PARTS

WITHOUT A WHOLE?

The Current State of Design Thinking Practice in Organizations

STUDY REPORT
TECHNICAL REPORTS NO. 97

Jan Schmiedgen
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Hasso-Plattner-Institut für Softwaresystemtechnik
an der Universität Potsdam, September 2015

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"That's a real challenge when trying to roll out design thinking in an organization that has other processes and ways of working. People absolutely genuinely believe that they did 'their' design thinking. That continues to be our challenge. Building design thinking into all processes."

Wendy Castleman, *Innovation Catalyst Leader,* Intuit

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PREFACE

This study report has in large part been written for practitioners, but it is also suitable for academic scholars. It presents findings on the real-life usage of design thinking in the concrete practice of organizations – rather than making normative claims about what design thinking is or should be.

ADDRESSEES OF THIS STUDY

Current and prospective design thinking practitioners
There are vastly disparate understandings of design thinking. Our aim is to quell the dispute on the 'true nature' of design thinking by initiating a more differentiated debate. This report can serve as a roadmap in helping its readers to localize themselves based on their understanding of design thinking.

Decision makers
We present critical obstacles and some best practices of design thinking that may influence the failure or success of its introduction. We look at what other organizations have learned when rolling out design thinking initiatives.

Scholars and design thinking experts
We have carried out basic empirical research on the adoption of design thinking by organizations. The results may be used for further investigations.

Anyone else interested in design thinking
Our study will help readers gain an explorative overview of the often opposing positions within the current discourse in practice. The reader should get a better starting point to evaluate and make sense of the phenomenon.

"Parts Without a Whole" is a section of an ongoing project. It is accompanied by a web resource with case studies on successful and failed design thinking initiatives as well as interviews and other knowledge gained on the fringe of academia and practice. This additional information will be available as of July 2015 on the website:

> *http://thisisdesignthinking.net*

We are also looking forward to the feedback from our readers.
You can contact us at: thisisdesignthinking@hpi.de

The HPI-Stanford Design Thinking Research Program funds this project.

02

EXECUTIVE SUMMARY

This is the first large-sample survey of design thinking adoption in practice. Organizations of all sizes and from different parts of the world participated. The explorative analysis of the survey data was gauged against insights from qualitative interviews with experts, i.e. people with significant experience in design thinking. This report discloses important differences and similarities in interpreting and appropriating design thinking in organizations. It therefore points to possible sources of frequent discussion and misunderstanding. These are areas that can lead to disappointment or failure when introducing design thinking.

→ 75% of our respondents have been actively engaged with the concept for four years or less. However, a select few have had up to 35 years of experience | *chapter 4.*

→ Design thinking is practiced in organizations of all sizes; so far, for-profit organizations use it the most. It is applied in basically all industry sectors. The *Information and Communication* sector has been the strongest, represented by 21.77% of our respondents | *chapter 3.2.*

→ Design thinking enters organizations via a multitude of learning channels. People create their unique learning channel mix, which leads to different notions of what the concept is. The diversity of opinions influences practice, i.e. what design thinking becomes in the organizations. Experts criticize the circulation of shallow or incomplete notions of design thinking | *chapter 4.*

→ There exist different understandings of and emphases on what design thinking is. Understandings develop along a range of perception viewing it as a toolbox, process, method(ology) or mindset | *chapter 5.* Experts emphasize that the whole is more than the sum of the parts, as it forms a system. They point to organizational shortcomings when merely applying isolated elements without an awareness for the interdependencies of mindset, principles, practices and tools that constitute the concept for them | *chapter 10.*

→ A majority of organizations - 72.3% - localizes their design thinking practice in a traditional way, for example in departments or support functions such as Marketing or R&D | *chapters 6.1, 6.2.* Design thinking experts however believe that such a *unit or consultancy model* restricts its potential. They claim that design thinking has to instead be set up as a cultural change program beyond teams and organizational functions | *chapters 6.3, 10.2.*

→ Experts find that design thinking is more likely to fail if applied in an isolated manner without the rest of the organization practicing, appreciating or even being familiar with the concept | *chapters 7, 8.*

→ Design thinking is applied to a wide array of problems. Surprisingly, customer-facing product or service innovation is often not the main area of its application. Many organizations intend for it to help with internal process improvements and matters of cultural change in teams and departments | *chapter 6.4.*

→ 71% of our respondents report that design thinking improved their working culture on a team level | *chapter 7.*

→ 69% of our respondents perceive the innovation process to be more efficient with design thinking | *chapter 7.*

→ 10% stopped their officially supported design thinking activities. Reasons for discontinuation were the view of *design thinking as a one-off affair, lacking management support* and exhibiting *deficient diffusion and implementation* | *chapter 8.*

→ Respondents perceive design thinking as hard to measure. Most do not measure it at all. The ones who do, use vaguely coherent metrics | *chapter 9.* This may explain why only a minority of respondents have felt any financial benefits from design thinking so far | *chapter 7*, their origin is simply hard to trace back. Experts therefore interweave a mix of innovation journey stories with relevant KPIs to showcase and trace back design thinking's actual impact | *chapter 9.*

→ Oftentimes, management focuses on the final innovation outcome. However, design thinking is a journey: Teams or whole units change the way they

work and how they approach problems along the way. Experts therefore point out that the introduction of design thinking needs to be accompanied by additional changes in leadership and innovation capabilities. These changes include executive commitment, financial support, topic-related awareness, space and dedicated free time. If this is not done, design thinking's introduction may lead to unintended consequences that question existing management roles | *chapter 10.2.*

To summarize our insights

Much of the confusion surrounding design thinking arises from its versatile nature and consequently bewildering array of possible applications, each of which yields different experiences. This study is intended to help practitioners better localize their position and inspire thoughts on which interpretation of design thinking is needed within an individual's specific organizational context.

03

ABOUT THIS STUDY

Over the last ten years, design thinking has been gaining the attention of an increasingly broader audience. Many organizations and people with *non-design backgrounds* began to express an interest in its application in their industries. They entered into a passionate discourse about a phenomenon, which some already refer to as a *new paradigm*[1], for dealing with all sorts of problems.

Emerging discussions show a curiosity for design thinking but also distinctive hopes and expectations. For design thinking novices in general, and executives in particular, it has become confusing to follow the many publications, opinion pieces and normative depictions within management discourse. Numerous claims and counterclaims have created ambiguity. As a result, the concept tends to oscillate between the extreme poles of being a panacea and being old wine in new bottles. Many influential design and innovation experts therefore have raised their concerns about a growing deterioration of the meaning of design thinking. This shift in meaning[2] comes along with the diametrically opposed desires of decision-makers new to the discourse. On one hand, to finally understand design thinking's core essence and, on the other hand, to quickly introduce it to their organizations with as little effort as possible.

The current situation lays the groundwork for misunderstandings and unmet expectations about what design thinking in different organizational contexts is or should be. Whereas in the management literature normative descriptions and success stories of the concept prevail, more scholarly discussions concern themselves with theoretical and descriptive examinations of the subject (Johansson-Sköldberg, Woodilla & Çetinkaya, 2013; Lindberg, 2014). These studies are sometimes complemented or combined with empirical research, which is usually presented in the form of single case studies or protocol analyses. Both the scholarly discourse analyses as well as the management discourse streams often have little to do with what is actually happening on a broader scale in organizations.

1 The most influential management advice literature came from Brown (2009) and Martin (2009a). A critical engagement with design thinking *as a paradigm* can be found in Badke-Schaub, Roozenburg and Cardoso (2010) and Dorst (2010).

2 e.g. Norman (2010), who is concerned about the *public relations* character of the term; Merholz (2009), who invites his readers to look beyond the label and rediscover the lost art of *social science thinking;* Raford (2009), who believes that design thinking in its current form is so hyped that it has no chance to really unfold in organizations; Nussbaum (2011), a former main proponent from the business press, who denotes it as a failed experiment; Saffer (2012), who illustrates the absurdities of *design thinking practice* by non-designers; Walters (2010, 2011), who describes the exaggerations and limitations in upfront expectations towards the methodology; and Mulgan (2014), who lays out why it does not work under certain circumstances. Discussions in practice take place very passionately, e.g. one about Nussbaum's (2011) article *"Design Thinking Is A Failed Experiment. So What's Next?"* in the eponymous thread in one of the *Design Thinking* groups at LinkedIn (http://bit.ly/dtpassion > note: closed group, members only).

The rationale behind this explorative study is therefore to comprise a descriptive overview of what organizations actually do and experience when they say they practice design thinking. Our intention is to unfold the fields of design thinking applications. During our research it became clear that design thinking is a continuum of different expectations. In some cases, these expectations are met and in some cases they are not. Reasons for the success and failure often seem to be closely linked with the practitioners' understanding of the design thinking concept itself. Broadening the perspective on this continuum may be a chance for a higher rate of successful application, as practitioners become more context-aware.

This might help them to make better and more realistic judgments on the possibilities and limitations of design thinking and may initiate a more differentiated discourse among practitioners. **At best, decision-maker discussions will shift from normative viewpoints to a view on what kind of design thinking they actually need in their contexts and which factors might enable or thwart its diffusion.**

In the following pages, we strive to gain an overview of the current continuum of design thinking – or what is labeled as such in practice | *chapter 5.* We were curious to discover how organizations actually appropriate the design thinking concept to address their unique challenges at hand | *chapter 6.* Further we hoped to disclose some of the limits and unsolved challenges | *chapter 8* within the different understandings of design thinking in terms of ambitions and expectations as well as perceived impact and limitations.

The rationale behind this explorative study is to provide a descriptive overview of what organizations do and experience when they say they practice design thinking.

3.1

STUDY DESIGN

We chose an embedded multi-method design, fed by two main data sources. These sources are quantitative data, gathered from an extensive questionnaire, and semi-structured personal interviews with selected practitioners (half pre-selected, half from the questionnaire sample group). The questionnaire consisted of a variety of closed questions, which aimed at validating constructs from theory. It also contained open-ended questions for the collection of interpretation patterns. The topics of the semi-structured interviews were based on the themes and patterns that emerged during first explorative analyses of the survey data. While the questionnaire had elements of inductive (open questions) and deductive (constructs) data collection, the interviews had a rather inductive character of theory building. The survey ran through several pretests. We used concurrent and retrospective think aloud techniques along with probing.

> **If you are interested in further details of our study design, you may first refer to p. 132 ff. in the annex before proceeding to the results on the pages to follow.**

Research Setup

1 | Survey

Online questionnaire sent to an international mailing list of design thinking practitioners and spread via social media channels.

1.1 Closed questions > *Basic statistics and interrogation of constructs from literature*

1.2 Open-ended questions > *Patterns of interpretation and emerging themes*

2 | Explorative Analysis

3 | Qualitative Interviews

Individual interviews with selected practitioners based on the first analyses

4 | Final Analysis and Interpretation

Figure 1: *Research setup*

The study formulated open questions whenever possible. Because of the various backgrounds of our participants, only a few questions could be set as mandatory. We tried to provide our participants only with relevant questions, e.g. by differentiating team and manager item sets. Thus, participants either had the possibility to skip questions not applicable to them or they were only given questions they could answer. This in turn results in varying numbers of respondents for each question. For better readability, we will refer to the sample as a whole as N and to all subsamples without further distinction as n. If not stated otherwise the n refer to the subsample described in the respective paragraph.

When creating the questionnaire, we used existing categories from literature whenever possible *(a priori* categories). Additionally, we allowed free-text responses and categorized them when themes emerged *(a posteriori* categories). While this is reasonable for an exploratory study, assigning a posteriori categories is always a post hoc rationalization (i.e. after the fact justification) and further research is necessary to test whether our findings are reproducible.

3.2

QUESTIONNAIRE SAMPLE

There were 403 people who took our survey. A total of **N = 235** responses were still valid after exclusion[1] and used for the analysis of this study (as of June 12, 2014). Out of these, 165 respondents explicitly verified their locations. Over half of the responses were filled in by managers of teams or organizations (51.5%) and the remainder by design thinking team members.

1 We looked for completeness of the data set and excluded design thinking consultancies if we were able to ascertain the latter unequivocally.

