but also create knowledge on how DTLSA was usually being adopted for the case client.

### 4.4.2 Methodology

All interviews (n=18) were conducted via video conferencing and all of them were also recorded (when permission was given). During the interview, short notes were taken and afterwards, the recorded interviews were transcribed for further analysis. All interviews were conducted from June to September 2021 by the author. For all the interviews: Consent for recording for transcription purposes was asked for at the beginning of the interview. The non-affiliation with the GFI of the author as an external researcher was also announced. And the anonymity of their participation was agreed upon.

#### Round 1: DTLSA online training learners

Samples:
Randomised selection within the participants of DTLSA online training. DTLSA online training had been promoted as the fundamental education for DTLSA within GFI and was open for enrolment for everyone. Up until May 31, 2021, there had been enrollments in different modules of DTLSA online training from 1,212 learners. Among the learners, 31 learners from Regional Leader with different module completion records and different job functions were invited for video interviews via email. Eventually, 8 interviews were conducted for round 1. One of the 8 was not working in a team, however, did have design expertise and interacted with different teams daily. See Table 4.1 for a list of all participants, their role and function, and their location in GFI (Business Cluster and team).

Table 4.1: Interviewees' Overview for Round 1

| No. | Function/Role | Business Cluster/CoE | T eam |
|---|---|---|---|
| P1 | IT | Various business clusters/CoEs | Various teams |

| | | | |
|---|---|---|---|
| P2 | IT | | |
| P3 | IT | | |
| P4 | IT | | |
| P5 | IT | | |
| P6 | CES & PO | | |
| P7 | CES | | |
| P8 | UX | | - |

Data collection:
Besides the introduction from both ends and the closing, the interview guide for round 1 covered 5 topics: 1) DTLSA online training inquiry, 2) Understanding of DTLSA, 3) DTLSA activities execution, 4) Impact of DTLSA, and 5) Improvement suggestions for DTLSA. See Confidential appendix - D for the interview guide.

Initial result and decision:
The initial data analysis for round 1 interviews concluded with some emerging themes and theories. But it was obvious that the interviewees of round 1 were all from teams that were on the less mature side with DTLSA. The insights into more mature teams were missing. To make sure the emerged theories remain valid among teams of different maturity, and to take in the perspectives of teams that went through a more successful DTLSA adoption, round 2 of the interviews was needed.

## Round 2: A case study of 2 business clusters with high maturity

Samples:
One Business Cluster that performed well in the CX Metric and another Business Cluster which was suggested during the round 1 interviews were sampled for this round. For Business Cluster B, a list of relevant interviewees was generated after discussions with a key informant. For Business Cluster A, the snowballing sample strategy was used. See Table 4.2 for a list of all participants, their function and role, and their location in GFI (Business Cluster and team).

Table 4.2: Interviewee's Overview for Round 2

| No. | Function/Role | Business Cluster/CoE | Chapter/team |
|---|---|---|---|
| P9 | PO & CES | Business Cluster A | Various teams |
| P10 | PO & CES | | |
| P11 | CES & UX | | Chapter Product Design (next to being in a team) |
| P12 | Chapter Lead CX | Business Cluster B | Chapter CX |
| P13 | CES | | Various teams |
| P14 | PO | | |
| P15 | CES | | |
| P16 | CES | | |

| | | | |
|---|---|---|---|
| P17 | CES | | |
| P18 | CES | | |

Data collection:
The interview guide of round 2 was built upon the emerging themes and theories of the initial result of round 1. Besides the introduction from both ends and the closing, the interview guide for round 2 covered 4 topics: 1) Business Cluster level coordination, 2) team behaviour, 3) Understanding of DTLSA & DTLSA activities execution, and 4) DTLSA vs innovation. See Confidential appendix - E for the interview guide.

### Data analysis

For data analysis of both round 1 and round 2, the grounded theory method (Noble & Mitchell, 2016) was used. Quotes from the interviews were placed under different frames dedicated to predefined and emerged themes on the Miro online board.

Figure 4.3: Screenshot of the area of the Miro online board that was dedicated to data analysis

## 4.5 Survey on experimentation

Survey research with the aim of converging from prior results was conducted in collaboration with key informant K1.

The survey, instead of including the entirety of DTLSA methodology, focused on the experimentation part of DTLSA. This decision was based on the empirical results which showed the awareness and understanding of experimentation was more concentrated than most of the other DTLSA activities. Therefore it was a subject that most of the people at GFI (delivery) were sensitised to and were able to indicate their situation on. One of the findings from the internal research investigation was that different factors and barriers concerning experimentation were largely similar to the general factors and barriers for DTLSA. Therefore the specification of the survey wouldn't influence the applicability of its conclusion for this project.

### 4.5.1 Purpose

The survey served 3 purposes as detailed below:

1) Validation: The empirical research before the survey ended up with findings of potential problems from different sources: some were grounded by interviews within a small set of samples, some were based on the experience of the key

informant, and some were about what could commonly happen according to literature. For the design to have scalability within the GFI corporate, the survey was set up to validate these obtained insights (regarding RQ1) and assumed problems (regarding RQ2) on a larger scale.

2) Prioritisation: Obtained insights from the empirical research before the survey suggested a rich possibility on the issue(s) (regarding RQ2) to be addressed by the design of this project. With the help of quantified results from the survey, those insights, especially the key barriers, can be prioritised based on the scale they are involved which suggested urgency.
3) Quantification: The survey could provide quantified evidence to understand the status quo of experimentation and DTLSA at GFI and help to better answer RQ 1.

## 4.5.2 Methodology

### Samples

To gather insights that applied to GFI as a whole, the samples needed to cover the business clusters in different stages of their DTLSA adoption. Based on CX Metric, 2 business clusters that scored the highest in the experimentation category and another 2 business clusters that were in the middle and bottom tiers for experimentation respectively were selected.

Through internal mailing lists, 868 email addresses within the 4 business clusters above were reached. After an email invitation to the survey and 2 more follow-up reminders, 73 complete responses were received, leading to a response rate of 8.4%.

### Data collection

The author and K1 jointly designed the survey questionnaire (see Confidential appendix G) based on the findings of empirical research before the survey and the common barriers to the combined approach adoption from the literature.

The survey is set up in 6 parts. Besides the standard respondent identification part, the survey explored 1) the general ambition level for GFI, 2) the status quo of experimentation (understanding, usage), 3) ambition for experimentation specifically, 4) barriers and insights from the empirical result, and 5) open questions on barriers and other remarks.

The non-affiliation with the GFI of the author as an external researcher was mentioned at the beginning of the survey questionnaire. And the anonymity of their responses was announced.

A vision statement for experimentation provided by K1 was utilised to validate barriers "urgency for DTLSA" and "vision for DTLSA". The vision statement goes:

***All changes and new releases that teams make to [the website, app, and other platforms of GFI] are an experiment by 2023.***

It was originally a provocative vision of experimentation within GFI brought up by the team of K1 in an internal memo, and it hasn't been promoted within GFI. To test the

perception and acceptance of this statement that was relevantly new to the survey respondents would no doubt trigger an authentic reaction and provide evidence of the urgency and vision.

Most of the questions were posed as a statement and all statements share the same Likert scale (Strongly disagree - Disagree - Neither agree nor disagree - Agree - Strongly agree). Some of the statements concerning barriers referred to specific types of situations, therefore option "N/A" was added to those.

The survey was then pilot tested with the manager of K1 and was then distributed by K1 via email after the feedback from the pilot test was incorporated. The survey was held between September 28, 2021, and October 6, 2021.

## Data analysis

In order to compare each statement on the same numerical scale for the quantified prioritisation of the barriers, a 0 - 4 scoring system was applied. For negatively framed statements (e.g., "For GFI it's not necessary to release the best products."), option "Strongly agree" was marked as 4, "Agree" as 3, "Neither agree nor disagree" as 2, "Disagree" as 1, and "Strongly Disagree" as 0. Positively framed statements (e.g., "I clearly see my job function in achieving the (ambition) statement.") were coded in reverse. Option N/A was coded as non-response for both types of questions. The weighted average of all responses ranging from 0 to 4 was calculated for each statement.

Each discovered barrier was covered by 1 or more statements in the survey. Barriers covered by the statements that scored between 0 – 1 do not require immediate attention. Statements that scored between 2 - 4 implied the related barriers were the pressing matters that are worth attention because that meant that the respondents were on average agreeing with a negative statement/disagreeing with a positive statement.

In the end, statements that scored higher than 1.75 (which indicates that a more than minor amount of respondents agreed with a negatively framed statement or disagreed with a positively framed statement) were picked out, examined, and clustered.

# 5. DTLSA at GFI: Integrated findings

This chapter documented the integrated empirical findings of the project. Sections 5.1-5.5 addressed the status quo of DTLSA at GFI (RQ1) in different aspects. Some of the barriers and enablers for DTLSA adoption (RQ2) could be found in Section 5.5 (see the underlined). The rest of the factors and the overview of all factors could be found in Section 5.6. The DTLSA practitioner interviews captured 5 stories about (applying) DTLSA that detailed multiple DTLSA activities or an entire journey of DTLSA trajectory. These stories give valuable insights and will be referenced in this subsection. They can be found in the Confidential appendix – F "DTLSA Stories".

## 5.1 Status quo: Long way to go

To describe and compare different levels under the same measurement, the ideal scenario where DTLSA is fully adopted by every employee and team at GFI was defined as 100%. On average, the DTLSA usage at GFI was currently at a low level. On the global level, the latest Maturity Survey result suggested that 28% of the most relevant business clusters had been applying DTLSA, which was close to what was suggested by DTSLA coaches during the group session (Appendix C).

Specifically at the Regional Leader of GFI, the DTLSA maturity was lower than the global average. In the MSA result, Regional Leader scored around 10% on the percentage of "most relevant business clusters apply DTLSA", which implied the same level of progress as the survey results (Appendix E) that around 10% of the teams in the GFI experiment regularly. And on the latest result of the CX Metric where the teams in Regional Leader scored an average of 1 out of 5 (lowest bar) for the categories of "Apply DTLSA", showing that very few teams were applying DTLSA tools and canvases when relevant, and a low score of 2 out of 5 for "Validate problems & needs" and "Validate solutions/experiment".