The majority of participants were from Germany (112 responses). In general we discovered our sample to be overweighted for organizations from the EMEA region (84,85%). Remaining participants confirmed their headquarters in the AMER area (7.88%) and in the APAC region (7.27%). Those respondents who did not provide their location came from all parts of the world according to geo data.

The highest percentage of our respondents (63%) come from just three industry sectors. These will be described in more detail later. The above-mentioned sample differences need to be kept in mind for the purpose of interpreting the results.

Organizations of all sizes participated in our survey

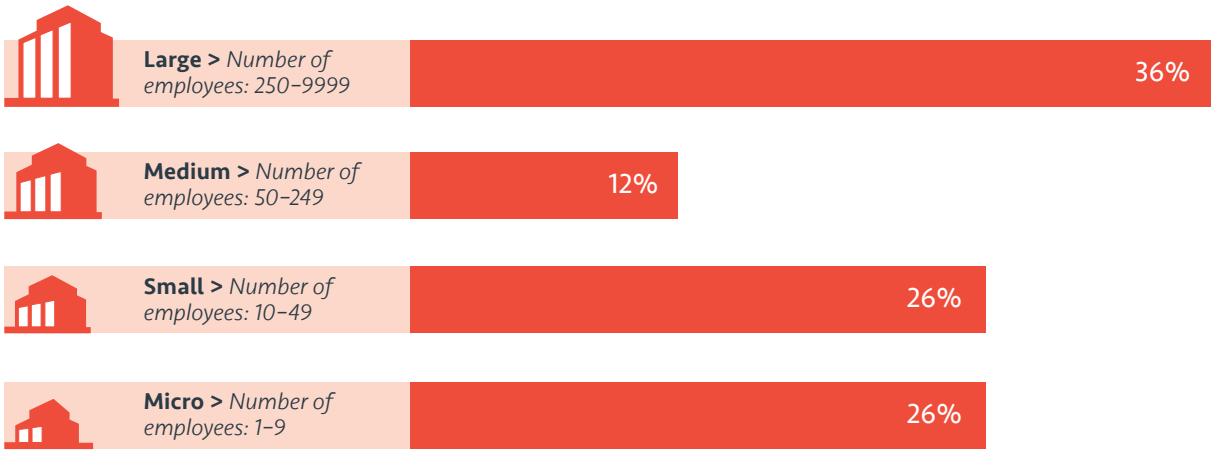


Figure 2: *Size of organizations in the sample: n = 118 (EC SME/US Department of Trade classification)*

Nearly half of the respondents (48%) work at medium (50–249 employees) and large-sized organizations (> 250 employees). Fifteen companies reported over 10,000 employees. Twenty-six percent of the respondents reported being part of a small organization with 10–49 employees. Another 26% work in settings with fewer than ten people on staff.

A clear majority (65%) of respondents reported that their organizations were profit-oriented companies. Figure 3 shows that only a small proportion of respondents designated their organization as non-profit, public sector or a mixed-form.

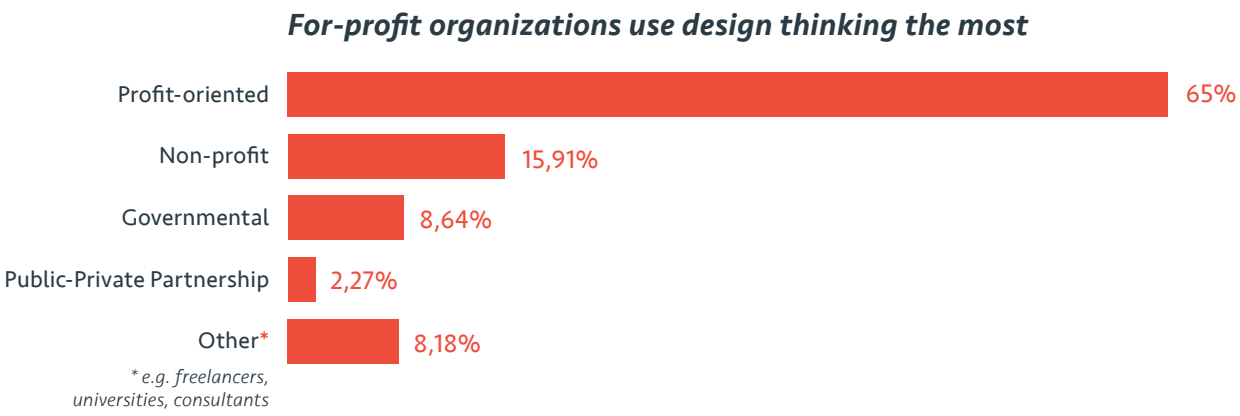


Figure 3: *What applies best to your organization? (n = 219; each organization included only once)*

"In 2007 design thinking was kind of this new thing coming up."

Anonymous Interviewee 6, *Former Senior Employee,*
Center for Design Thinking

Industry Sectors

Design thinking is used in many industries: some sectors are more engaged in it than others.

The three most dominant industry sectors[1] we found to be involved were **Information and Communication,** most notably IT firms (21,77%); **Other Service Activities,** e.g. organizations offering design thinking as a service provision (19,05%); and **Education** (18,37%).

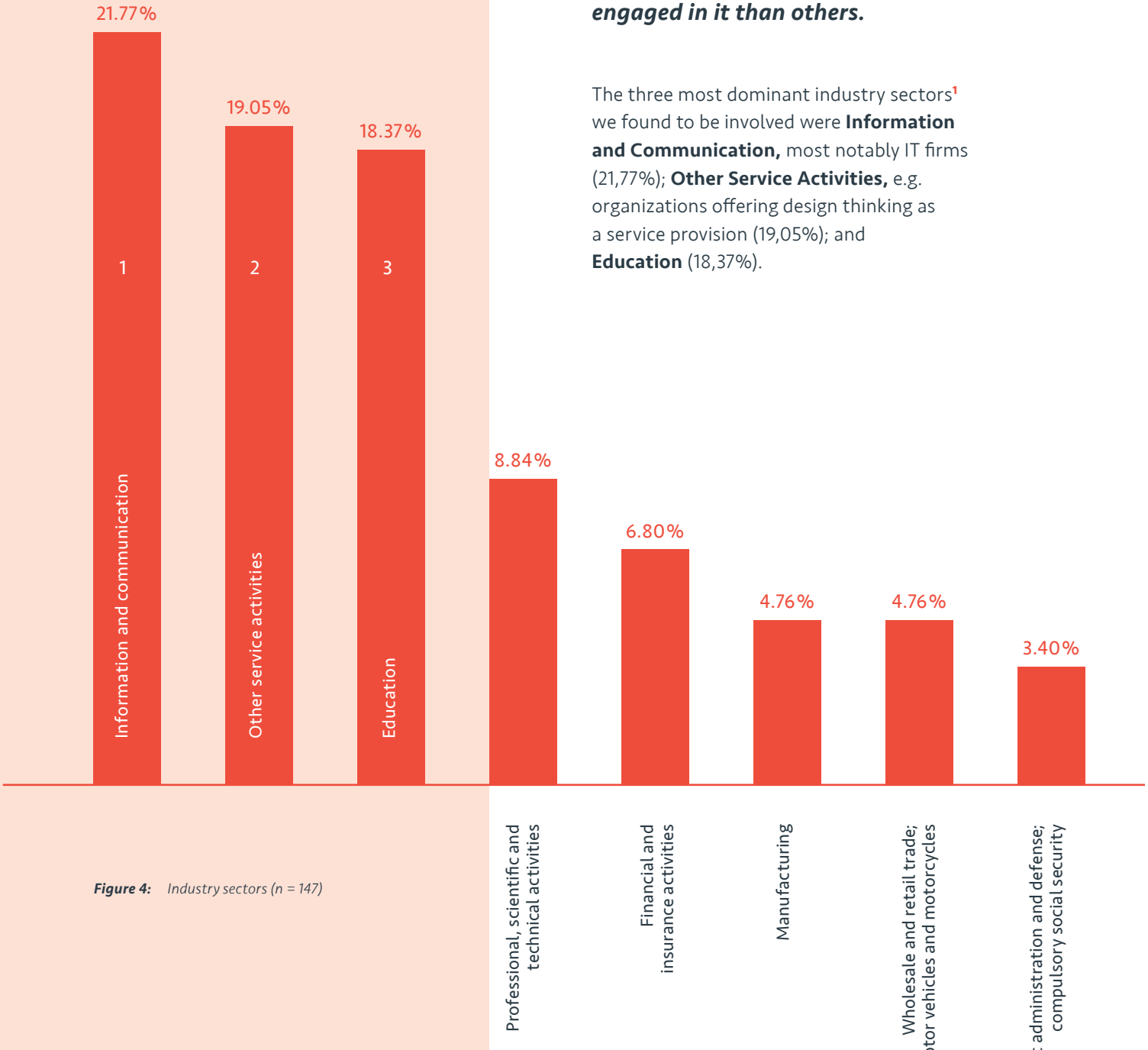


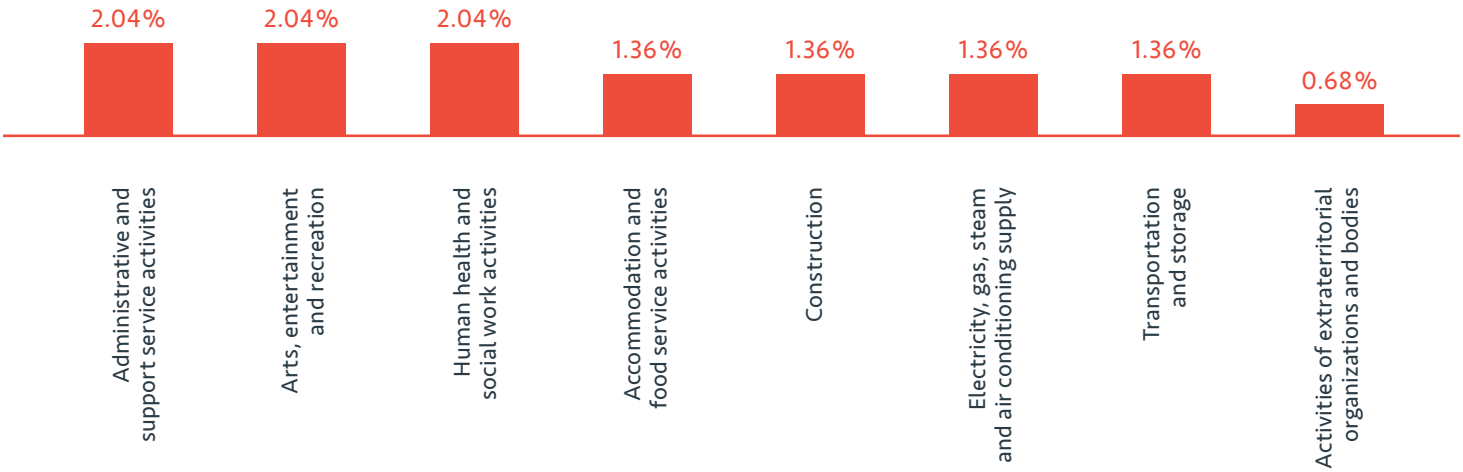
Figure 4: *Industry sectors (n = 147)*

1 We used the ISIC (International Standard Industrial Classification of All Economic Activities), Rev.4 classification scheme for determining the industry sectors (http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=27&Lg=1 [accessed 15 January 2014]). We further discussed in our team possible explanations for the dominance of the mentioned sectors. Because our explanations involve a lot of interpretation, which is not based exclusively on our data, we would like to mention the following factors in a footnote:

1) The bias towards the **Information and Communication** sector (21,77%) could be explained by the fact that many of our survey participants have or had ties to the Hasso Plattner Institute. With HPI's teaching and research focus on software systems engineering, it is not surprising that IT is predominant in their work. We know that design thinking heavily resonates in such (ICT) environments as it closes certain gaps that other prevailing approaches like SCRUM, Agile or Lean still leave open. Market actors in the IT field use these methodologies because they feel the innovation pressure caused by digitization and user empowerment sooner than firms in other branches. The Economist recently described this development as being driven by a *Cambrian explosion* of internet startups (The Economist, 2014). This sector thus represents a kind of forefront of organizations who have to react faster than others, which may explain the volume of responses here from this sector.