## 5.2 Sufficient understanding and positive perception

The understanding of DTLSA among GFI employees was in general sufficient, yet the framing of DTLSA methodology and specific definitions of certain DTLSA activities could be a bit different for different people.

Experimentation was the highlight of DTLSA in the minds of GFI employees. A few of the interviewees emphasised experimentation when asked about DTLSA. P2 thought DTLSA was the same as Lean Startup. And for P6, P3, and P15, they all said that due to the scope of their job, conducting experiments was the most relevant part of DTLSA for them. The survey put the knowledge of the respondents to the test by asking them to select activities or concepts qualified as experimentation. Even though the vast majority of them selected the correct options, certain less legitimate options, such as "asking

colleagues what they think about an idea", were also selected by several respondents. It was safe to conclude that, despite the default definition being accepted by most of the GFI employees, experimentation could still mean different things to different people.

Most of the interviewees looked at DTLSA with a holistic view, calling DTLSA "a way of working at GFI", "a structured problem-solving mindset", "a methodology created by GFI", and "an innovation process". Several interviewees found that DTLSA was very useful in guiding their work by defining "what (is the problem)" "why (do customers think it's a problem)", and "how (are we going to solve it)" throughout the project. Among these, clearly defining the problem at the start of a trajectory was the most appreciated insight by the interviewees.

4 interviewees mentioned the connection between DTLSA and being customer-centric. P15 believed that if you involve your customer (in your innovation) by using the DTLSA method, it would send you in the right direction. And they were inspired by DTLSA to "just actually go out on the streets and ask the people we thought would fit our customer profile about what they are thinking about (our product) and what they find important about the subject." P13 said, "(we should) never stop bothering our customers with questions".

It was also worth pointing out that the buzz word filled communication strategy for DTLSA and innovation & CX, in general, could be a bit confusing. P16, who was part of a team that actively executed DTLSA activities, admitted that it remained vague to them what the word CX truly means, albeit working intensively on customer experience with their team. P14 also initially stated that she doesn't work with DTLSA and has never taken any training about DTLSA when approached for an interview, albeit being the product owner of a team that applies experiments and conducts user interviews, etc.

Based on the understanding of DTLSA within GFI, it was obvious that all the interviewees think of DTLSA positively and recognize its values. Besides the practical values mentioned above such as bringing structure to problem-solving and connecting with customers, DTLSA was also praised for its creative attributes. P9 described DTLSA as fun, empowering, and energising when she suggested her manager look into it. The positive perception was also affirmed by the survey results, where the majority of the respondents believed experimentation was beneficial.

## 5.3 Various motivations and good conviction

At GFI, a variety of reasons for the employees and teams to adopt DTLSA were discovered. And the empirical research showed a great level of conviction for DTLSA.

Motivation for DTLSA could be divided into passive motivation and active motivation. On the passive side, it could be due to being asked by their leadership (*P4: Product Owner asked [us] in our team stand-up: GFI wants every team to have some knowledge about DTLSA and I volunteered.*); being prompted by the KPIs and metrics (*P7: [The score of my team for] Validation [category] was the lowest score at my Business Cluster [in the CX Metric, so I felt personally motivated to improve it].*); or DTLSA being needed by their job (*P6: We used to be one of the teams that had a big customers impact in our*

*Business Cluster. And it also seems logical as a Customer Experience Specialist to follow [DTLSA online training].*)

On the active side, there were motivations such as being convinced by the internal branding at GFI for DTLSA (*P3: DTLSA is very important within GFI. So we pushed lots of people within my chapter to follow the training, despite it's not our day to day job.*); or the perceived practical values of DTLSA for work (help to stay focused on delivering value, risk mitigation, team alignment [internal research], or knowledge transfer for onboarding [P5]); or personal interest, character fit, and benefits (*P2: I don't like to build something that was not needed in the first place by the users.*).

The survey results showed a good conviction level for DTLSA at GFI. Direct evidence for that would be that, even though the proposed experimentation vision could be a bit radical to some (with less than half of the respondents explicitly relating to it personally), 64% of the respondents were convinced enough by DTLSA to still want to contribute to it. On top of that, some statements stemmed from common misconceptions of DTLSA or excuses for not adopting DTLSA scored fairly low in the survey results: To have those invalidated by a big portion of the respondents showed a good initiative at GFI.

## 5.4 Concentrated execution

Most of the DTLSA activities were executed by a certain amount of GFI employees, and the activities around customer research and experimentation were exercised more than the others. The overview of DTLSA activities execution can be found in Table 5.1. For each activity, all the instances where the interviewees talked about executing certain activities or providing examples and stories about certain activities were counted. A representative quote from the interviews was also presented in the figure for most of the activities.

Based on the execution count, it's clear that the usage of DTLSA is concentrated around experimentation and different customer research methods like interviews and surveys, which was in line with the aforementioned perception of DTLSA being customer-centric and experiment-focused.

While the interviews gave an overview of the understanding and execution of different DTLSA activities, it was difficult to assess the quality of certain activities based on merely interviewing, for example, brainstorming which requires a level of creative techniques beyond filling in the canvases and following given instructions.

Table 5.1: Overview of DTLSA activities execution based on the interviews. Activities coloured in orange were used the most reportedly in the empirical study. The usage of the activities coloured in grey was not reported in the empirical study.

<table>
<tr><th>Discovery/Scoping</th><th colspan="2">Problem Fit</th><th colspan="2">Solution Fit</th><th>Market Fit</th></tr>
<tr><td>Stakeholder mapping: 2<br><br>P10: we use it for engaging all stakeholders and creating our review demo sessions as part of the job process, so there are a lot of benefits that came out of it.</td><td rowspan="2">Customer Research<br><br>P16: We did qualitative interviews asking the users how they check their balance now, then showing them a line graph of the fluctuation of their account balance made by UXer to get their thoughts on it.<br><br>- Story:<br>Card sorting</td><td>Interview: 5<br><br>P9: Interviews help us see the emotions and behaviours of customers again.<br><br>- Story: Balance graph<br>- Story: Microsoft Office</td><td colspan="2">Ideation/Brainstorming: 4<br><br>P13: we did several brainstorms and they were very open-minded, which led to a lot of ideas. For example, flying a plane in the air with the congratulatory message, “Bakary Johnson, congratulations on your first anniversary!”</td><td>Business model canvas: 0</td></tr>
<tr><td>Examining data & metrics: 3<br><br>P17: We have a feedback channel for the customers and a webpage behaviour tracking tool as the 2 main sources of data.</td><td>Survey: 4<br><br>P7: We directly ask the customer after [the process]: how do you experience the way we work now? And they can react with smileys.</td><td colspan="2">Concept design: 4</td><td rowspan="8"></td></tr>
<tr><td>Scoping canvas: 3<br><br>P5: to not have an endless discussion, we said, "OK, but this is what we set on the scoping canvas."</td><td colspan="2">Persona (canvas): 2<br><br>P17: We identified three personas. They used the same channel, but they used the channel differently or they used different functionalities.</td><td rowspan="5">Assumption & Experimentation: 4<br><br>- Story: P13’s cake<br>- Story: Credit memo prefill</td><td>Assumption ranking (canvas): 1</td></tr>
<tr><td rowspan="4"></td><td colspan="2">Customer Journey Mapping: 2<br><br>P6:Instead of each individual campaign and proposition, we really think of the journey: There are people in the thinking phase and when they go into the sales. We target them once they bought the product, and then we show a message on the next steps...<br><br>- Story: Just to Digital</td><td>Experiment loop canvas: 2<br><br>P13: 2-3 weeks after an experiment we evaluate: looking at conversion rates, views... Based on the data and sometimes on insights from interviews, we decide how to continue.</td></tr>
<tr><td colspan="2">Value Proposition Canvas: 1<br><br>P10: It allows us to show the top insights (pains and gains, and the features/plans to address those…) and why we need a certain amount of support and resources.</td><td>Hypothesis formulation: 1<br><br>P7: We set targets in advance and discuss how we measure the results.</td></tr>
<tr><td colspan="2">Service Blueprinting: 0</td><td>A/B Testing: 5</td></tr>
<tr><td colspan="2">How Might We… (Canvas): 0</td><td>Landing page: 0</td></tr>
<tr><td colspan="2"></td><td colspan="2">Prototype & Evaluation: 4<br><br>P10: Every week we have a reference user session, where we show them wireframes, and new designs and get feedback from them and improve those designs.<br><br>- Story: Strength</td></tr>
</table>

| | | | |
|---|---|---|---|
| | | Making evidence-based decisions: 2<br><br>*P9: You can measure the success and see how much effort you should put into such a problem.* | |

## 5.5 DTLSA growth in a team: 3 stages

The interviews revealed different maturity levels for DTLSA of different teams, which can be grouped into 3 stages: Legacy, Initiation, and Norm. The overview of the 3 stages can be found in Table 5.2.

Table 5.2: Overview of the 3 DTLSA growth stages.

| Stages | **Legacy** | **Initiation** | **Norm** |
|---|---|---|---|
| DTLSA Activities | * DTLSA Awareness: low<br>* Activity execution: none<br>* unvalidated needs which lead to wasted time and resources | * DTLSA Awareness: established thanks to DTLSA online training<br>* Initiation: first project, tends to be a new feature/project that is initiated within the team<br>* uncertainty about the vision and action plan<br>* the lack of practical knowledge | * DTLSA activities being executed often<br>* Standalone DTLSA projects and/or DTLSA as a way of working/mindset<br>* Unclear next step |
| Team autonomy | Low<br><br>* team composition<br>* team that deems their work is irrelevant to DTLSA | Lobbying<br><br>* DTLSA Ambassador making things happen within/beyond their team<br>* Leadership support | Granted<br><br>* Teams that serve customers<br>* team with CESs<br>* Business Cluster with DTLSA-related chapter to provide frontline support |
| Team engagement | Low | Growing<br><br>* dedicated discussions and meetings are needed<br>* Scepticism on DTLSA at the beginning due to barriers<br>* Different functions working in silos | High<br><br>* Involvement from all<br>* DTLSA mindset: open, daring, fun |

### 5.5.1 Legacy

The legacy stage referred to the state where the legacy way of working was still prominent in a team and applying DTLSA had not gained enough awareness in the team. For a team in the legacy stage, applying DTLSA had often not been discussed and DTLSA activities likely had not been executed. The respective team of P1 and P2 were in this stage.

The legacy way of working was what DTLSA was working to eliminate. Firstly, the legacy way of working lacked defined metrics or goals upfront. P14 talked about how, at their job before GFI, their team would start a project and after three months question if they were doing the right thing and achieving the right goal. Secondly, the legacy way of working relied heavily on assumptions from the experience and instinct of the employees instead of concrete understanding based on evidence and data. P9 talked about how before DTLSA their team would follow through on a feature their clients requested and

roll it out without research just to "give it a try". This lack of proper research and reasoning in the decision-making also made it difficult to challenge the validity of requests from the leadership or other team.

The legacy way of working was more likely to result in untested assumptions about users and unvalidated user needs, which often led to low-impact features hardly used by the customers, therefore, wasted development resources. For example, in the DTLSA story: Office proposition, the team worked with untested assumptions without research beforehand. They later on found out in the retrospective investigation that not only was Microsoft Office an unpopular gift due to the lack of interest and being unfitting for the business of some clients, but around half of the clients they reached with their communication didn't speak the local language, which explained the low conversion rate.

### Low team autonomy

The team autonomy for DTLSA in the legacy stage is low, which can often be attributed to the homogeneous team composition instead of being a BizDevOps team.

For a team to be fully functional for DTLSA activities, the team would ideally be a BizDevOps team, where the business perspective of DTLSA is represented by functions like Customer Experience Specialist and Data Analyst, and the IT Engineers take care of the development and operations of the product. The cross-functional BizDevOps composition like this enables the team to run the full DTLSA process internally with mixed capabilities embedded in the team. P10 reflected that it indeed took someone with relevant DTLSA expertise to join the team and encourage them to start the ball rolling for DTLSA. (Although, even BizDevOps teams could struggle with DTLSA, considering the triple expectation of business, Design, and product management on Customer Experience Specialists [see Section 5.6].)

However, there were a lot of teams in GFI that were business-only teams or DevOps teams. The team composition of course reflected the purpose and the goal of the team. But DevOps teams, according to K1, were much less likely to have this daily conversation about "what is important business-wise?", "what can we do today?", and "what has value?". And in the end, the team essentially became a "feature factory" where the solutions had been defined by others and they're just building it. P18, P2, P1, and P3 mentioned that their current or previous team was in this category. All 4 of them stated that the job of their team was to "just maintain" or "merely develop" certain features "based on IT requests from other teams", and "therefore we can't decide what to create". In the survey, 65% of the respondents thought that requests from another team/Business Cluster, along with migration projects, were stopping them from changing their way of working.

Furthermore, this homogeneous team composition and lack of autonomy in deciding their own backlog could lead to these teams identifying their scope of work as irrelevant to DTLSA. On the other hand, it also led to high dependency on other teams and resources for DTLSA. Even when these teams were interested in adopting DTLSA, the extensive communication and coordination with other teams that had business cases or expertise could be quite overwhelming. For example, one of the survey respondents stated that, with their team being at the end of a long chain, any change they propose would require the cooperation of at least 3 other teams. P17 also complained that it took

a lot of organising with other teams to set up an experiment API, to make a selection of involved customers with a Data Analyst, and then to make sure the new development didn't mess with the rest of the code.

### 5.5.2 Initiation

The initiation stage refers to the state where the application of DTLSA is being initiated in a team. The respective teams of P3, P4, P5, P6, and P7 were in this stage.

In this stage, the awareness of DTLSA had likely been established, in a lot of cases thanks to the DTLSA online training for providing the knowledge and starting the conversations (which was reflected in the survey results). And the team is usually trying out DTLSA activities for the first time. Sometimes they started with using individual DTLSA activities or artefacts, such as P5's team using scoping canvas to navigate specific issues. Sometimes the team would look for a particular project that could be initiated by themselves to kick start the application of DTLSA (although DTLSA can arguably be applied to any project including migration projects, according to P11). P6 recalled that their team was waiting for "a more extensive project" to get acquainted with DTLSA on a practical level. And then a project with a lot at stake and dependencies rolled around, so they used DTLSA to validate the customers' needs and help strategize for the project.

For a team starting with DTLSA, they might run into 2 issues: uncertainty about vision and action plan, and the lack of practical knowledge.

Connecting the dots between theory and the first DTLSA attempt could be hard. It was unclear for some as to where to find their first project (P3), who should be on the team (internal research), or whether they could do something with it in their work beyond the definition (P6). The survey results also suggested that there was an unclarity on where they were going and how they could get there regarding experimentation. When it came to setting collective goals for more experimentation, 33% of the respondents didn't know the vision of experimentation specific to their team and/or Business Cluster. And more experimentation also didn't seem actionable on the individual level: 44% of the respondents couldn't clearly envision how their work would take shape if the proposed 100% experimentally validated future came true; 38% of respondents were not sure about where or how they should make the first step with experimentation. Considering that more than 60% of the respondents had already taken training on experimentation to a certain extent (e.g., DTLSA online training), it exposed the gap between having the basic knowledge of DTLSA and making plans towards more experimentation with the team.

What was missing for the team was not the basic knowledge such as definitions which could be found in the DTLSA online training but the knowledge needed for the execution. For example in the training, it was taught that you can make a mockup or create a landing page, but it wasn't linked with specific tools available in GFI or people to reach out for (P6). The practical knowledge could also be, for example, understanding the processes. There were instances where the DTLSA canvases were misinterpreted or misused. Sometimes teams got frustrated with the canvases or the process due to the complexity of the problem, and then they would just stop using them, which can be troublesome since the lack of documentation would make IT Engineers ill-informed (P8). DTLSA Coaches would certainly help with this issue but the limited number of coaches

and their available coaching hours are making it very difficult to help out on a larger scale. What contributed to this barrier was also that in some DTLSA training, the example/trial case the participants were working on was fictional instead of a case within their job scope (P6).

What could often be also seen in this stage was the emergence of an ambassador figure for DTLSA within a team who tried to make things happen within and beyond their team, which was exemplified by 4 of the interviews. P3, P4, P5, and P7 all identified themselves as an ambassador of DTLSA. This would be explained in regards to their 2 major responsibilities: engaging the team, and lobbying for autonomy with the middle management.

### Growing team engagement

The DTLSA Ambassadors would try to motivate people in their team to follow DTLSA training or practise DTLSA activities. And to achieve that, a small seminar was often done by them where the basics of DTLSA methodology were presented and examples were used to demonstrate its relevance to the daily work of their team. For example, in P4's presentation, he formulated a hypothesis with the scope of work of their team: "If we create a landing page with a value proposition and its pricing, 10% of the business clients we currently have will send us a letter of intent using the details provided."

After the seminar about DTLSA, dedicated follow-up discussions and meetings were often needed. On the one hand, meetings with the team, the related chapter, and the Business Cluster leadership are important as a follow-up to set up the roadmap and action plan for applying DTLSA (P3). And on the other hand, within the team, it would sometimes take some time to get everyone aligned on how the execution should be exactly (P13). The occurrence of DTLSA discussions was confirmed by a large part of the survey respondents and seemed to indeed very likely lead to the execution of DTLSA activities.

The initiation of DTLSA would sometimes face scepticism within the team due to different barriers. Some people would question the methodology and the inner workings of DTLSA activities (P9); others may question the outcomes and results of DTLSA (P10, and P9); sometimes DTLSA would face misconceptions from the people (P12). Reflecting on the scepticism, some ambassadors stated that ultimately keeping their minds open and the beneficial outcomes of practising DTLSA will smooth it over (P9, P10, and P12). P10 recalled that in the end, the team realised how DTLSA helped them structure their work and set the priority straight, and then they came to appreciate DTLSA. And it usually took a while to align the whole group on this. P9 talked about their team taking 3 months to arrive at some tangible outcomes with DTLSA. And according to P12, it took 1 year for the acceptance of DTLSA to grow from around 40% to 60% in their business cluster.

Beyond the aforementioned engagement growth in the Initiation stage, the team could also run into other engagement issues when they try to execute DTLSA activities for the first time, one of them being different functions working in silos. DTLSA requires different functions in a team to be on the same page and work tightly together. If that level of synergy can't be achieved, then it could be problematic. Because in different stages of DTLSA, different functions are in the lead: at the beginning Customer Experience Specialists are expected to initiate the process and facilitate the use of

canvases with the whole team, then often UX Designer comes into play by translating the insights and ideas into tangible concepts, and in the end, the IT Engineers are in charge of delivery. So there are quite some handovers going on and conversations will happen between different functions. P8 stated that the handovers are not always as efficient as they should be. P6 also pointed out that the collaboration on DTLSA was sometimes not as tight as it should be, stating that in their team, for the same canvas, the majority of the content was prepared by CES while the DA prepares the information on the target audience. But sometimes the DAs don't even know for which campaign they're creating target audience information.

### Lobbying for team autonomy

There was a lack of middle management support for DTLSA at GFI, which was also confirmed by the survey results. 30% of the respondents indicated that they tried to convince their leadership on increasing experimentation. While their bottom-up initiative deserved applause, it exposed the low level of engagement with experimentation on the Business Cluster leadership level. The middle management is directly in charge of distributing priority, resources, and budget for the teams, but those were considered missing for DTLSA by many, as revealed by the survey result. The statement on Business Cluster leadership pro-actively asking for evidence also pointed to the same conclusion, with 34% of the respondents indicating their Business Cluster leadership not doing so. The lack of leadership support could also reveal itself in the insistence of leadership on implementing their own ideas. P6 reported such instances where a homepage design came from the leadership therefore the teams never got to challenge it or experiment with it. K1 also talked about the management steering the timeline based on solution delivery (when to deliver what feature) instead of the approach the team was using, the learning of the team through experimentation, or the value the team is delivering.