2) Design thinking is perceived as an all-embracing approach that can be used and applied basically everywhere. Many organizations that use it fall in a gray zone in terms of industry classification. We had respondents from *program advisory committees, R&D service units* and *network organizations,* to name but a few, and they all categorized themselves in **Other Service Activities** (19,05%). Additionally, we had many responses from design thinking consultancies, most of which we excluded if they could be categorized unambiguously as such. Some companies however were equivocally mixed forms of *industries,* for example a manufacturing and advisory practice (consulting engineers). Other companies provided design thinking support services on a partially-internal, partially-external basis, and therefore classified themselves in this category. Such occasions were frequent and are included in the sample.

3) The last major group of responses, which came from **Education** (18,37%), can be explained as follows. The packaging of design thinking as a didactic concept, which is now specially taught in professions other than those in the design field, started at educational institutions such as the Illinois Institute of Technology, Stanford's d.school and Rotman School of Management, to name a few. Along with the ongoing desire of managers to innovate and the publicity created by these programs, the demand for such offerings grew in all parts of the world. Growing demand fosters respective supply, which is why nowadays countless educational institutions offer programs related to design thinking to a wide range of audiences. Additionally we had respondents from the educational sector who do not offer design thinking education and services per se. Instead many apply the concept to change all kinds of andragogical and pedagogical education programs. Others use it as a means for better teaching and for the development of skills, abilities and (creative) confidence in people (Kelley & Kelley, 2013).



WHERE OUR RESPONDENTS CAME FROM ...

The majority of participants came from Germany. In general we discovered that in our sample group the scales were tipped in favor of organizations from the EMEA region.

Remaining participants confirmed their headquarters in the AMER area and in the APAC region. Those respondents who have not provided their location came from all over the world according to geo data.

n = 165


0%
100%

3.3

INTERVIEW SAMPLE

In every chapter the survey results are gauged against data we gained from eight qualitative interviews with a variety of design thinking practitioners. Most of them have had experience with the concept for more than seven years. We can therefore assume that the senior experts may have other point of views on certain topics and problem fields within design thinking. One executive-level interviewee was explicitly chosen because he is widely known as a critic of the design thinking label, although his company is run in a very design-driven way.

In the following sections we refer to our interview partners as *interviewees* or *experts* and indicate respective quotations as *"quote (IX.x)"* attached by their ID (e.g. I2.1 = Interviewee 2.1) or use the interviewee's real name from the table on the right. If we cite a survey participant or survey respondent, these quotes have no ID attached. *Indirect quotations are italic.*

> For an extensive description of the study design and the interviewee sample, please refer to | *chapter 12.1, p.132* in the annex.

Our interviewees

Company	Number of employees		Interviewees	
Siemens Ltd. China	> 32,000	I1	Dr. Bettina Maisch, *Senior Innovation Manager,* Corporate Technology China	CN
Anonymous Company I (Software)	> 50,000	I2.1	Anonymous, *Senior Project Manager and Agile Coach,* Anonymous Company I Labs	DE
		I2.2	Anonymous, *Development Director,* Anonymous Company I Labs	
		I2.3	Anonymous, *Senior Technical Specialist,* Anonymous Company I Labs	
		I2.4	Anonymous, *Package Build Lead,* Anonymous Company I Labs	
		I2.5	Anonymous, *Solution Architect/Senior Product Specialist,* Anonymous Company I Labs	
Autodesk	> 7,400	I3.1	Carl Bass, *Chief Executive Officer and President*	US
		I3.2	Maurice Conti, *Director of Strategic Innovation*	
Intuit	> 8,500	I4.1	Kaaren Hanson, *Former Vice President of Design Innovation*	US
		I4.2	Wendy Castleman, *Innovation Catalyst Leader*	
Citrix	> 9,100	I5.1	Julie Baher, *Group Director Customer Experience*	US
		I5.2	Diana Joseph, *Director Customer Experience Education*	
Anonymous Company II (Medical Devices)	> 3,000	I6	Anonymous, *Former Senior Employee,* Center for Design Thinking (closed down in 2010)	DK
Anonymous Company III (Multi-sided Platform for Hospitality Services)	< 800	I7	Anonymous, *Head of Design Research*	US
Derdack	< 20	I8	Matthes Derdack, *Chief Executive Officer*	DE

Table 1: *Interview partners*

04

HOW DESIGN THINKING ENTERS ORGANIZATIONS

"In 2007 design thinking was kind of this new thing coming up."

Anonymous Interviewee 6, *Former Senior Employee,* Center for Design Thinking

Although respondents reported anywhere between zero[1] and 35 years of design thinking experience, the majority of respondents did not have a long track record or level of sophistication with the concept. Twenty-five percent (25%) had less than one year experience in applying the concept. Fifty percent (50%) of all organizations had one to four years experience[2]. Twenty-five percent (25%) claimed a history of more than four years of design thinking practice.

1 24 respondents just started to engage with it in 2014.

2 Five numbers summary (minimum: 0; median: 2; first and third quartile (Q1, Q3): 1, 4 years; maximum: 35 years).

HOW PEOPLE LEARN DESIGN THINKING

How did people approach introducing design thinking into their organizations? Which learning channels did they use? Figure 6 (page 28) shows the most common ways that the organizations in our survey learned about it. Nearly half of them (42.6%) sought professional training at educational institutions. Twenty percent (20%) also made use of self-help literature and taught themselves the concept. For example, via the numerous design thinking toolkits or *learning by doing*. Some respondents (7.1%) looked for advice from external coaches, agencies and consultancies while others (13.5%) accessed an institutionalized innovation program in their organization. Some have not yet learned it; which is often the case for managers who are responsible for a design thinking team but do not apply design thinking themselves. Please note that multiple answers were possible, as *learning channels* are rarely mutually exclusive in practice.

Seventy-five percent of respondents have four years or less of design thinking experience

Others, however, have practiced it a long time

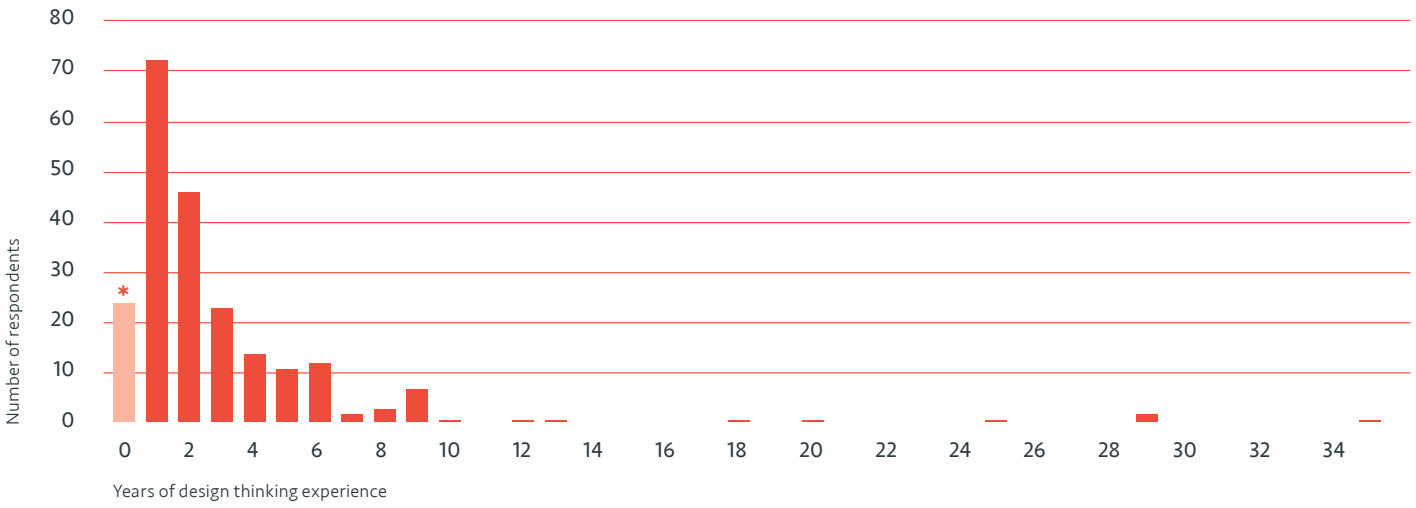
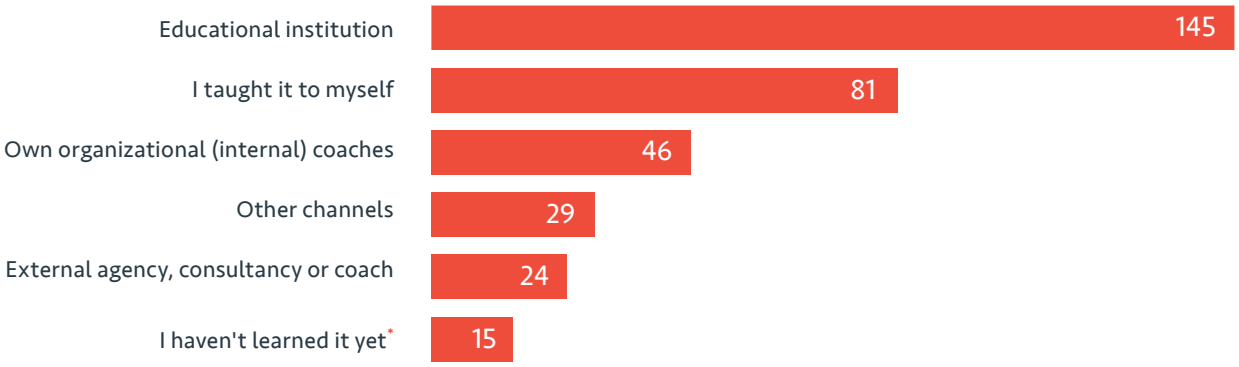


Figure 5: *How many years experience with design thinking do our respondents have? (n = 223; *organizations that just started with design thinking in the first half of 2014)*

People learn design thinking via a multitude of channels

Some managers lead design thinking teams without knowing the concept themselves



* Mostly managers who lead design thinking teams but do not practice the concept themselves, or project partners (e.g. d.school, ME 310) who coordinated design thinking initiatives at their organizations.

Figure 6: *How did you learn design thinking? (multiple answers possible; n = 232 respondents with n = 340 answers)*

To discover in detail what channels, media and institutions people use, we asked them to name their concrete sources of training. We therefore additionally clustered the 319 free-text responses on *learning channels* from 232 respondents into categories. These responses are described as follows.

From those respondents who received **professional training** (nearly half of the answers) some said it was the result of **internal education programs.** For example, one respondent who stated: "*We have materials, resources and courses internally, along with dedicated people who provide a curated design thinking offering.*" Such programs (see Figure 7 for examples) usually consist of internal innovation catalysts. They organize workshops for training purposes and assist teams in applying the methodology.

“I have long practiced the design thinking process, I just didn't know it had a name until 2012. I learn from doing and from seeing how others frame it in toolkits and guides.”

“I read books, follow [design thinkers at] Twitter and Slideshare, and go to Barcamps where I exchange [knowledge] with experienced [design thinkers].”

“Our organization hired design thinking experts from outside to train the team internally on design thinking who acted as trainers and spread the knowledge and practices internally.”

A selection of typical responses

EXAMPLES OF DESIGN THINKING INNOVATION PROGRAMS

Clay Street Project @ Procter & Gamble
In 2004, Procter & Gamble (P&G) established an internal innovation program, which incorporated some elements of design thinking. In the program – dubbed Clay Street – teams from multiple disciplines and units within P&G gather for a period of 10 to 12 weeks to develop user-centered solutions. Since Clay Street produced numerous internal success stories (e.g. Herbal Essences), P&G also decided to provide their setup as a service for other business partners. The offerings range from one-day workshops to project support over a period of several weeks. The Clay Street initiative and a parallely running Design Thinking Network now serve as a foundation to recurringly spread design thinking in the organization.
> http://www.theclaystreetproject.com

Design for Delight (D4D) @ Intuit
Intuit coined their internal design thinking program *Design for Delight* in 2007. The term describes a managerial philosophy that is inspired by the success of Apple and other design-centric companies. Its mandate is to foster more entrepreneurial behavior throughout the whole organization. So far, over 200 so-called innovation catalysts have been trained and support teams from multiple disciplines in the design of financial service experiences for Intuit's customers. They are allowed to dedicate a minimum of ten percent of their working time to training and helping others in their projects. Catalysts were enabled by a massive internal change program, which integrated a redefinition of the company's core values and major changes into the spatial working environments. > http://intuitlabs.com

Design Thinking @ Janssen-Cilag
Janssen-Cilag is a pharmaceutical company that is a subsidiary of Johnson & Johnson. They recently set up their own corporate design thinking school at their German campus in Neuss. Until this point, Janssen Cilag had made their first learning steps in design thinking by assigning various projects to the HPI School of Design Thinking. Afterwards, they trained their internal staff extensively in the methods of design thinking before initiating their own projects, facilitated by internal employees.

(Examples are not necessarily from our sample)

Figure 7: *Examples of design thinking innovation programs*

As an alternative to internal trainings, a majority of respondents in our sample ran through one of the diverse vocational training programs offered by **universities and research institutions** worldwide. Due to the mentioned preference of our sample toward German-speaking countries, the biggest group, made up of 79 people, received formal training from HPI in Potsdam (School of Design Thinking, ME310 courses, Open Courses or other formats). Another 14 completed one of the offerings from Stanford University (ME310, CDR, d.school ExecEd bootcamps and other formats). Further educational institutions that have been mentioned more than once include Aalto University, University of St. Gallen and the University of Southern Denmark. Table 2 on page 35 shows a full list of institutions where our respondents received their formal design thinking training. Not every course was explicitly labeled design thinking. Many were offered as design-related topics, such as *business model innovation, service design, entrepreneurship or innovation.*

The second most used way to learn design thinking is to become a **self-learner** using one of two main knowledge acquisition modes. One mode can be described as a *complete self-organization*. This means reading literature (books, magazines) and conducting internet research (blogs, videos, Slideshare, Twitter). In the second mode, respondents rather use *curated offerings*. In our sample this included e-learning offerings, such as Stanford online course or MOOCs like Open SAP, as well as existing facilitation toolkits and guides. This last group includes the Stanford d.School Bootcamp Bootleg and Mixtapes[1].

1 The Bootcamp Bootleg and Mixtapes are digests of most frequently used methods and tools in the d.school Stanford design thinking education. They are a popular source of knowledge for design thinking practitioners: http://dschool.stanford.edu/use-our-methods/

This self-learning practice merges **personal and professional networks**, as people tend to *"follow the good examples of colleagues"*, work groups, other teams and friends. Furthermore disseminators were mentioned, which include opinion leaders in social media channels and online communities, such as the *DT-Network,* Google+ and LinkedIn. These groups support the self-learners as they often look for orientation in *"how others frame it."*

A small portion of respondents also participated in **events,** such as design thinking barcamps, Global Service Jams and conferences to experience and understand how the *'method'* works better.

Another small group had the opportunity to **collaborate with experts and coaches.** This collaboration encompassed not only project-related internal coaching programs but also the hiring of external design thinking experts to complement teams in their concrete project work. These *"opinion leaders"*, who occasionally hold speeches and presentations, are the ones self-learners ask for knowledge and advice.

Commercial agencies and consultants – in terms of outsourcing project work, respectively insourcing deficient innovation capabilities – played a rather minor role in the responses we received. The service providers mentioned most frequently were IDEO, Gravity Europe, SYpartners and Innovation Games.

A small minority of people further indicated that design thinking is their **natural working mode** – either because they are trained as (industrial) designers or because it just comes naturally to them: *"Design thinking for me is the 'for-*

mal process/label' of what I have been doing/how I have been working for years." Some of our interviewees confirmed that they started their return to this more *entrepreneurial spirit* by *"looking for those people in the organization who already had a design thinking mindset"* (I6), as *"[s]ome of [their] leaders already were design thinkers naturally"*, even *"including [the] company founder"* (I4.1).

As has been shown, design thinking as a concept enters organizations in a variety of ways. People from all professions and areas (chapter 6.2, p. 34) believe they can become a design thinker by using their own learning channel mix and, more importantly, *learning by doing*. This notion is often supported by management discourse on design thinking.[1] Our data however raised questions: Can everybody become a design thinker? And are there any shortcomings in the current educational offerings on the topic?

1 A more detailed discussion of management discourse within the design thinking discourse will be part of our conclusion in chapter 10.

CAN ANYBODY BE A DESIGN THINKER?

Our interviewed experts made critical remarks on the notion that design thinking can be learned via self-learning channels or the popular training programs. Carl Bass, CEO of Autodesk, is quite clear on the retraining of people – whose creativity has been *"beat[en] out"* of them in the education system and daily operations. These are people who got hired for execution and not innovation – therefore retraining is a rather desperate undertaking: *"A basketball player without talent will never be a Michael Jordan. You can't train everybody to be good at everything. Most people have one thing in what they're good in, they can't be good at everything. Sometimes we make the mistake of trying to take people who don't have the necessary talent. They can improve marginally, but our ability to change people's potential is relatively small."* (I3.1)

For many organizations, design thinking is still a rather new phenomenon. An educational market has developed around it. This market reacts to the ever-growing demand for innovation. Educational offerings play a dominant

role but they do not have the major part in the *market of opinions* on design thinking. Lots of different actors, sources and offerings woo for attention and authority on interpretation. On the one hand, this has led to a situation of increased accessibility to design thinking. The way it ought to be taught is not a mystery or a *black box* anymore, as – reflected in the perception of our respondents – it can be learned basically everywhere (for example, via blogs, MOOC's, jams, bar camps, educational offers from universities, private service providers and so on). On the other hand, the *market of opinions* has become disorienting. Many self-learning offers are heavily criticized, particularly by designers and veteran design thinkers. Especially for beginners, it is hard to recognize the quality of different trainings as no standards exist. This diversity in the market of opinions can therefore be seen as one of the reasons why there is still such an ongoing discussion on the *definition* of design thinking. Depending on the unique learning approach, each respondent has developed his or her own understanding of design thinking | *chapter 5.*

IS DESIGN THINKING EDUCATION "UNDERTHEORIZED"?

Some experts criticize the overemphasis of the hands-on learning experience only in typical design thinking trainings on the educational market. As one interviewed expert summarizes: *"[T]here is no underlying theory. I think that's why people end up buying a 'red couch'*[1]*. It's undertheorized. I think the theory is centered in the person of the educational leaders. The people who run these courses and the people who write the books have the theory. But there's like an 'allergy' to theory itself. 'We do not want to tell people what theory is.' It feels like if we had [more localization] – we could actually put more of those bones on meat so that people could transfer it better."* (I5.2) This expert goes on to say that a more theoretical reflection of what people are doing in their design thinking may prevent people from becoming overconfident of their design thinking[2] or, worse, insecure and afraid of doing it *right.* Today's vocational training offers proudly emphasize hands-on experience. She believes that the time has come to complement them with more academic offerings. This might help to prevent subsequent confusion, especially when it comes to transferring and disseminating design thinking in organizations.

1 Author's note: In the design thinking community *red couches* are a fascinating phenomenon – in a way similar to the extensive use of sticky notes. The red couch is among the flexible furniture at the d-schools in Stanford and Potsdam. Many organizations who received trainings at these institutions *believed* that these couches are an integral part of design thinking, rather than just a superficial component of the physical atmosphere. As a result, red couches have also been *introduced* to numerous organizations.

2 Some interviewees reported design thinking being frequently misused to justify decisions and to keep the same linear path of approaching problems as in the past. Solutions are presented simply using a design thinking vocabulary: *"Sometimes people say right from the beginning. 'Oh we're using design thinking and we just built this database. ' Well that's a solution. You built it as you always did. Which is fine, but not design thinking." (I5.2) ; "That's a real challenge when trying to roll out design thinking in an organization that has other processes and ways of working. People absolutely genuinely believe that they did 'their' design thinking. That continues to be our challenge. Building design thinking into all processes. [...] In the end you look at their products and say, well that's not really that awesome. The idea at some point in time was super awesome – the implementation ended up being O.K." (I4.2)*

Where did respondents receive their professional training in 'design thinking'?

Aalto University Helsinki *(Helsinki, Finland)*	> http://www.aalto.fi/en
British Higher School of Art and Design *(Moscow, Russia)*	> http://britishdesign.ru/?lang=eng
Brunel University *(London, United Kingdom)*	> http://www.brunel.ac.uk
Carnegie Melon University *(Pittsburgh, USA)*	> http://www.cmu.edu/index.shtml
Center of Design Research Stanford *(Stanford, USA)*	> http://me.stanford.edu/research/labs-and-centers/center-design-research
Copenhagen Business School *(Copenhagen, Denmark)*	> http://www.cbs.dk
Delft University of Technology *(Delft, Netherland)*	> http://www.tudelft.nl
Design School Kolding *(Kolding, Denmark)*	> https://www.designskolenkolding.dk
Fachhochschule Technikum Wien *(Vienna, Austria)*	> http://www.technikum-wien.at
Fraunhofer IASA *(Kaiserslautern, Germany)*	> http://www.iese.fraunhofer.de
Hochschule für Technik und Wirtschaft Berlin *(Berlin, Germany)*	> http://www.htw-berlin.de
HPI School of Design Thinking *(Potsdam, Germany)*	> http://www.hpi.de/d-school
Instituto Europeo di Design *(Barcelona, Spain)*	> http://www.ied.it
London College of Communication *(London, United Kingdom)*	> http://www.arts.ac.uk/lcc
Politecnico di Milano *(Milano, Italy)*	> http://www.polimi.it
School of Planning and Architecture *(New Dehli, India)*	> http://www.spa.ac.in
University of Applied Science Munich *(Munich, Germany)*	> http://www.hm.edu/en
Technical University of Madrid *(Madrid, Spain)*	> http://www.upm.es/internacional
Berlin University of Technology *(Berlin, Germany)*	> http://www.tu-berlin.de
Umeå University - Umeå Institute of Design *(Umeå, Sweden)*	> http://www.dh.umu.se/en
University of Southern Denmark *(Odense, Denmark)*	> http://www.sdu.dk/en
University of St. Gallen *(St. Gallen, Switzerland)*	> http://www.unisg.ch
University of Stanford and d.school Stanford *(Stanford, USA)*	> http://www.stanford.edu
University of the Arts Berlin *(Berlin, Germany)*	> http://www.udk-berlin.de
University of the Creative Arts *(Maidstone, United Kingdom)*	> http://www.ucreative.ac.uk
University of Wuppertal *(Wuppertal, Germany)*	> http://www.uni-wuppertal.de
Zeppelin University *(Friedrichshafen, Germany)*	> https://www.zu.de

Table 2: *At which institutions did respondents receive their professional training in 'design thinking' (alphabetical order)?*

05

PERCEPTIONS OF THE CONCEPT

"It's a combination of different layers. One is the mindset, one is the method and one is the culture. It works best, when you are fully into all the levels."

Survey respondent

The previous chapter has shown that organizations acquire their design thinking expertise via a multitude of learning channels. These channels may at times lead to different experiences and notions of the concept. We therefore explicitly inquired about people's personal understanding of the phenomenon in order to get an idea of what might be the essence of design thinking for them. The following pages summarize the themes that emerged from the content analysis of 219 open-ended answers.[1]

1 We are aware of the fact that the answers are not only influenced by personal experiences but also by the normative claims from design thinking literature.

THEMES FROM THE FREE TEXT ANSWERS

What is design thinking for you personally? We are interested in finding out what you refer to as "design thinking".

T1: Iterative Process

Iteration is a key concept in design thinking

* The pictograms visualize the ranking, in terms of relative importance, of the themes that emerged from our responses. They are an illustrative figure and do not reflect precise ratios or proportions.