DTLSA Ambassadors would often try to convince the middle management and ask for priority in their planning or supporting resources that enable them to conduct DTLSA activities (P9, survey results). The middle management that was referred to here were mostly managers on the Business Cluster level, such as Business Cluster leads, area leads (on the business side), and chapter leads, based on the roles that were frequently mentioned by the interview participants.

Their support comes in 2 forms: priority and resources. The management of P10 encouraged their team to practise DTLSA and permitted them to make room for 1-2 sprints in their planning to prioritise DTLSA and run it extensively for the first time. P11 said it was expected in all the teams, areas, and chapters of their Business Cluster to apply DTLSA wherever they can, instead of asking for permission to do so thanks to the stimulation of the Business Cluster lead. Middle management support can also bring more resources that enable the teams to experiment with or further explore DTLSA and further scale the project powered by DTLSA, for example, work hours of UX designers, coaching opportunities, or budget (P10).

Ways to increase buy-in and support of the middle management were also mentioned by the interview participants (P10). Presenting canvases from DTLSA, especially value proposition canvases and riskiest assumptions, could help quickly recap the project, showcase the most important insights gathered via DTLSA, and justify the support and

resources needed later on. The extensiveness of the DTLSA process could indicate the due diligence done by the team, which helps bring credibility to the work. Lastly, tangible value estimation and project planning help middle management understand DTLSA and are also beneficial for them to convince their own management. What was worth noting was that increasing middle management buy-in can be gradual progress throughout the use of DTLSA. To scale a project or apply DTLSA in new areas, further buy-in might be needed (P10).

Despite the wonderful work the DTLSA Ambassador could do for the adoption, it was also worth noting that this bottom-up approach had its limit. A complaint included in internal research stated that it cost them too much energy (as a DTLSA Ambassador) constantly to convince their team and that all the barriers for DTLSA and the overall environment seemed to be too much against their effort. In the survey, 43% of the respondents did not think their team/Business Cluster was ready for the changes needed to achieve DTLSA adoption. This showed the considerable amount of effort needed from the DTLSA Ambassador to activate team engagement and achieve team autonomy, and it did not lead to a guaranteed successful adoption. As a result, K1, as an experimentation expert, preferred to spend time with senior management over coaching each team/individual, stating that it was the responsibility of the leadership to create an accommodating environment for DTLSA adoption.

### 5.5.3 Norm

The norm stage refers to the state where applying DTLSA becomes a norm in a team. Teams within Business Cluster A and Business Cluster B (to which P9-18 belong) were in this stage.

Teams in the norm stage executed DTLSA activities repeatedly, instead of just 1 or 2 times every 6 months. P9 reported that her team executed DTLSA activities around 4 times in the past 6 months, including 2 big experiments and 2 smaller ones. And her team routinely collected customer feedback and validated backlog items at the sprint review every 2 weeks. P16 confirmed that her team executes different DTLSA activities "almost every sprint". P14 also said that her team used DTLSA on a daily basis.

What was worth noting is that currently there seemed to be no clear next step where the teams in the norm stage should progress towards. It was not clearly defined at GFI. According to P12, the next level of success for them would be having more teams utilising DTLSA like the teams that were doing well.

#### Team autonomy granted

The team autonomy of the Norm stage teams either was established with existing customer-oriented conditions (top down, the case of Business Cluster A and B) or was granted by middle management through lobbying (bottom-up).

Teams with existing customer-oriented conditions were more likely to be in the Norm stage, for example:

- Teams with the purpose of serving (a certain group of) customers: Business Clusters in GFI Regional Leader were typically characterised by the financial service/process they are in charge of (e.g., Business Cluster A), or the customer

segment they were servicing (e.g. Business Cluster B). And there were also teams dedicated to customer-oriented activities such as personalised marketing or digitization of certain touchpoints. The segment business clusters and those customer-oriented teams by their customer-serving nature were more keen to utilise DTLSA. Their customer-oriented purpose on the one hand justified their cross-function structure with CESs, DAs, and UX Designers; on the other hand, it also led to customer-related KPIs/targets/metrics, which also enabled them to work on these matters with DTLSA.

- Teams equipped with CESs: As the title suggests, CESs were the representative of the voice and experience of customers within their team. It was also part of their employee learning journey to be acquainted with the DTLSA methodology.
- Business Cluster with built-in expertise/support for DTLSA: A chapter with expertise closely connected to DTLSA (e.g., Chapter Product Design in Business Cluster B, Chapter Customer Experience in Business Cluster A) was hugely helpful when the teams within the Business Cluster decided to adopt DTLSA practice. They could provide professional DTLSA support within a context they're already familiar with.

### High team engagement

In a team that reached the mature level of DTLSA adoption, there was a high level of team engagement in working on DTLSA together, which could be seen in the high awareness and active communication for DTLSA and DTLSA activities, and the successful involvement of everyone (including IT Engineers) for DTLSA, and a DTLSA friendly mindset.

In a mature team for DTLSA adoption, everyone was aware of DTLSA methodology and informed about the ongoing DTLSA activities, regardless of their extent of involvement. P14 referred to it as "speaking the same language (across the team)". For example, in the team of P17, even though the number of people assigned to work on certain DTLSA activities was sometimes limited due to the scarceness of time, the results would always be shared with the whole team for review once the analysis was done. This action of informing everyone on the team was also echoed in the interview with P16 and P10.

In a mature team for DTLSA adoption, it was usually not difficult to find people detailing with pleasure the proactive involvement of everyone in the team on DTLSA activities, most of the time also including the IT Engineers. For example, in the team of P14, there was a very proactive Data Analyst who actively provides input on the backlog refinement process based on data, instead of "just provide the data whenever we ask". Everyone in the team of P16 either took the training or had previous experience with DTLSA, therefore they all had DTLSA knowledge, and all took part in the customer interviews.

Not every team organised their DTLSA activities in the same way, so the involvement of IT Engineers varies as well. But in general, it can be categorised as the 3 perspectives, based on the interview results:

- Technical perspective: The IT Engineers were involved in evaluating technical requirements. In this case, the engineers used their own expertise to give feedback on the feasibility of a new idea. According to P10, the feedback could be expected workload, needed human resources, and how to evaluate the product once it was built, etc.

- Business perspective: The IT Engineers were involved in validating the need for the new idea with the customers, sometimes even participating in or conducting the interview themselves. Practices like this could work well with the autonomy of the employees themselves, because 4 of the interviewees expressed their desires for certainty and validity on what they were building, instead of building something that eventually turned out to be not needed.
- Creative perspective: In the team of P16, the IT Engineers were also involved in ideating new solutions by being present at the brainstorming and actively contributing to the discussion.

In the teams situated at the norm stage, a DTLSA-friendly mindset could usually be observed. This mindset manifested itself firstly as open-mindedness. For example, P9 liked the fact that all her teammates are open to experimentation and trying something new. Secondly, this mindset called for a daring attitude, to ask important questions and challenge the status quo. Both P5 and P17 mentioned that DTLSA "forced" them to ask questions such as "Is there customer research?", and "How was this validated?". And sometimes courage was also needed when directly contacting or interviewing the customers and asking for their feedback and input on their work (P14). Also, the mindset should be flexible where mistakes and failures don't lead to frustration, as the survey results suggested. Lastly, the mindset allowed people to find enjoyment in practising DTLSA. Everyone in the team needs to be flexible to the uncertainty that almost certainly would occur during DTLSA (P10), what was possible due to the limit of resources (P13), and possible pivots when it was needed. P9 recalled that besides the benefits DTLSA brought to their work, a big part of the reason that motivated her to bring DTLSA to her manager was the "power, energy, and fun" it gave the team. Additionally, CESs and UX Designers needed to be proactive in facilitating the process due to their relevant expertise and responsibility.

## 5.6 Barriers and enablers for DTLSA adoption

The factors below were discovered in the DTLSA practitioner interview and were presented with the levels and themes from the literature. All the aforementioned factors won't be elaborated on again in this section anymore.

Table 5.3: Integrated overview of discovered factors of influence for the adoption of DTLSA at GFI in this project.

| Factor of influence | ± | Explanation |
|---|---|---|
| **Organisational level** | | |
| Theme: Organisational culture and structure | | |
| Conservative and rigid culture | - | GFI being a financial institution naturally came with a risk-averse attitude across the company (P9, K1). |
| Risk & Legal issues | - | The extensive requirements and policies related to risk and legal compliance could be time-consuming and significantly slow down DTLSA activities (P11, internal research). |
| Incompatible strategy and policies for DTLSA | - | The innovation strategy of GFI struggled to translate into compatible policies for DTLSA. The lack of time for DTLSA was rooted in the lack of priority at the strategy and policy levels. (survey result, P14, P11) |