Not surprisingly, design thinking's iterative character was highlighted in a majority of answers. For example, one respondent described *"jumping back and forth"* in a *"procedure that is both structured and free"*. A few participants explicitly mentioned *"a six step approach"* or *"the six predefined steps and the quick iteration between them back and forth"* revealing an orientation of one *didactical school* as one of the many possible design thinking process representations[1].

In our interviews the theme of "iteration" was addressed repeatedly, too. This finding suggests that other working modes in organizations are still very linear (e.g. stage-gate innovation processes or pre-defined protocols). Iterative work therefore seems to be an important new topic, which also explains why some people tend to describe its character in a rather linear manner. This implies that they may not be used to iterative processes yet, and that such a *new working mode* first needs to be assimilated by relating It to what is already known.

1 For a collection of other design (thinking) process representations see: Dubberly (2004).

T2: Problem Solving

A special method of understanding complex problems and solving them creatively

Participants mentioned the aspect of *problem solving* in complex and wicked situations second most frequently. They especially highlighted the practice of trying to deeply explore the underlying problem space in contrast to jumping into a solution mode too fast. *"[You have] to understand the underlying problem [as] opposed to the symptoms."* Design thinking is about *"the process of immersion into the assumed problem". "[You have to] rethink what you are doing" and "ask the right questions".*

When commenting on the solution part, respondents described design thinking as a *new* or *creative* way of solving problems and coming up with solutions which are centered on the user. A few answers also pointed to a *"creative [but] disciplined, focused approach"* to design these solutions.

For many people – especially the design thinking teams in big organizations – it is new to be encouraged to deal with *the real problems "behind the problem"* and to even question their task at hand. This *permission* to bring up problems and questions is perceived as new. It is not taken for granted in current working environments, where problem framing is usually done upfront by management or product owners.

Executives on the other hand are glad that they finally have a new process (T1), which may help them to better manage the fuzzy and creative frontend of innovation. However, according to some of our interviewees, executives are often still not used to the time it takes to thoroughly explore the problem spaces in design thinking (I2.1, I6). Furthermore, their work is measured by quarterly outcomes and executional excellence. This is why executives not only tend to be impatient, expecting fast outcomes | cf. chapter 8. They also may get irritated when design thinking teams try get to the bottom of a posed challenge, which at times can be perceived as questioning their authority | *cf. chapter 10*.

T3: User-Centeredness

Thinking human-centered by gaining empathy for users (and other stakeholders)

For a multitude of respondents the strong empathic focus on user- or human-centeredness seems to be the essence of design thinking. It was the third-most frequently mentioned theme. During the interpretation process we made no distinction between *user-centered* and *user-centric.* Only three out of 27 people mentioned value for other stakeholders as equally important and thus interpreted it explicitly as a systemic actor-(relationship)-centered concept.

One could assume that against the backdrop of the innumerable avowals of *customer-centricity* and customer focus, design thinking can be associated with the redemption of these claims by providing a conceptualized *frame to think in.*

T4: Organizing Collaboration

A tool or way for better collaboration in teams across disciplines and organizational levels

The fourth-most mentioned interpretation emphasizes *"organizing interdisciplinary teams",* and *"ways of collaborating".* These characteristics refer to crossing organizational boundaries and overcoming barriers as well as the cultivation of a more passionate and flexible communication. The chosen language in the answers revealed interesting nuances though. Whereas half of the respondents referred to a *way of better collaboration,* the others regard it rather as a *tool,* the application of which leads to the former.

The data demonstrated that respondents who referred to design thinking as *a way of …* used words like philosophy, mindset, or lifestyle in the open questions to follow. Respondents who referred to design thinking as a *tool for …* (T7) used verbalizations like technique, structured process, or method later on. This, along with the themes unveiled in | *chapter 6.1,* implies that design thinking is strongly perceived as a means to improve intra- and extra-organizational collaboration.

People however approach that end differently. Some try to *fix* dysfunctional collaboration or team problems by applying design thinking as a tool, whereas others emphasize the belief that there is a preexisting *design thinking posture* (T5) that has a positive effect on collaboration.

T5: Mindset

Design thinking as a posture and way of thinking

Many respondents pointed to the fact that the *"most important part is the mindset – [which is] hard to be understood and needs to be felt/applied in order to be comprehended"*. Statements such as *"it is more a [creative] mindset than a method"*, *"it is a way of thinking"* or a way to *"see the world and tackle its problems"*, which may even lead to a *"mindset shift for the whole organization"* were typical utterances. Some even used the words *"unusual"* or *"other"* to denote the nature of this particular position they were referring to.

T6: Method or Methodology

A holistic and organized approach, which enables innovation

Another frequent pattern of interpretation is the one of design thinking as an approach or method of innovation. Both terms were used interchangeably. Participants chose words such as *new, holistic, organized, efficient* and *structured* to describe design thinking's nature. Some respondents explicitly drew attention to the fact that *"it is both: providing and making space for innovation"*. This makes it *"a collection of best practices (methods + team + space)"* enabling the latter. The mention of design thinking as a *methodology* was not very strong. Seven out of 219 people described their notion of the concept explicitly in words like *"a set of principles and tools"*, *"a practical methodology"* or *"a set of methods"*.

T7: Toolbox

A collection of tools and techniques for user research and group creativity

Design thinking as *"a bunch of tools", "techniques"* and a *"collection of best practices"* was another strong explanation our respondents provided us with. From this perspective, design thinking serves as a toolbox and includes a *"bunch of research and ideation methods for non-creatives"* and *"structures the creative process"*. Respondents use the tools when appropriate, but they are not necessarily incorporated into a guiding posture as described in T2, T3 and T5: *"It's a technique of discussing future solutions with customers [sic]"*. Another respondent said: *"We know most of [the tools] from project management and change management issues [...] they are not new to our organization."*

A less strong but still prevalent pattern of interpretation was the view of design thinking as a collection of creativity techniques. This perception can be seen as a sub-category to the toolbox theme (eight out of 219 answers). Typical verbalizations included *"human-centered brainstorming methods", "creative methods for the idea generation", "playful creative approach [for] out of the box thinking"*, and *"awakening all the creativity in a group of people"*. Respondents mentioned the iterative nature in all but one occurrence, but mostly within the context of refining ideas rather than in other aspects of design thinking.

Our data suggests that quite a few respondents perceive design thinking as a toolbox from which they may use isolated parts or tools. These are then integrated into their existing processes, working modes and thinking paradigms. Here, extracts from design thinking get appropriated without a guiding philosophy or mindset as mentioned in T2, T3 and T5. This becomes the clearest in its interpretation as *"just another creativity technique"*. According to our interviewees from those organizations without any significant prior design thinking tradition (I2, I4, I5, I6, I8), it seems that such a notion of the concept is a natural stage of evolution, which people new to the subject have to pass through. *"It's a tendency that people have, to try to oversimplify things,"* says Wendy Castleman from Intuit (I4.2).

At some point in time most of the novices believe that it equals brainstorming or certain other prominent tools and techniques. *"Therefore I always bring it back to the [...] principles [that are] anchoring us. As they will oversimplify [design thinking] I want them to do it in a way that is still going to be sufficiently broad to allow them to see the bigger picture."* (I4.2)

T8: Prototyping

Rapid prototyping and testing

Another eight out of 219 answers highlighted the practice of rapid prototyping and testing. Descriptions such as *"thinking with your hands" and "testing from the very beginning"* were considered to characterize the essence of design thinking.

T9: Culture

A philosophy and culture

Not many respondents characterized design thinking as a philosophy and culture. The few who focused on such a perspective strongly emphasized the fact that for them it means a *"cultural change in the whole organization"*. Design thinking paves the way for *"get[ting] back to a human-centered way of working"*. This is meant in two ways: internally, as it emphasizes empathy within teams, and externally as it increases interaction and co-creation with customers and users.

This interpretation of design thinking has strong links to T3 (empathy), T4 (collaboration) and T5 (mindset). In contrast to our survey respondents, our interviewees regarded the *culture aspect* as the most important one (I2, I3, I4, I5, I6, I7, I8). Especially the experts from Intuit emphasized that it is not design thinking per se that is important, but rather a reliable continuity of leadership is what enables a design thinking culture. *"What we're trying to do is change the culture. We had a leadership change and we started off with design thinking. In the mean-*

time we had two CEO's but we still managed to have this design thinking initiative going on. It's because it is rooted in who we are instead of [hoping to achieve quick gains in innovation]." (I4.2) We will come back to this discussion in detail later in | chapters 7 and 10.

T10: Lifestyle

A philosophy guiding behaviors in all aspects of life

Five out of 219 persons testified that design thinking is a crystallizing *"mindset you apply to every aspect of your life"* and that it is about *"trying to make your life and the life of others better"*. This notion was also strongly highlighted by our senior design thinking interviewees, among them Kaaren Hanson: *"The power of design thinking is that our people do not just do it at work. They do it at home, and use it to solve problems with their kids or sports teams – it becomes who they are and how they operate and that makes it much more powerful in their lives and in the world."* (I4.1) Carl Bass and Maurice Conti from Autodesk also emphasized the importance of a *design attitude* for all aspects of their life but prefer not to use the term design thinking (I3).

T11: Label

A label to denote ways of working as certain (industrial) designers do

A few respondents pointed to the fact that design thinking is a mere relabeling of entrepreneurial or designerly practice and regarded it as more or less a buzzword and *"clever marketing trick by IDEO"*. Statements such as: *"[IDEO took] existing, proven design techniques, slapped a high-level process on top of them and rebranded it as design thinking"* as well as *"I do not like the term ... it means intellectualization where sometimes feelings, incubation, insights and intuition are more important."* Such feedback indicates a certain discomfort with the *"cool new term"*.

SYNONYMS FOR DESIGN THINKING

Another indicator for the breadth and depth of understanding surely is the language people use to describe the concept of *design thinking*. Nearly a third (31%) of the respondents who answered the question do not call it design thinking. What is interesting is that it gets most frequently equated with *"human-centered design"* and *"innovation"*. Other reported synonyms are *"logical thinking"*, *"design"* or *"common sense doing"*. Some organizations slightly modify and rebrand the label to denote their adaptations to their contexts of operation, e.g. *"Industrial Design Thinking for China"*, *"Biothinking"* or *"Kanzleithinking"* (German for *"law office thinking"*).

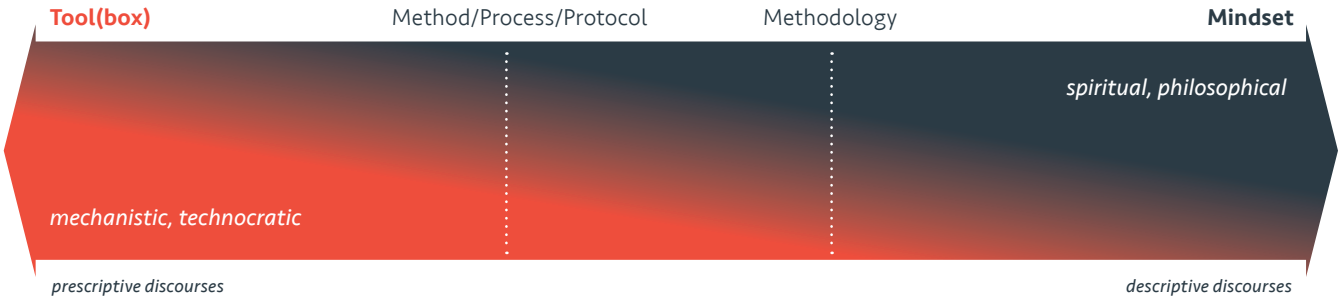
Figure 8: *Synonyms for design thinking as used in practice by 72 respondents from our sample ranked by font size, according to their frequency of mention (n = 72)*

IS DESIGN THINKING NOT A POSTURE IN THE FIRST PLACE?