| | | |
|---|---|---|
| Lack of (shared) vision | - | No concrete vision that demonstrated a numerical goal or the end of this transformation was communicated by the management or formulated democratically by the employees themselves (K1). |
| Lack of problem-oriented and critical mindset | - | The employees at GFI Delivery didn't ask enough questions, especially questions like "What is your evidence??" which was essential for DTLSA (group session). The mindset was instead leaning towards just delivering what they were told to (P7). |
| Theme: Leadership and management | | |
| Lack of middle management support | - | A lack of middle management support for DTLSA could directly undermine the team's autonomy. |
| Theme: Organisational interventions | | |
| DTLSA online training and other education | + | DTLSA online training provided the knowledge and started the conversations for DTLSA in the teams. |
| Internal communication and promotion | + | Promotional videos with senior management quotes to increase buy-in (K1), a daily newsletter on experimentation (K1), and sharing best practices. |
| Confusing communication and framing | - | The meaning of innovation or CX, albeit heavily promoted, might not be known or agreed upon by everyone at GFI. |
| Career incentives | + | Monitoring the competences and usage of DTLSA and setting it as a KPI connected to the reward system; explicitly asking for a DTLSA plan for next year in the yearly performance review; including DTLSA competences in the career development plan. |
| Lack of a dedicated team for DTLSA Adoption | - | The efforts around training and infrastructure were not organised by one dedicated team or centre of excellence that built infrastructure, trained people and facilitated DTLSA adoption (internal research). |
| **Team level** | | |
| Theme: Team autonomy | | |
| Uncertainty on vision and action plan | - | How to move from training to practice and get their team to use DTLSA could be quite unclear to a lot of people. |
| Lack of practical knowledge | - | The practical knowledge about DTLSA such as who to reach out to to help set up a DTLSA activity was missing in some teams. |
| Customer-serving team purpose | + | Customer-serving teams by nature would be better equipped and adjusted for DTLSA. |
| Chapter support | + | A chapter relevant to DTLSA built in the Business Cluster could be very beneficial. |
| Own project to start | + | Starting to use DTLSA with a self-initiated project could reduce dependency and therefore increase team autonomy. |
| "Feature factory" and its homogeneous team composition | - | Homogeneous team composition significantly increased the dependency of the team on other teams or resources. |
| The stretched title of Customer Experience Specialist | - | The function of CES by design required a mixed skillset. Some CESs struggle to meet the high expectations from DTLSA (P8, survey). |
| DTLSA Ambassador lobbying for autonomy | + | DTLSA Ambassadors would try to convince middle management for more space and resources to conduct DTLSA activities. |
| Theme: Team engagement | | |

| | | |
|---|---|---|
| Involvement from all | + | Everyone involved was the definition of an engaged team. |
| Different functions working in silos | - | Separating DTLSA tasks into different functions directly undermined team engagement. |
| DTLSA Ambassador increases engagement | + | The DTLSA Ambassador would try to motivate their team to start using DTLSA. |
| The indifferent (yet helpful) Data (Analyst) | - | Their indifferent attitude towards DTLSA could lead to data not being connected to the design and experimentation process (P6, P8). |
| **DTLSA level** | | |
| Theme: Design Thinking | | |
| The Underdelivery of UX Designer | - | UX Designers generated several possible solutions after brainstorming but often narrowed them down themselves and only delivered one design (K1). |
| Customer interaction | + | Some DTLSA practitioners found direct customer interaction (e.g., through conducting interviews themselves) and the learning that came out of it as an enjoyment (group session). |
| Creativity | + | DTLSA allowed practitioners to unleash their creativity in a way that their daily job didn't, e.g., ideation. And its ambiguous and judgement-postponing nature was also appreciated (group session). |
| Theme: Lean Startup | | |
| Less than optimal toolings | - | Due to the security nature of financial institutions, choices of experimentation tools were limited and most of the tools had to be developed internally. However, the development of the toolings stalled in recent years (K1). |
| Theme: Perceived characteristics of DTLSA | | |
| Lack of perceived usefulness | - | Some people didn't perceive DTLSA as valuable (enough). It can sometimes be due to misconceptions (P12, P14, P7, P17, P10). |
| Lack of perceived relevance and compatibility for IT Engineers | - | The involvement of IT Engineers in DTLSA, albeit discussed previously, was not explicitly defined (internal research, P7, survey). |
| Lack of perceived ease of use | - | Some people at GFI had the feeling that DTLSA takes a lot of time to execute without realising how customizable and easy the process can be (P6, P7, Survey). |
| Make assignments small | + | Giving out small assignments that didn't feel like an extensive amount of effort next to the daily work for teams just starting with DTLSA (K1). |
| **Individual level** | | |
| Theme: Individual characteristics | | |
| DTLSA mindset | + | Daring, flexible, problem-oriented, enjoys a challenge… |
| Resistance to change | - | The years of experience with the legacy way of working might be the reason for their resistance (P4, P9, P10). |

## Organisational level

5 barriers were found under the theme of organisational culture and structure. The first one was the conservative and rigid culture at GFI. GFI being a financial institution naturally came with a risk-averse attitude across the company. P9 mentioned that

sometimes this culture posed a challenge for their research since people are not fully comfortable with being open about their job or their personal experience/opinions at the interviews. K1 commented that GFI as an established corporation was good at the "unfreeze-change-refreeze" change management approach (e.g., migration projects), which made DTLSA a bit counterintuitive since it demands high agility and flexibility. The extensive requirements and policies related to risk and legal compliance could be time-consuming and significantly slow down DTLSA activities. The IT Risk trajectory often slowed down the speed of bringing new development live by 6-9 months, albeit understandably necessary, which could be reduced (P11, internal research). There were also strategies and policies in place that were incompatible with DTLSA. The innovation strategy of GFI struggled to translate into compatible policies for DTLSA. The biggest cluster of complaints from the interviews and the survey were about lacking time, budget, and resources for DTLSA, but as GFI practises an Agile way of working, the lack of time was rooted in the lack of priority at the strategy and policy level. For example, other priorities such as migration projects (where the internal environment of different business units merges or moves clients from one channel to another), cost saving, or fast delivery (survey result) were deemed as strategically important and took up a big amount of time for the teams as a top-down order (although the migration project itself could also be aided with DTLSA, according to P14 and P11). Another policy instance showing the lack of priority for DTLSA was the inconsistent reward system for employees and team performance, which emerged as a commonly agreed issue in the survey results. If delivery and launching were rewarded over improvement learning and pivot (common situations in DTLSA), then it would provide little incentives if not considerable barriers for the teams to practise DTLSA. And finally, the organisational structures needed for DTLSA (cross-functional team, built-in chapter support) also relied a lot on more flexible hiring and structuring policies. As a result, these policies created an unaccommodating environment at GFI for DTLSA. Albeit all the ongoing efforts within GFI on promoting experimentation, there hasn't been a concrete vision that demonstrated a numerical goal or the end of this transformation communicated by the management or formulated democratically by the employees themselves (K1). The lack of a problem-oriented mindset was also pointed out. The employees at GFI Delivery didn't ask enough questions, especially questions like "What is your evidence??" which is essential for DTLSA (group session). The mindset was instead leaning towards just delivering what they were told to (P7).

The theme of organisational interventions saw several interventions (or the lack of them) aimed at promoting DTLSA. Different internal communication and promotion for DTLSA were discovered: promotional videos with senior management quotes to increase buy-in (K1), a daily newsletter on experimentation (K1), and sharing best practices. Career incentives included monitoring the competences and usage of DTLSA and setting it as a KPI connected to the reward system; explicitly asking for a DTLSA plan for next year in the yearly performance review; including DTLSA competences in the career development plan. Organisations could not expect a large and sustainable impact from DTLSA when their efforts around training and infrastructure were not organised by one dedicated team or centre of excellence that built infrastructure, trained people and facilitated DTLSA adoption (internal research). The case client of this project that was in charge of innovation matters at GFI, later dissolved during a reorganisation after a short-lived existence.

## Team level

A function-specific threat to Team autonomy was the stretched title of CES. Some CESs struggle to meet the high expectations from DTLSA. The function of CES by design required mixed skillset: most of the CESs were recruited due to their prior business knowledge and direct experience with the part of financial service their Business Cluster was dealing with; the word "customer" in the title suggested heavily that they represent the customer perspective in the team, and they were expected to understand their customers through leading the process of DTLSA (which required a certain level of design and experiment competence); and on top of that, with Agile being an important way of working at GFI, and with some of the Product Owner/Product Manager work falling onto the CESs, they were also expected to know about product management. Not every CES needs to excel in all 3 aspects of course, but some of them, according to P8, struggled and didn't know what exactly to pick up. This struggle was echoed by the survey results where some of the CESs indicated their confusion when it came to the why, what, and how of leading the DTLSA process with 44% of the CES survey respondents not clear about the implication of more experimentation on their work.

One of the function-specific Team engagement barriers was the indifferent Data Analyst. The function of a Data Analyst was an ambiguous case for DTLSA. On the one hand, the survey results showed that they were a great alliance for CESs with good statistics on conviction for experimentation, their experiment skills and knowledge, clarity on their role in DTLSA, and effort on creating leadership buy-in. On the other hand, in the interviews, it was pointed out by P6 and P8 that their indifferent attitude towards DTLSA could lead to data not being connected to the design and experimentation process. P8 talked about how, at their previous Business Cluster, data analysis and data dashboards set up by DA were only used for production and marketing, but not in terms of product development, while quite some UX Designers struggled with finding the right data to support their design decisions. For example, data like how many people used the existing service when the improvement of this customer journey was being worked on. P6 also voiced their concerns about DA could potentially provide great insights for customer journey mapping, but sometimes they're not actively involved (although the situation was improving). And the lack of supportive data of course would steer the decision towards assumption than the reality of the customers. In conclusion, there wasn't a unified attitude towards DTLSA among Data Analysts at GFI, but their absence in the DTLSA process would be a barrier for the team to make full use of it.

## DTLSA level

The theme of Design Thinking saw 2 enablers and 1 barrier. According to K1, UX Designers generated several possible solutions after brainstorming but often narrowed them down themselves and only delivered one design. The singular concept approach pushed the discussion around the concept to focus on only feasibility for delivery, instead of judging the value and impact within a full set of possible solutions and concepts. Some DTLSA practitioners found direct customer interaction (e.g., through conducting interviews themselves) and the learning that comes out of it as an enjoyment (group session). DTLSA allowed practitioners to unleash their creativity in a way that their daily job doesn't, e.g., ideation. And its ambiguous and judgement-postponing nature was also appreciated (group session).

Experimentation was what Lean Startup advocate for, and it sometimes relied on certain digital tools. The tooling for experimentation at GFI was described as less than optimal. Due to the security nature of financial institutions, choices of experimentation tools were restricted and most of the tools had to be developed internally. However, the development of the toolings stalled in recent years (K1). The survey saw a certain level of complaints towards the tooling of experimentation at GFI, not only from the highly scored related statement but also from the open question. On the one hand, existing infrastructure is considered by some as not easy to use. One comment complained about the existing experiment infrastructure was not compatible with their working scope (e.g., A/B testing was not possible in the email platform) and that the results of some tools were difficult to analyse. Another answer also called for a unified toolkit for experimentation and practical guidelines on more efficient experimentation setup. On the other hand, requests for new or external tools for experimentation took a long time (1-3 years in some cases) at GFI, which prevented some teams from optimally executing experiments. K1 pointed out during the discussion of the survey result analysis that certain regulations and safety concerns might have led to this long approval process for new tooling.

Under the theme of Perceived characteristics of DTLSA, 3 barriers and an enabler factor were found for DTLSA. Some people didn't perceive DTLSA as valuable (enough). It could sometimes be because they thought they knew exactly what the customers would think (P12, P14); though DTLSA took up too much time not knowing the mission of DTLSA is eliminating wasted work on invalidated ideas (P7); or thought more experimentation didn't bring much value, therefore, no urgency for it. The lack of value recognition then meant they require some convincing. Sharing best practices from other teams (P17) or simply going through the process once without judgement (P10) could already make quite some of them realise the benefit. One of the common issues among IT Engineers was that some of them don't think DTLSA was relevant to them or didn't see themselves having a role in DTLSA. The involvement of IT Engineers in DTLSA, albeit discussed previously, was not explicitly defined (internal research). Some of the IT Engineers focused on their own daily tasks, which is delivering what was on the backlog ("You can just tell me what I have to do and then I'll make it happen"), while, for example, the team could use some extra eyes from IT Engineers to step into customers' shoes and criticise the solutions. To quote P7, it felt like there are 2 different worlds within GFI: one that thought about the problems and solutions with the holistic picture in mind, and then the IT Engineers world which just strictly followed the backlog and delivers. And as a result of this delivery-oriented mindset and perceived irrelevance of DTLSA to their job, sometimes you could see that people in the function of IT Engineers were more likely to complain about having no time for DTLSA or getting involved in too many meetings for DTLSA. Alongside the lack of policy push of DTLSA towards IT Engineers (DTLSA being absent in their employee learning journey, P7), the lack of perceived relevance might have contributed to the low DTLSA awareness and knowledge among IT Engineers. The distant stance of IT Engineers from DTLSA was also echoed in the survey results where 44% of the IT Engineers respondents don't think their function is involved in experimentation. Lack of perceived ease of use could also be troublesome. Some people at GFI had the feeling that DTLSA takes a lot of time to execute without realising how customizable and easy the process can be (P6). 24% of the survey respondents thought that the experiment (loop) was too big to fit into their daily job. DTLSA somehow was perceived as the complete opposite of the current way of working by most, which might feel like a lot of effort. P7 stated that some of their teammates,

while acknowledging customer experience and experimentation were important, thought that DTLSA were not relevant to the more urgent work at hand, therefore should only be used in the near future. As a solution, giving out small assignments that didn't feel like an extensive amount of effort next to the daily work for teams just starting out with DTLSA could be great (K1). It helped in proving to them the value of DTLSA and formulated the plan needed for their first experiment. The assignments can be about looking at potential problems suitable to solve, defining the success of the experiment, and its measurement.

### Individual level

Under the theme of Individual characteristics, the resistance to change from team members was found as a barrier. Some people at GFI had tunnel vision on how things should be done instead of bringing in new practices (P4). P9 called them "distractors" and argued that their years of experience with the legacy way of working might be the reason for their resistance. P10 observed resistant people are more likely to be from the business side or other parts of the GFI who previously were not involved in product development.

### Significant barriers

As the concluding part of the empirical research, the experimentation survey explored the vast majority of aforementioned barriers in terms of applied scale (the number of respondents who agrees/disagreed) and the extent of severity (Likert scale) with related statements, highlighting 4 barriers (see Table 5.4) as significant. The significance level is based on the scores of the statements related to the barriers.

Table 5.4: Significant barriers based on the survey results.

| # | Barriers | Significance of the barrier |
|---|---|---|
| 1 | Incompatible strategy and policies for DTLSA | High |
| 2 | Lack of middle management support | High |
| 3 | Unclarity on vision and action plan on the team and individual level | High |
| 4 | Less than optimal tooling | Medium |

## 5.7 Takeaway: Team autonomy at risk causing low-level DTLSA adoption

The empirical findings showed that: 1) the DTLSA adoption at GFI Regional Leader was at a relevantly low level; 2) Albeit the presence of positive conditions for DTLSA such as sufficient understanding, positive perception, the emergence of DTLSA Ambassador, and many enabler factors, there were also a variety of barriers threatening the adoption of DTLSA.

Looking at the significant barriers discovered (Table 5.5), it was evident that, among the 2 determinants for the combined approach adoption, the team autonomy being undermined by multiple barriers led to the low level of DTLSA adoption.

Table 5.5: Significant barriers with the affected determinant.

| # | Barriers | Directly affected determinant | Significance of the barrier |
|---|---|---|---|
| 1 | Incompatible strategy and policies for DTLSA | team autonomy | High |
| 2 | Lack of middle management support | team autonomy | High |
| 3 | Unclarity on vision and action plan on the team and individual level | team autonomy | High |
| 4 | Less than optimal tooling | team autonomy | Medium |

# 6. Design opportunities

This chapter documented the exploration of design opportunities. The design problem was first defined. A persona of the intended user was then developed. The intended users' current and ideal situations were explored through a storyboard and a written narrative. In the end, 3 concept directions were identified at different moments of the ideal scenario.

## 6.1 Problem definition: Focus on DTLSA Ambassador

The empirical research ended with the root cause of the current low level of DTLSA adoption at GFI, team autonomy at risk, and multiple barriers associated with it. To have a clearer direction of what the design should address, the following facts and arguments need to be considered:

- Survey results quantitatively determined the ranking of the significance of the barriers, with 4 of them ranking high to medium.
- The captured insights from empirical research concentrated on the team level and how the team interact with middle management (see the DTLSA growth stages in Section 5.5), which allowed better creative exploration for the generation of solution on the team-middle management level.
- The barriers discovered on the team-middle management level, namely Barrier #2 and #3, were proven by the empirical results to be both important and common (43% of the survey respondents considered their team and/or Business Cluster not ready for DTLSA adoption also provided evidence for the problematic state of this level).
- The solution space of some barriers for design intervention was small, namely Barrier #1 regarding the policies of GFI.

Taking these selection criteria and arguments into account (Table 6.1), it was evident that the project should tackle the barriers of

- #2: Unclarity on vision and action plan on the team and individual level
- #3: Lack of middle management support

Table 6.1: Evaluation of significant barriers.

| # | Barriers | Level | Theme | Directly affected determinant | Significance of the barrier | The richness of captured insights | Solution space for design intervention |
|---|---|---|---|---|---|---|---|
| 1 | Incompatible strategy and policies for DTLSA | Organisational level | Organisational culture and structure | Team autonomy | High | Low | S |
| 2 | Lack of middle management support | Organisational level | Leadership and management | Team autonomy | High | Medium | M |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 3 | Unclarity on vision and action plan on the team and individual level | Team level | Team autonomy | Team autonomy | High | High | L |
| 4 | Less than optimal tooling | DTLSA level | Lean startup | Team autonomy | Medium | Low | M |

Additionally, based on the empirical results, DTLSA Ambassadors had already been proactively trying to tackle barriers #2 and #3 on the team-middle management level (see Section 5.5.2). And according to the survey results (30% of the survey respondents tried to talk to their leadership about more DTLSA activities), there were potentially a considerable amount of DTLSA Ambassadors that were willing to contribute to the DTLSA adoption. Therefore, it was only natural to centre the design around them.

A design statement was formulated based accordingly on the outcome of the problem definition:

**How might we increase team autonomy by supporting DTLSA Ambassadors in their effort of DTLSA adoption initiation with their team and middle management?**

## 6.2 Persona: Ava, a DTLSA Ambassador

After the problem was defined as DTLSA-Ambassador-oriented, in order to draw a typical portrait of the intended user of the design and reflect their experience and needs, a fictional persona of a DTLSA Ambassador (Figure 6.2) was generated inspired by the empirical results.

| | |
|---|---|
| Name | Ava |
| Age | 29 years old |
| Location | A European capital that houses the GFI HQ |
| Education | MSc Business Administration in a university |
| Job function | Customer Experience Specialist at GFI |
| DTLSA Stage of the team | Initiation |
| Quote | "I believe improving our way of working can lead to a better future for GFI, however realistically I'm only able to contribute to it within my capacity." |
| Experience at GFI | She started at a rotation trainee program 4 years ago, and joined Business Cluster C (a service Business Cluster), team 8 (6 members in total with 1 other CES, 1 DA, and 3 IT Engineers) 1,5 years ago. She enjoys working at GFI. For her, GFI is the perfect balance of stability of a financial institution and working on impactful products like in a tech scale-up. |
| Interaction with DTLSA | CX Metric (seeing the results), DTLSA online training, GFI internal forum, DTLSA Coach |
| What motivates her | - She wishes to contribute to GFI maintaining its market-leading position.<br>- She's curious about innovation and new ways of working. |
| Goal | She wishes to change the lack of DTLSA in her team and try out DTLSA activities with the team. |
| Preferences | - Likes to spend 10min with coffee at the Obeya room first thing on Monday morning to catch up with the latest development made by her team.<br>- Prefers to get off work right on time and cycle home to feed her dog and do some running |
| Personality traits | - Ambitious: +++<br>- Practical: ++++<br>- Curiosity: ++ |

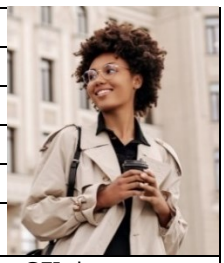
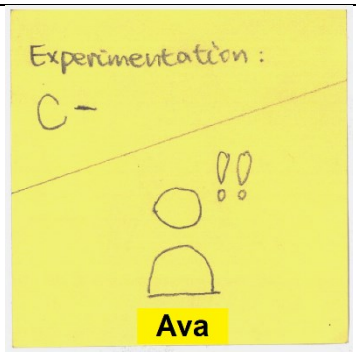


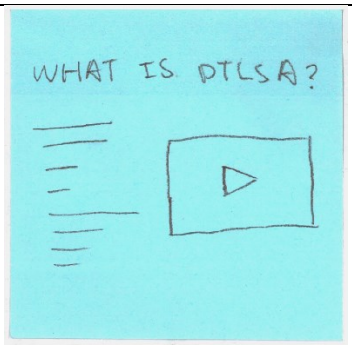
Figure 6.2: Persona of Kacey, a DTLSA Ambassador (Image by lookstudio on Freepik).