As has been shown, the language used to describe design thinking is equivocal. The same applies to the perceived meaning behind the concept. Different patterns of interpretation compete or respectively co-exist along a certain spectrum. Some people emphasize facets related to *soft understandings*, such as harmony in teams and collaboration or the evoking of a certain mindset. Others point to more utilitarian understandings, these include a *process, method* or *toolbox for innovation* or even *a tool to make people collaborate* better | *cf. chapter 6.1, application of design thinking.*

It is striking that in particular our expert interviewees emphasized the mindset and attitude perspective of design thinking. Some explicitly warned of too simplistic and mechanistic understandings of the concept. This does not mean they reject the process representations, methods and tools that are attributed to the phenomenon. Instead, they do not believe in the likelihood of success when applying these qualities without a guiding posture or in a cultural environment that is unable to support design thinking. Yet we have to acknowledge that a significant portion of our respondents share tendencies towards toolbox-like understandings of the subject (T1, T4, T6, T7). For most of them, design thinking still is a new phenomenon. This implies that even parts of the concept represent a major change in how they work (T1, T3, T4, T6, T8) or approach problems (T2, T3). At Intuit, which alongside P&G is often showcased as a very successful example of organizational design thinking implementation, there has also been a gradual process of assimilating the topic with the already known before it really got accommodated[1]. In the beginning, Wendy Castleman told us, some people said *"Oh, design thinking, that's brainstorming. [...] We did our brainstorming already!"* (I4.2) Later on when the design thinking activities were enriched by elements from lean start-up methodology (Blank 2005; Ries 2011) – usually offered in the form of two day experiment workshops, so-called lean start-ins – they concluded, *"Okay, design thinking is a lean start-in."* Design thinking was therefore equated with another specific workshop format. It took the catalyst team years of patience and persistence to continually remind people that it is neither just workshop, tool, process or technique. Instead, to put it in Wendy Castleman's words, *"Design thinking is how you work!"* (I4.2)

1 For a discussion of the accommodation and assimilation of (new) knowledge, refer to Wadsworth (1996).



Tool(box)
Tools with clear rules and instruction manuals, e.g.: *Empathy Map, POV MadLib, Brainstorming Rules, Stakeholder Map, etc.* Many tools come with steps on how to apply them. The more complex these steps become, the more they are perceived as self-contained methods.

Method/Process/Protocol
A means or manner of procedure to systematically get things done and know when to apply which tool (with its sub-steps) to the situation at hand. Often understood as a (semi-)ordered sequence of actions, for example the x steps in *'the' design thinking process, waterfall model, or other process representations.*

Methodology
Combining and mastering a set of appropriate methods and methodologies, i.e. the principles, practices, and procedures of different knowledge domains (e.g. *ethnographic research + industrial design + creativity methods etc.),* which might constitute a coherent whole for an application context at hand. Examples might be *Lean Start-up, Six Sigma* or *design thinking* itself.

Mindset
A guiding stance or attitude, which influences ways of reasoning. As such it shapes the selection and development of appropriate methodologies, methods, and tools. The frequent application of the latter three might influence the mindset and vice versa.

Figure 9: *Perceptions of design thinking along a spectrum of two extreme poles (illustrative figure)*

"We talk to people all the time. We look for situations with extreme constraints and then we go there. Then we prototype a lot.

And I guess all this would be defined by 'design thinking people' as 'design thinking'."

Maurice Conti, *Director of Strategic Innovation,* Autodesk

06

THE APPLICATION OF DESIGN THINKING

In the first part of this study, we learned that design thinking is still a relatively new phenomenon for the practitioners from our sample. For many organizations, some of its isolated elements are new already, for example user-centricity or prototyping. Design thinking enters organizations via a variety of channels, which at times may lead to very different understandings. The different interpretations of the concept, as reflected in the practitioners' discourse, make it impossible to come up with a shared definition. Thus we now advance our approximation by taking a closer look at specific *problems for which design thinking is the intended solution*. The following chapter tries to uncover the spectrum of design thinking's practical use. It does this by looking at design thinking's organizational diffusion and localization in terms of departments or special units.

6.1

LOCALIZATION AND DIFFUSION: WHERE DESIGN THINKING IS APPLIED

We were keen to learn more about design thinking's diffusion across silos, and more specifically, which corporate functions actually orchestrate design thinking activities. Therefore we asked questions regarding the functional areas where it is primarily localized as well as to which specific challenges and problems it gets applied.

First we asked our survey participants how and where (in terms of localization), from their point of view, design thinking is embedded into the organizational culture. For that purpose we adapted Junginger's (2009) conceptualization of design's localization in organizations[1]. On the right a brief overview is presented of four archetypical places where design thinking may be found.

A majority (72.3%) answered that design thinking is practiced in parts of their organizations. This means it is situated in a certain department or unit, and is occasionally applied in selective cross-silo project work, facilitated by the respective organizational function. Another 27.2% state that design thinking has diffused throughout their whole organization and is already embedded into their culture (or in corporate jargon: their cultural DNA). Furthermore, 21.4% make use of design thinking as an external resource, which for instance incorporates the external booking of vocational trainings and workshops or the outsourcing of innovation work to agencies and consultancies. Only 17.5% of our respondents reported the use of design thinking for ongoing strategic decision-making by the top management.

1 Junginger's model does not represent any hierarchy in terms of better or worse integration of design (thinking). Every localization can be useful, depending on the organizational context. In practice, one will also often find slightly different and mixed forms of these archetypical places.

Four Archetypical Places of Design Thinking

Periphery:
Design thinking is booked on demand and has no continuous presence in the organization. This is typically the case if organizations hire external innovation consultants or similar service providers to do and facilitate design thinking work with them.

Somewhere:
Design thinking is practiced in parts of the organization, for example the marketing, Ux or R&D departments. On such occasions other people in the organization may point to the *creative staff* or *engineers* to describe where design thinking takes place.

Core:
Design thinking has a central position in strategic decision-making. It has access to leadership and is linked to an overall strategy. Therefore design thinking is officially allowed *"to shape aspects of the organization and has potential to transform"* (ibid, p. 7) it.

Intrinsic:
Design thinking is an established practice and mindset. It is integral to all aspects of the organization and serves to *"discover and invent solutions for all kinds of organizational problems. […] Managing and designing are no longer treated as activities that apply to different organizational realms"* (ibid, p. 7 f.).
In other words, design thinking has become integrated into the culture.

Figure 10: *Four archetypes of design thinking's localization in organizations (adapted from Junginger, 2009)*

Design thinking know-how is predominantly localized with specialized corporate functions somewhere in the organization

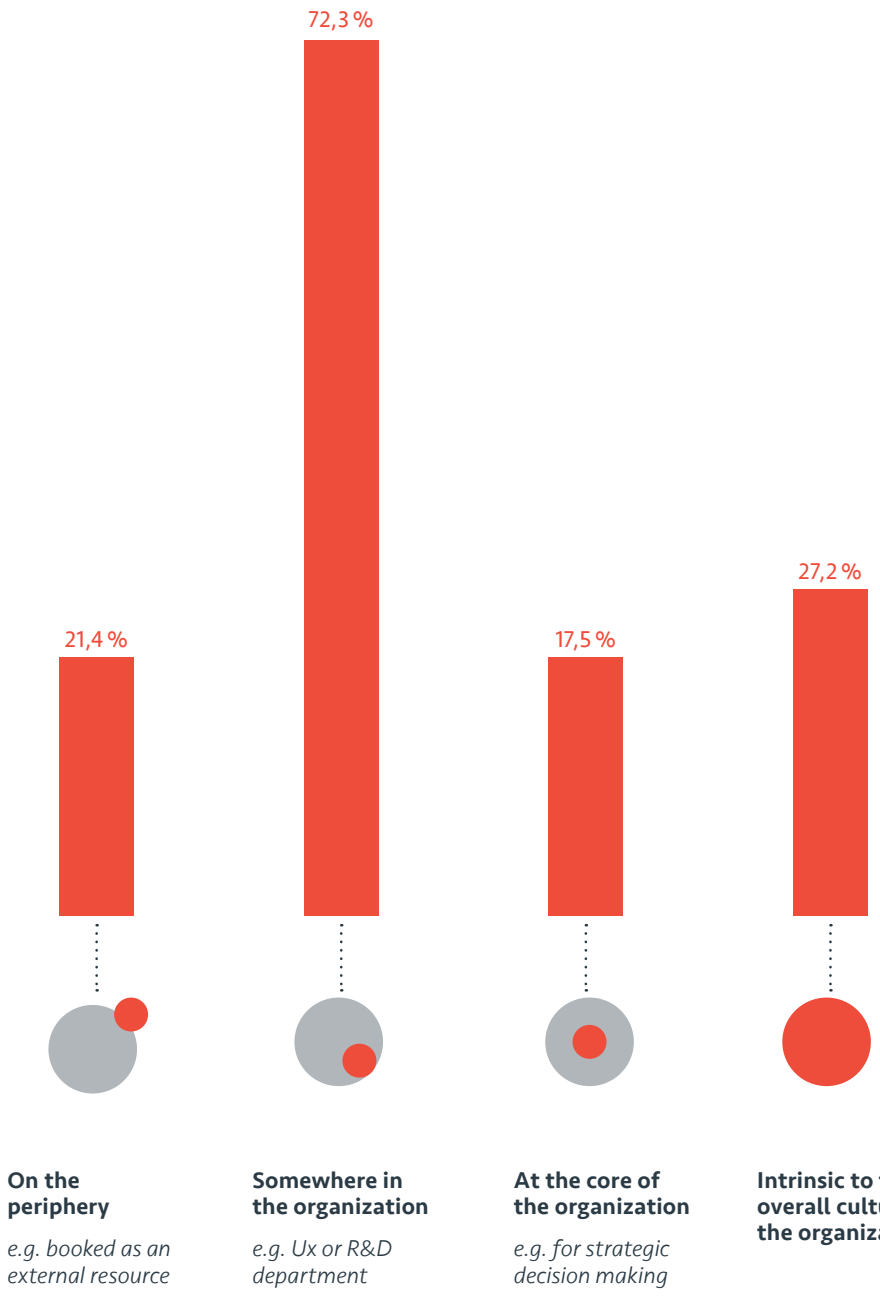


Figure 11: *How is design thinking embedded into your organizational culture? (Multiple answers possible) (n = 235)*

6.2

WHO USES DESIGN THINKING IN ORGANIZATIONS?

To get an even clearer picture of design thinking's localization, we further asked participants to give us more details on the exact departments where it is used[1]. Research & Development (60%) and Marketing (41%) play a dominant role. These are classical areas, in terms of the customer front-end, from where design thinking initiatives often originate. Another 32% of our respondents reported that *their* design thinking is organized in internal and external consulting models. Internal means something like an internal task force or service center, which provides design thinking consulting and facilitation to colleagues in other departments or to selected project teams. It therefore serves *internal customers*. External means that design thinking services are offered to *external customers* (see p.36), either as a form of revenue generation or for the purpose of better customer engagement and acquisition. This was especially the case in B2B environments. Due to design thinking's immense bandwidth of application (see p.36 ff.) and the broad spectrum of organizations in our sample, many respondents could not classify themselves in our pre-defined categories. They gave full classification particulars in the free-text fields. Other categories that emerged were **education & corporate training** as well as **design, innovation management** and **corporate strategy functions.**

1 Twenty-seven participants gave no information regarding where design thinking is used. This is due to the fact that they either used it as an external resource or, in some cases, have only been project partners to one of the d.schools or ME310 projects.