# 6.3 Storyboard: The Lost Ambassador

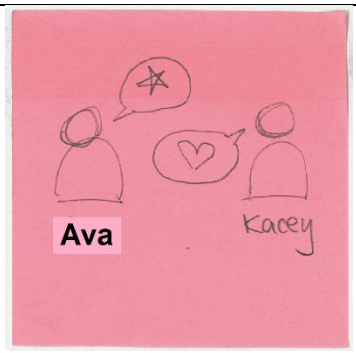
A fictional storyboard inspired by the empirical results was created to visualize how barriers #2 and #3 could manifest themselves in the journey of a DTLSA ambassador.



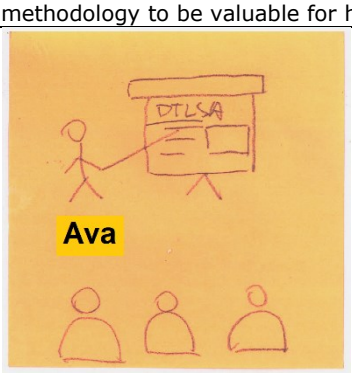

1. Ava saw the CX Metric results of her Business Cluster one day on the internal portal and was quite surprised by the low scores.



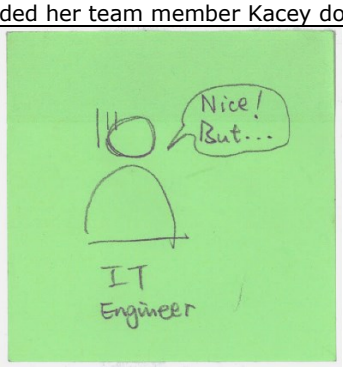

2. Ava did not have any experience or relevant background for DTLSA or CX. She took the DTLSA Training to fully understand the CX Metric scores and found the methodology to be valuable for her team.




3. Upon finishing the training, she also recommended her team member Kacey do it.

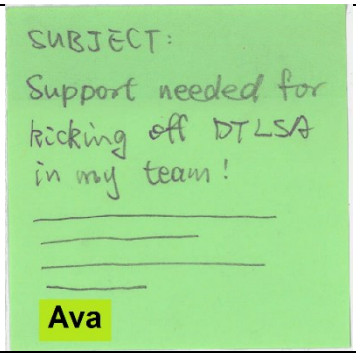



4. 2 weeks later, she organised a presentation to introduce DTLSA to everyone in her team.




5. The presentation was met with a lukewarm reaction: Although interested, most of her team members thought they had too much on their plate to start using DTLSA now.


6. Ava and Kacey were quite doubtful about what to do next to make DTLSA happen in the team: they didn't have the needed expertise themselves to execute DTLSA, and the team wasn't fully on board.



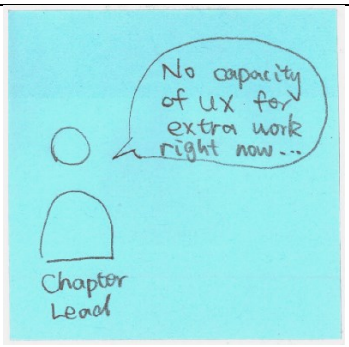
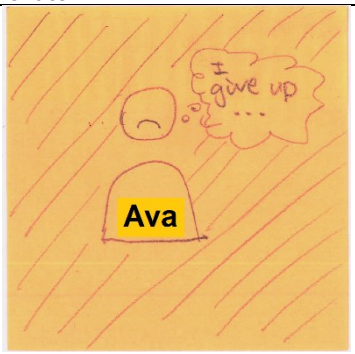

| | |
|---|---|
| 7. Ava posted on the internal forum of GFI to request some support on initiating DTLSA. | 8. A DTLSA Coach reached out to Ava via the post. Due to their limited capacity, their meeting could only happen in 3 weeks, then was rescheduled to 2 more weeks later. |
|  <br>9. While waiting for the meeting with DTLSA Coach, Ava talked to her Chapter Lead and was informed that there are no work hours for UX Designers available to assist her team with this "extra project". |  <br>10. When the coaching meeting finally came around the corner, Ava was quite tired of all the convincing and communication around DTLSA and cancelled her coaching request. |

Figure 6.3: Storyboard – The Lost Ambassador

There was a general sense of loss in the journey of Ava as a DTLSA Ambassador. She tried all directions: team engagement, coach support, and middle management support, but all of them presented her with different barriers that prevent her from kicking off DTLSA in her team. The entire journey cost her a lot of time and energy and has been unassisted and unguided, except for her only ally in her team Kacey. So, it was not a surprise that in the end she felt frustrated, and we lost her as an ambassador.

## 6.4 Ideal scenario: Autonomy Loop Activation

Based on the storyboard, an imaginative narrative was created to envision a possible ideal scenario and find some breakthrough for the design:

*After her short introductory presentation about DTLSA, Ava asked her team what they thought of using it. Her team members had mixed reactions: "It's not that I completely don't see the values of it. But we have quite a few important deadlines to catch up on this quarter… maybe it is not something for the near future." Ava nodded, taking some notes on the initial reaction and concerns of the team.*

*This was no surprise for her at all, since she has been informed about all the common barriers to DTLSA adoption. She said: "I agree that pressures have been a bit high lately. If we were to do something about it this month, what do we think should be a maximal commitment we can afford? We can just do something small as a taster and see if it's useful for us." After some quick exchanges, the team reached the consensus of spending an afternoon on it in 2 weeks.*

*She then asked the team to reflect on their recent failures and setbacks: "Since we are spending some time on it, why don't we use it to investigate something that confused us, for example, the feature we launched last month that wasn't used by the customers a lot?" The team agreed, and Ava also took notes of other examples that popped up. Then she closed the presentation and thanked everyone for the engaging conversations.*

*Ava then documented the pain points for using DTLSA, the maximal commitment of the team, and the potential small assignment to explore with DTLSA, and sent it over to a DTLSA Coach, who then gave her some recommendations on how to shape the assignment, and some practical pointers and contacts to help set it up (e.g., who to reach out for the recruitment of customers for interviews).*

*Ava finalised the planning for this DTLSA taster assignment based on the feedback of the coach and added potential outcomes and added values to it.*

*Around 1 week after the team presentation, she presented the planning to her Business Cluster lead. The Business Cluster lead initially also expressed concerns about the current workload of the team. But since the taster assignment was a quick and dirty exercise, he was also curious to see how it would turn out and granted the team his approval for the changes of their work planning to accommodate the assignment.*

*At the previously scheduled time, the whole team started their DTLSA taster assignment together. They first formulated the hypothesis on the topic based on their assumptions and then dived into them in their interviews with the customers. It was not easy for everyone, as this is the first time doing so for many of them, especially the IT Engineers. But 2 more team members went through the relevant parts of DTLSA training on their own before the assignment, so they were able to help each other out a bit. At the end of the assignment, the whole team sat together again to reflect on their learning and document their results together. Ava saw a bump in the buy-in for DTLSA at the team as the team members were happy about this experience.*

*1 week after the taster assignment, Ava brought the assignment results to a quick check-in with a DTLSA coach. The coach went through their results and gave her a few pointers on how to optimally demonstrate the values of DTLSA with their team and Business Cluster lead based on what they had.*

*Ava then talked to the Business Cluster lead again with the assignment results shortly after her conversation with the coach. The Business Cluster lead was impressed and agreed that they could do this more often for the upcoming quarter, of which he would like to see the planning again so he could estimate and balance the workload of the teams up front.*

*Ava came back to her team and started to work on the vision and action plan for more frequent DTLSA activities with all her team members. With the engagement of her team members and the gradually growing support from the Business Cluster lead, She was confident that DTLSA would go far in the team now. (The End)*

3 (or potentially more) autonomy loops can be observed in this narrative: between the collective decision and effort, and the communication with the middle management that could potentially lead to more autonomy granted, with the optionally DTLSA Coach mediation in the middle to give feedback.

## 6.5 Concept directions

In the imaginative narrative, there were 3 concept directions detected at different moments of the ideal scenario. The directions were meant as a problem brief for follow-up creative sessions or further design process, therefore remaining on a higher level of abstraction to allow creativity interpretation. The concept directions were presented with their intended user, description, and potential design requirements and enablers based on the results of this project, which can shed some light on the concepts and can be used as stimulants in the creative sessions.

### 6.5.1 Barriers priming

<table>
<tr><td colspan="2">Concept direction 1: Barriers priming</td></tr>
<tr><td colspan="2">Intended user: DTLSA Ambassadors</td></tr>
<tr><td colspan="2">Description: A DTLSA Ambassador can encounter various barriers in their journey of promoting DTLSA as the previous chapters detailed. It would be better for keeping their spirit up if they were informed [by the concept] about those barriers and equipped with strategies and tricks to overcome them.</td></tr>
<tr><td>Potential design requirements</td><td>Potential enablers to utilise</td></tr>
<tr><td>– The concept displays all the barriers and enablers detected by this project and can potentially be updated with new findings.<br>– The concept offers solutions or previous examples of how the barriers can be overcome.<br>– The concept provides practical information or contacts of employees at GFI that can help with overcoming the DTLSA Ambassador's barriers.<br>– The concept allows the DTLSA Ambassadors to share their own examples of overcoming the barriers.<br>– …</td><td>– Internal communications<br>– DTLSA online training<br>– Community of practices<br>– …</td></tr>
</table>

Figure 6.4: Explanation of concept direction 1.

### 6.5.2 DTLSA taster assignment

<table>
<tr><td colspan="2">Concept direction 2: DTLSA taster assignment</td></tr>
<tr><td colspan="2">Intended user: DTLSA Ambassadors with the rest of the team (with middle management, and DTLSA Coach/UX Designer as stakeholders)</td></tr>
<tr><td colspan="2">Description: A good way to both engage the team and convince the middle management about DTLSA is to create a small (less than 1 day) taster assignment for DTLSA. The concept should help the DTLSA Ambassador facilitate the discussion, creation, execution, feedback, and presentation of this taster assignment.</td></tr>
<tr><td>Potential design requirements</td><td>Potential enablers to utilise</td></tr>
<tr><td>– The concept should facilitate a suitable assignment for the relevantly low DTLSA level of the teams in the Initiation stage.<br>– The concept should explicitly showcase the learning of the team</td><td>– Own project to start<br>– Make assignments small<br>– Involvement from all<br>– Customer interaction<br>– Creativity<br>– Having room to fail<br>– Perceived value and usefulness</td></tr>
</table>

| | |
|---|---|
| from the assignment as part of the values for DTLSA.<br>– The concept should document the scepticism, fears, and concerns of the team concerning the use of DTLSA.<br>– The concept should identify previous failures and subsequentially future opportunities for DTLSA use.<br>– The concept should have a neutral tone in its communication, and accommodate the possible exit if the conditions for the team to use DTLSA are not optimal.<br>– The concept should be easy to use and understand considering the potential lack of relevant expertise of the DTLSA Ambassadors. | – Perceived compatibility<br>– Perceived demonstrability |

Figure 6.5: Explanation of concept direction 2.

### 6.5.3 DTLSA adoption plan

| Concept direction 2: DTLSA adoption plan | |
|---|---|
| Intended user: DTLSA Ambassadors with the rest of the team (with middle management, and DTLSA Coach/UX Designer as stakeholders) | |
| Description: The concept should help facilitate the discussion, creation, feedback, and presentation of a mid-long-term vision and action plan for DTLSA adoption. | |
| Potential design requirements | Potential enablers to utilise |
| – The concept should help the team specify their preferred frequency for DTLSA use, which helps in creating a concrete vision for the teams that everyone is on board with.<br>– The concept should facilitate regular check-in with the middle management about DTLSA.<br>– … | – Involvement from all<br>– Having room to fail<br>– Perceived ease of use<br>– Perceived value and usefulness<br>– Perceived compatibility<br>– Perceived demonstrability |

Figure 6.6: Explanation of concept direction 3.

# 7. Conclusion

Empirical research of a variety of methods was conducted. The findings of the empirical study answered the previously set up research questions around DTLSA adoption. The rich contextual information provided by the empirical findings then was used to inspire the design process, which led to 3 concept directions for the improvement of DTLSA adoption.

## 7.1 Discussion

This project uniquely positioned itself among the current combined approach research field. Most of the existing research was done with student teams or an isolated innovation lab within a corporation. The research of (Zorzetti et al., 2022) resembled this project the most: both researching development teams in the industry. However, this project went beyond the selected, isolated, and protected 2-team setting of Zorzetti et al. (2022), reaching a broader range of employees and teams at different maturity combined approach adoption, which revealed stages of adoption and needed conditions for a team to flourish in a corporate where bottom-up initiatives are needed.

The empirical study captured factors that covered all the levels and themes reported by the combined approach literature and included factors under the themes of perceived characteristics of the methodology, which was similar to the Agile adoption literature. This was supportive of the speculation made at the end of the literature review that the confined and atheoretical approach of the combined approach study might have limited the discovery of factors under those themes. Furthermore, there were also factors not mentioned by prior studies such as conservative and rigid structure, or risk and legal issues in the empirical findings, which could be caused by the financial institution background of GFI.

The empirical findings echoed the observations based upon literature that team autonomy and team engagement are the 2 significant factors at play for the adoption of the combined approach. Furthermore, there seems to also be an interplay relationship of some sort between these 2 in the empirical findings (DTLSA Ambassadors working on both engaging the team on DTLSA while convincing middle management of the potential values and team collective effort), and it was explicitly used in the design process (autonomy loop). Although this phenomenon was not reported within the scope of the literature review of this project, it can be seen as somewhat related to the findings of (Vijayasarathy & Turk, 2012) where perceived hindrances and perceived benefits have a dialectic effect on Agile adoption. They suggested that when employees sense or encounter hindering conditions for the agile use (which is a situation threatening team autonomy and is almost always the case in adoption on a bigger scale), then promoting the values and usefulness of agile methodology (which can help engage and unit the

teams on the agile adoption) can counter those perceived hindrances and motivate employees to increase their agile use.

Since a bigger part of the literature review was done after the execution of the empirical research, the attitude of the author towards the teams customizing and "cherry-picking" the DTLSA methodology changed over time. DTLSA was a defined process but, in practice, the teams didn't always do it by the book and often utilised it in a less rigorous way, which could initially be seen as a sign of a lack of commitment. However, this flexible approach was advocated by the literature (Dobrigkeit et al., 2021), and was seen as part of the team autonomy.

In Section 5.5.3, it was brought up an interview participant from a Business Cluster in the Norm stage for DTLSA that they couldn't envision a substantially different next stage for DTLSA adoption beyond the status quo of their business cluster. Although it wouldn't be an urgent concern for GFI for now, considering the big portion of GFI was still in the Legacy or Initiation stage, it was an interesting thought worthy of some attention: What would be the final form that teams which adopted the combined approach were evolving towards? How embedded could design and experimentation capabilities be in a team? Would it still be relevant in the future to categorically differentiate "design team", "experiment team", and "development team"? And how would that shape the future of design education?

From hindsight, the survey, albeit provided interesting quantitative evidence that supported prior empirical findings, was not the most important factor in the problem definition of design opportunities as expected, due to the presence of many other criteria such as limited solution space of certain problems. Considering the limited time frame for a graduation project, it was fair to say that the survey was not completely necessary.

## 7.2 Recommendations

Recommendation on follow-up concept development: In the spirit of DTLSA, there should be constant testing and validation throughout the concept development following the proposed directions, due to the underlying assumptions the imaginative narrative and concept directions built upon.

Recommendation to case client: This project had a lot of relevant implications for the case client who was in charge of innovation transformation. For example, the central findings of this project, team autonomy and team engagement, and other detected barriers and enablers could be easily incorporated into the ongoing initiatives and efforts on promoting DTLSA, such as CX Metric. The case client also needed to understand their potential position of being the spokesperson for all the DTLSA practitioners and enable them through increasing high-level buy-in for DTLSA, since decisions crucial to team autonomy such as strategic and policy support, and multi-functional team structure and composition (especially the distribution of UX Designers in each team as opposed to concentrating them in CoEs) needed to be initiated or approved by the top- and middle management. The case client could also join forces with the Agile initiative at GFI to create a bigger impact.

Recommendation to DTLSA practitioners at GFI: Besides the proposed concept directions which were all dedicated to DTLSA practitioners, the practitioners should also actively look for allies in their business cluster that could potentially help the DTLSA adoption, for example, business cluster members with relevant expertise (e.g., UX Designer, or Data Analyst). Although team autonomy is mostly determined by the team structure and middle management support, personal connections with key figures like them could potentially benefit the adoption to an extent.

Recommendation to researchers on the combined approach: The combined approach called for a multidisciplinary team to thrive; research on the combined approach also called for interdisciplinary collaboration. In the example of this project, the exploration of the implication of DTLSA for the IT Engineers was limited due to the technical aspects of programming not being understood by the author. Judging from the literature collected for this project, this interdisciplinary collaboration between design, business, and computer science scholars was not yet a norm in the combined approach field.

## 7.3 Limitations

The entire empirical study was conducted during the COVID lockdown period when remote working was a must, making it very difficult to conduct more immersive research such as shadowing a DTLSA Ambassador or observation of how a team worked with DTLSA in their daily job.

The strategy and policy issues emerged as one of the most significant barriers in the empirical results, which made it a pity that the access to top management was not granted by GFI to the author. Related information on this barrier was unable to be obtained in the empirical research.

Internal validity: The sampling and distribution of the survey study were handled to avoid selection bias and recruit not only participants with a positive perception towards experimentation. The invitation email did not mention the term “experimentation”. The survey questionnaire was framed as “delivering differentiating customer experiences”, which could have, however, led to the bias of attracting another specific group of participants and influenced the responding rate. The survey questionnaire failed to include a control question on the specification of the team, which made it unable to clarify whether the respondents were clustered around teams that were more familiar with experimentation. However, as mentioned earlier, the participants were a good representation of departments and job roles at GFI.

Construct validity: The use of multiple methods and sources of data could help address construct validity. All study participants were transparently informed that the study was solely academic and not connected to other objectives such as a performance evaluation on behalf of GFI. The survey was tested by an employee at GFI before the distribution to make sure it was understandable for a broad audience. However, certain statements in the survey addressed multiple levels (e.g., “team and/or business cluster”), which reduced the construct validity. Although the supervisory team were frequently consulted throughout the study, the execution of the empirical research was solely done by the author without assistance or validation from others, leading to the possibility of bias.

External validity: The study was conducted in a single organisation, which posed a threat to its external validity. Multiple sources of data from research components with different sampling strategies were used to mitigate this. It could be believed that this study is generalizable to other organisations that are undergoing similar adoption of the combined approach of Design Thinking, Lean Startup, and Agile/Scrum. However, this couldn't be assertively claimed as many factors needed to be considered during the adoption of a methodology like this.

Reliability: Although case studies were seldom reproducible, all the relevant records produced by this study were documented and can be found in the Confidential Appendices (excl. interview transcripts). Multiple methods and sources of data were used to make the results more consistent and dependable.

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