R&D and marketing primarily facilitate design thinking activities but do not own them

It has no predefined home in organizations and is predominantly offered as an internal and external service

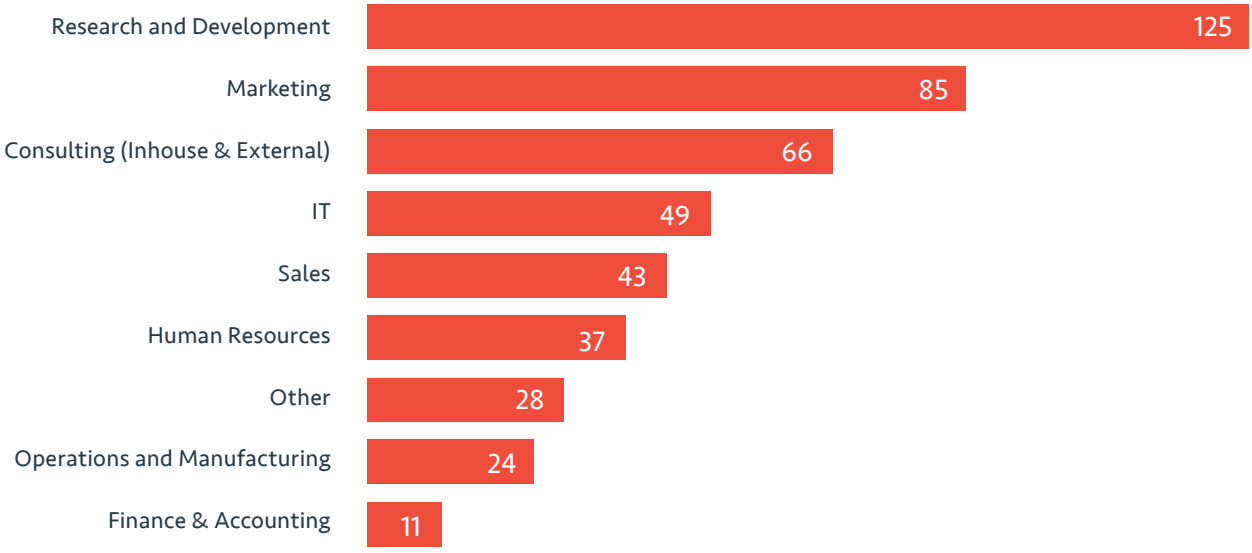


Figure 12: *To your knowledge; in which areas of your organization is/was design thinking applied? (n = 208; multiple answers possible)*

"We're spreading design thinking so that it's recurring in the company. And no one owns it then. So, there is not an 'us against them thing'."

Wendy Castleman, *Innovation Catalyst Leader,* Intuit

6.3

WHO OWNS DESIGN THINKING?

"[Anonymous organization] had their innovation consultancy model, which was very limited. For years and years they had been this wildly successful little group, doing amazing things, which had almost no impact on the entire organization. Now they have started an innovation catalyst program [...] to really diffuse design thinking throughout the organization."

Wendy Castleman, *Innovation Catalyst Leader,* Intuit (I4.2)

In practice and according to several responses in our sample, one can often find mixed forms of design thinking localization. However, the majority of our respondents still localize their design thinking activities in a rather *traditional* way, namely via organizational functions or special departments[1]. Some of our interviewees also reported this as the predominant model in their companies. Our very senior interviewees however criticized this model as an *innovation unit and skunk works approach.* Their experience shows that it paradoxically depicts the problematic situation design thinking is often introduced to resolve. A group of creative people come up with new innovative ideas via design thinking – maybe even multidisciplinarily – which then end up *getting thrown over the wall.* These ideas do not stand much of a chance of being implemented. The rest of the organization lacks the appreciation, awareness, and strategic context to understand the contributions design thinking is making. The will to develop commitment is also lacking. In the worst instance, this may even lead to internal animosity | cf. chapter 8.

1 As expected, it is used to a lesser extent in functions like finance, manufacturing or sales, although nearly all of our interviewees emphasized its huge potential, especially in such departments that are commonly perceived as the *antitheses* of design thinking in terms of their processes and working cultures.

This is why Intuit (I4) has embedded their design thinking diffusion into a comprehensive change program (Martin, 2011; Liedtka et al., 2013), that was more far-reaching than just introducing the concept to an isolated group of people. The company is convinced that design thinking *is* management. Its D4D (Design for Delight) Innovation Catalysts are basically distributed in all parts of the organization. In the end it is not about formal design thinking training but about whether the desired behaviors are displayed in the daily work of people. They then get recognized by others and can serve as a role model: *"It has to do with integrating it into the culture itself. It's not just me who is a design thinker. [Some colleagues] never had any design thinking training. We're spreading design thinking [authors note: the behaviors and posture] so that it's recurring in the company. And no one owns it then. So, there is not an 'us against them thing'."* (I4.2) Intuit further refuses any attempts of localization in general. They share the idea of Carl Bass and Maurice Conti from Autodesk (I3), who believe that it is not the organization alone but rather the ecosystem (of users, partners, suppliers, and other interpreters, Pisano & Verganti, 2009), which innovates – regardless of *internal* or *external* factors.

6.4

WHAT ORGANIZATIONS ARE DOING WITH DESIGN THINKING

Localization influences application. Thus, we also asked our participants how design thinking was actually used in the mentioned departments. Again we coded the open-ended answers as described on p.132 and prioritized emerging patterns based on how frequently the theme was mentioned (Figure 13). The following pages elaborate on each one with a short explanation and interpretation.

20 THEMES OF APPLICATION (A1–A20)	
A1	Service provision, which is sold to customers for better solution finding or as a program for internal change
A2	New product and service development/improvement
A3	Better alignment, collaboration and knowledge transfer
A4	Empathy for the customer: gaining a better understanding of the customer and user
A5	Improving own internal business processes and organizational structures
A6	Commercial innovation and more efficient insight-driven marketing campaigns
A7	Internal staff training for human/customer-centered mindset
A8	Toolbox: Adapting specific tools and methods to fit an individual purpose
A9	Development of better teaching and training formats
A10	Increasing creativity in teams
A11	Customer engagement and co-creation
A12	Public relations and reputation management vehicle
A13	Service and experience design improvement
A14	Test assumptions and iterate solutions
A15	New business models and go-to-market strategies
A16	Attractive recruiting tool
A17	Means for more efficient meetings and arrangements
A18	Generating demand and better customer acquisition via workshops
A19	Improving the innovation process
A20	Means for improving the style of design outcomes

Figure 13: *Applications of design thinking in organizations (20 themes) > To your knowledge, how was design thinking applied (in # department)? (n = 208)*

DESIGN THINKING

20 THEMES OF APPLICATION

SERVICE PROVISION, WHICH IS SOLD TO CUSTOMERS FOR BETTER SOLUTION FINDING OR AS A PROGRAM FOR INTERNAL CHANGE

The largest group uses design thinking in a consulting support function (internally or externally).

Internally means a design thinking support team, such as Intuit's *Catalysts* or the *Design Thinking Network* from Procter & Gamble. These teams provide design thinking facilitation services to internal customers. Externally describes the fact that design thinking is not only *sold* as a service by consultancies to industry clients, but also by non-consultancy organizations themselves. SAP, for instance, uses design thinking in B2B settings as part of its consulting or sales processes for complex IT solutions. More than a few respondents – all from different industries – disclosed such a practice as a means to better organize sales processes, requirement analysis, problem understanding and customer relationship management in general. Some even sell design thinking training – usually in *workshops* or *projects* – as a new stand-alone product although it has nothing to do with their core business *("we sell [it] as a service/product bundle").*

Seven out of 42 people also reported that they use it as an *"intervention program to change culture".* One respondent for example described it as a *"core part of [their] sustainability change management program".* In terms of localization they all categorized themselves in the department *other* which leads to the assumption, that they are a cross-functional team or unit. All but one of the seven *change agents* use *workshops and internal facilitation* for intervening in their organizations. Therefore we pooled *internal services* and *change program* patterns into one category. For most of our respondents workshop formats seem to be the dominant way to apply and disseminate design thinking for culture change and service provision.

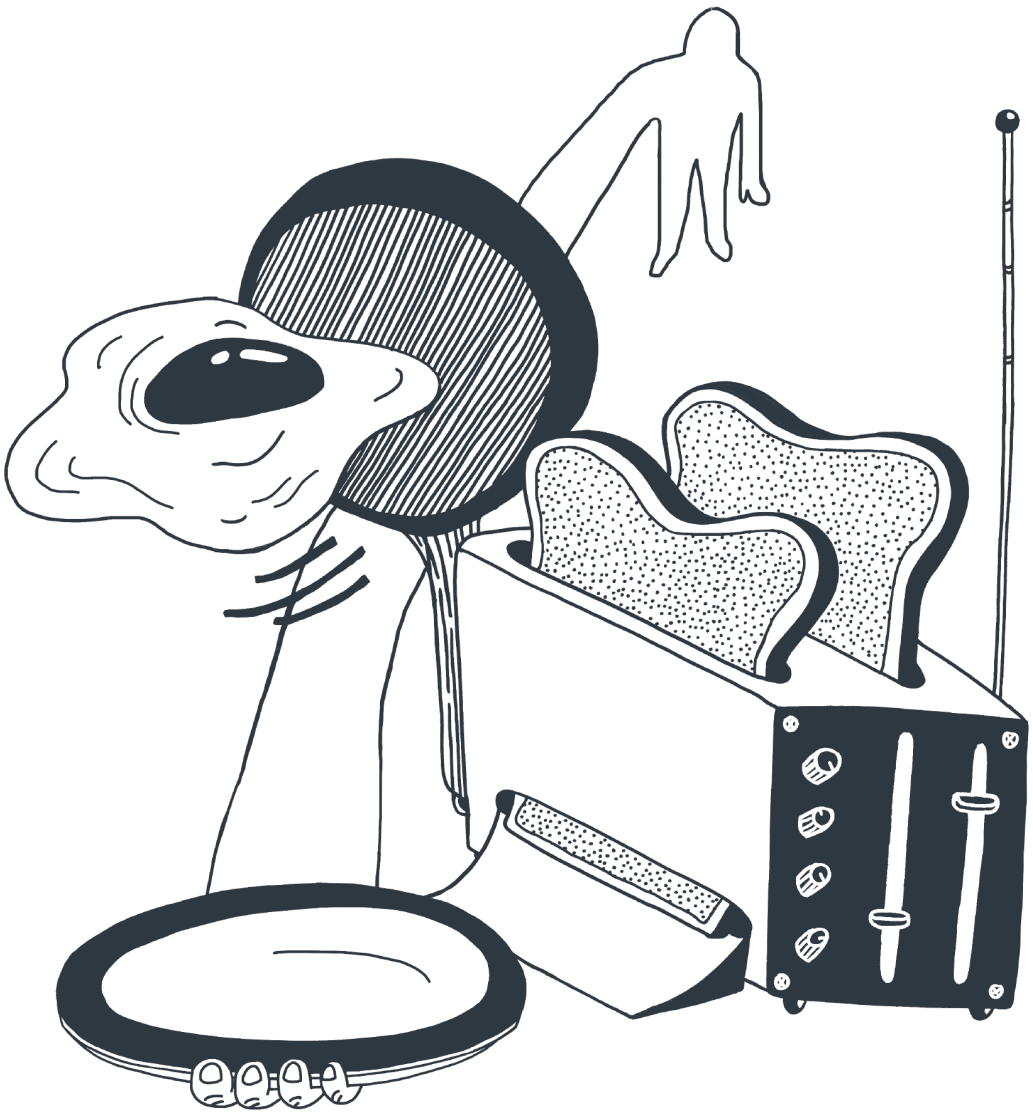
Four of our interviewees (I4, I5), who already advanced their innovation programs successfully in the past years reflected critically on this practice | cf. p.31: *"Design thinking became analogous to workshops. We had to break that mindset by trying to integrate design thinking into everyday work and tell employees: 'It's not a special event – it's just how you work!' We had to stop teaching it as a workshop […] experience, because that became the expectation of what [design thinking] is!"* (I4.2)

FREQUENCY OF MENTION:
42 ***out of*** **208**

THEME A2

NEW PRODUCT AND SERVICE DEVELOPMENT/IMPROVEMENT

Less surprising is the strong pattern of design thinking's application for NPD. Finding and *"answering unmet needs"*, *"improving and creating new products"*, as well as *"developing incremental new features and services"* were considered design thinking's primary domain by a majority of respondents. In the following themes we see that it is further applied to many different things, and that not every organization necessarily brings something *to the market*.



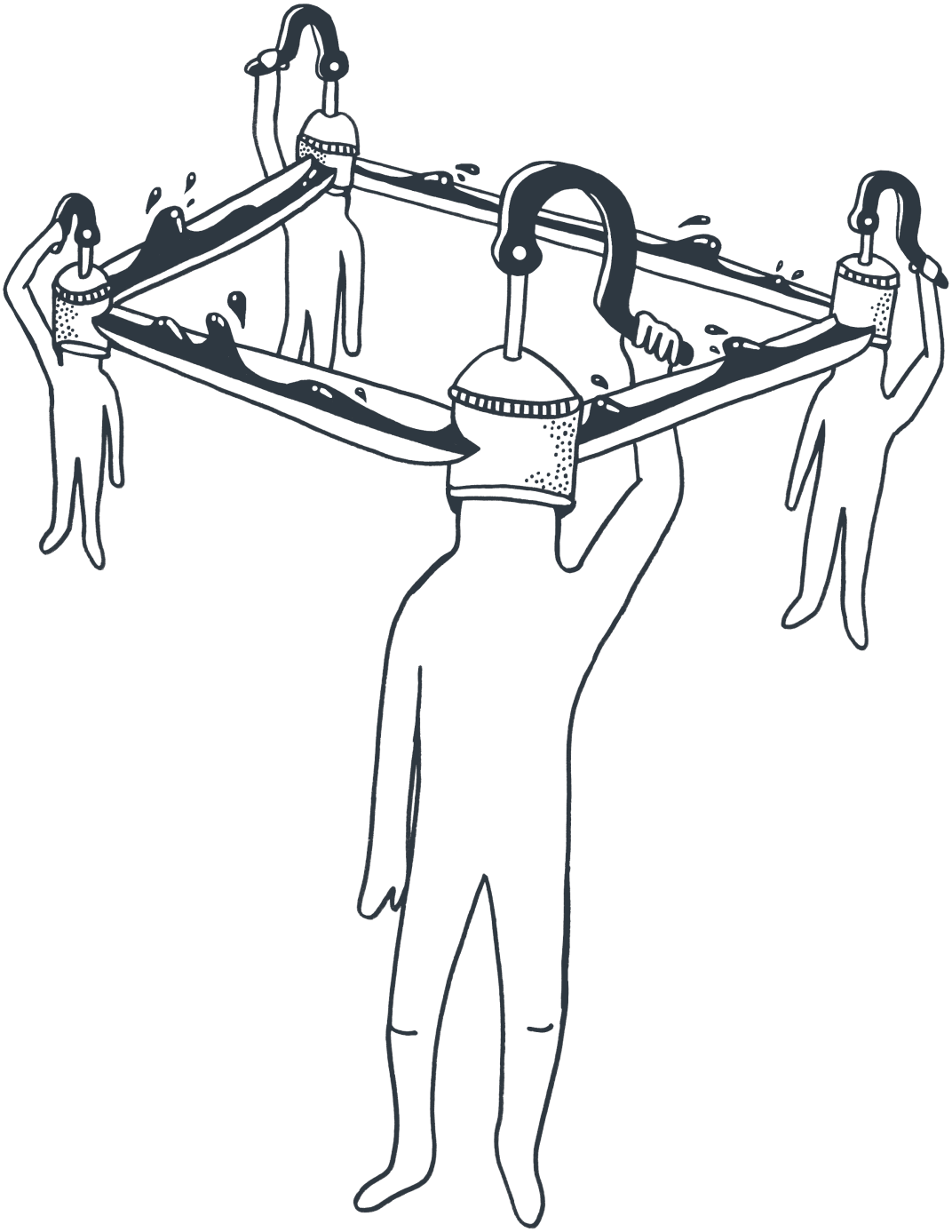
FREQUENCY OF MENTION:
38 ***out of*** **208**

BETTER ALIGNMENT, COLLABORATION AND KNOWLEDGE TRANSFER

Another strong theme that emerged was *'collaboration and knowledge transfer'.* Many statements such as *"introduce new processes that reinforce the link with other departments for a better alignment with other teams"* were given. Design thinking as a way to *"use people with different expertise"* while regarding them *"as team members not resources"* were expressed.

Additionally design thinking is not only perceived as improving internal matters but also with respect to external partners, when it comes to using it as a *"facilitation method for idea generation".* Terms used to describe these experiences were *"co-creative process", "customer workshops", "collaboration and co-creation",* as well as *"stakeholder management".*

What became clear for us here is that it is not necessarily innovation that organizations want. Design thinking, as one of the interviewees puts it, is *"[...] fabulous for team building. You develop such a great relationship with the team. [T]he communication gets better and better." (I8)* While better collaboration may enable innovation capabilities, according to some of our interviewees the pain points felt can be much more basic. The application of design thinking is often more about resolving inefficiencies due to dysfunctional teams and processes (e.g. cross-silo rivalry about competencies or insufficient information exchange also with external entities, etc.). Knowing and navigating the organization via design thinking is therefore seen as a quality itself. Julie Baher from Citrix recapitulates that *"there is sort of a funny side effect of us being one of the few teams that know so much about how the company works. ... I'm always like: 'Sorry. We know too much.' You know ... figuring out how the company works."* She concludes that *"it is all about the interactions"* and *"a lot about building the relationships with the people in the company who have the contacts. [...] It is very relationship-driven [...]." (I5.1)*



FREQUENCY OF MENTION:
23 ***out of*** **208**

EMPATHY FOR THE CUSTOMER: GAINING A BETTER UNDERSTANDING OF THE CUSTOMER AND USER

"We do not understand our customers and our users that well. The idea was to call it 'Center for Design Thinking' because design thinking is related to user-centered design. And that's the idea."

Anonymous Interviewee 6, *Former Senior Employee,* Center for Design Thinking

Another purpose for design thinking is to address the need to better *"understand target customers"* or *"users"* (both mentioned synonymously). This means relying more on insight-driven data than on other established orientation frameworks, such as business goals or competitor actions. Respondents from all organizational functions characterized this as *"discovering the user as the point of departure for innovation work"*, using *"empathy rather than business goals"* or just *"loop[ing] back what customers experience with us."*

Especially respondents from R&D highlighted design thinking's role as a way to conduct *"stakeholder-based R&D"*. In this way *"less personal gratification and a more user-centric approach"* is ensured, which will then inevitably lead to more *"innovative human-centered solutions"*. Statements like these show that a radical user orientation is still all but self-evident in technology-driven R&D settings. Our respondents from marketing however tended to view the methodology as a means to generate *"consumer insights"*. They rarely indicated an intention to improve existing offerings. This led us to conclude that many view design thinking as an elaborate market research tool (see T6).

FREQUENCY OF MENTION:
22 ***out of*** **208**

THEME A5

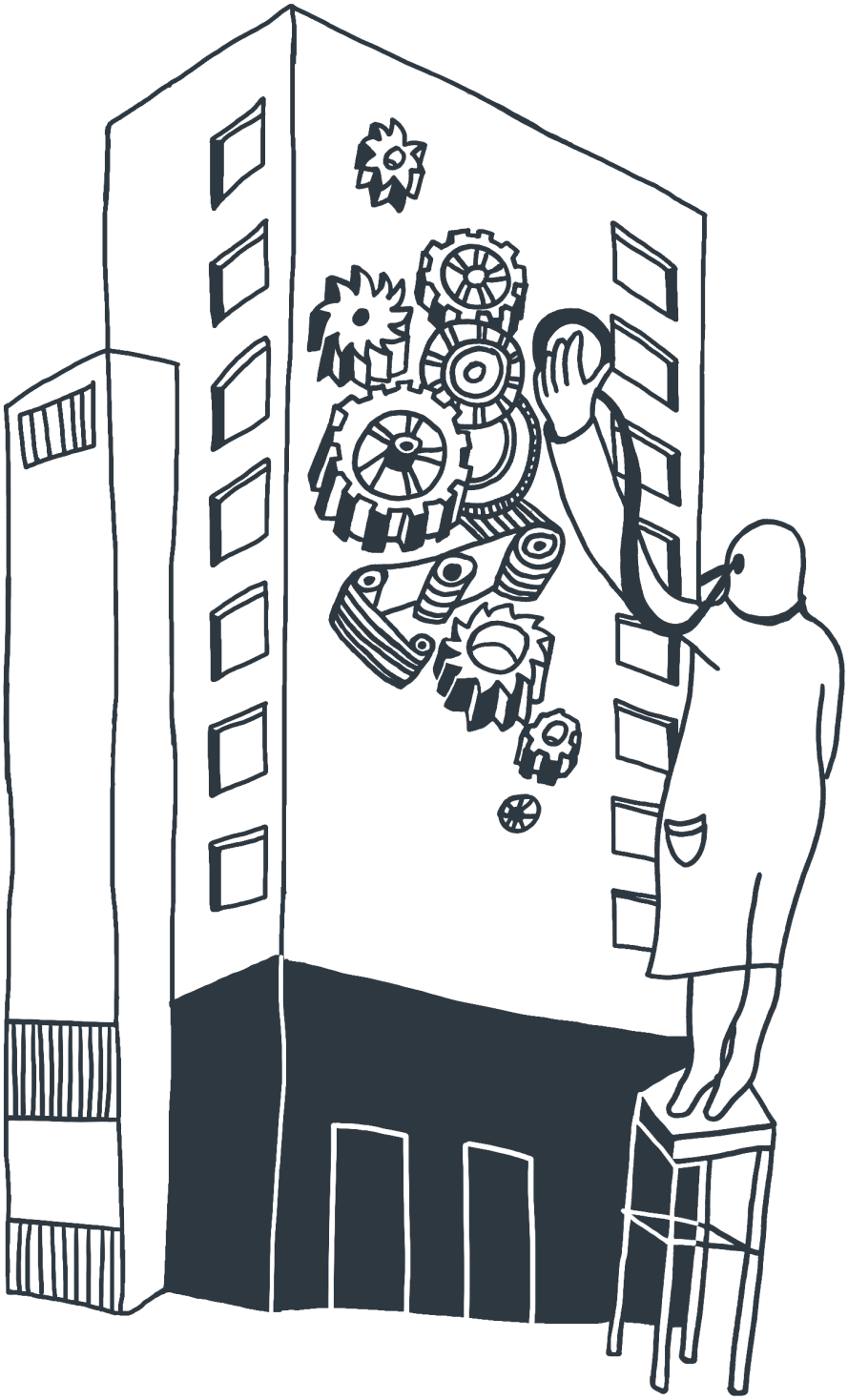
IMPROVING OWN INTERNAL BUSINESS PROCESSES AND ORGANIZATIONAL STRUCTURES THAT ARE NOT NECESSARILY RELATED TO INNOVATIVE MARKET OFFERINGS

Serving the company itself or the *internal customers better* was another striking theme that emerged. Respondents reported an application of design thinking across all functions to improve internal processes and workflows. Some examples of internal design challenges our respondents reported include: HR > "process of relocating people"; Consulting > "effectiveness of bonus model"; Finance & Accounting > "creative ways of getting staff to comply with procedures (compliance management)"; Sales > "implementation of sales and bidding processes"; Operations and Manufacturing > "structuring logistics processes", to name but a few. To sum it up, design thinking is used in all knowledge and cooperation-intensive exchange processes between people with different organizational functions.

According to our respondents, the dominant Marketing and R&D functions do not primarily curate and apply design thinking for purposes that have their external customers as end-users in mind. Many of these departments have to set up their design thinking activities as training and facilitation programs. They also heavily serve internal customers as a support function. Furthermore, many design thinking projects are directed at questions of internal innovation and improvement (see examples at p. 47). This becomes visible when looking at design thinking's use in HR departments. In our sample HR focused predominantly on internal process improvements (collaboration) and better recruiting/on-boarding experiences, for which the internal preconditions had to be set (internal & external purpose).

The above findings corroborate observations from our interviewees (I2, I4, I6). In the beginning it is easier to gather internal users and people for collaboration. Most organizations new to design thinking have no experience with the external recruiting of users (even marketing outsources these tasks to external service providers). So they start internally to acquaint themselves with design thinkings *abilities* before they feel *ready* enough to apply it in external projects. This may also explain why many design thinking initiatives aren't visible from an external perspective. Projects, such as the ones above, are often confidential and/or not communicated officially, as some participants pointed out.

Intuit, Citrix, and similar companies collect vast amounts of internal design thinking success stories in their yearly *Innovation Catalysts Books* or their *Design Heroes* intranet collection. The majority of these stories, which are intended to serve as internal inspiration for other employees, deal foremost with internal improvements as well.



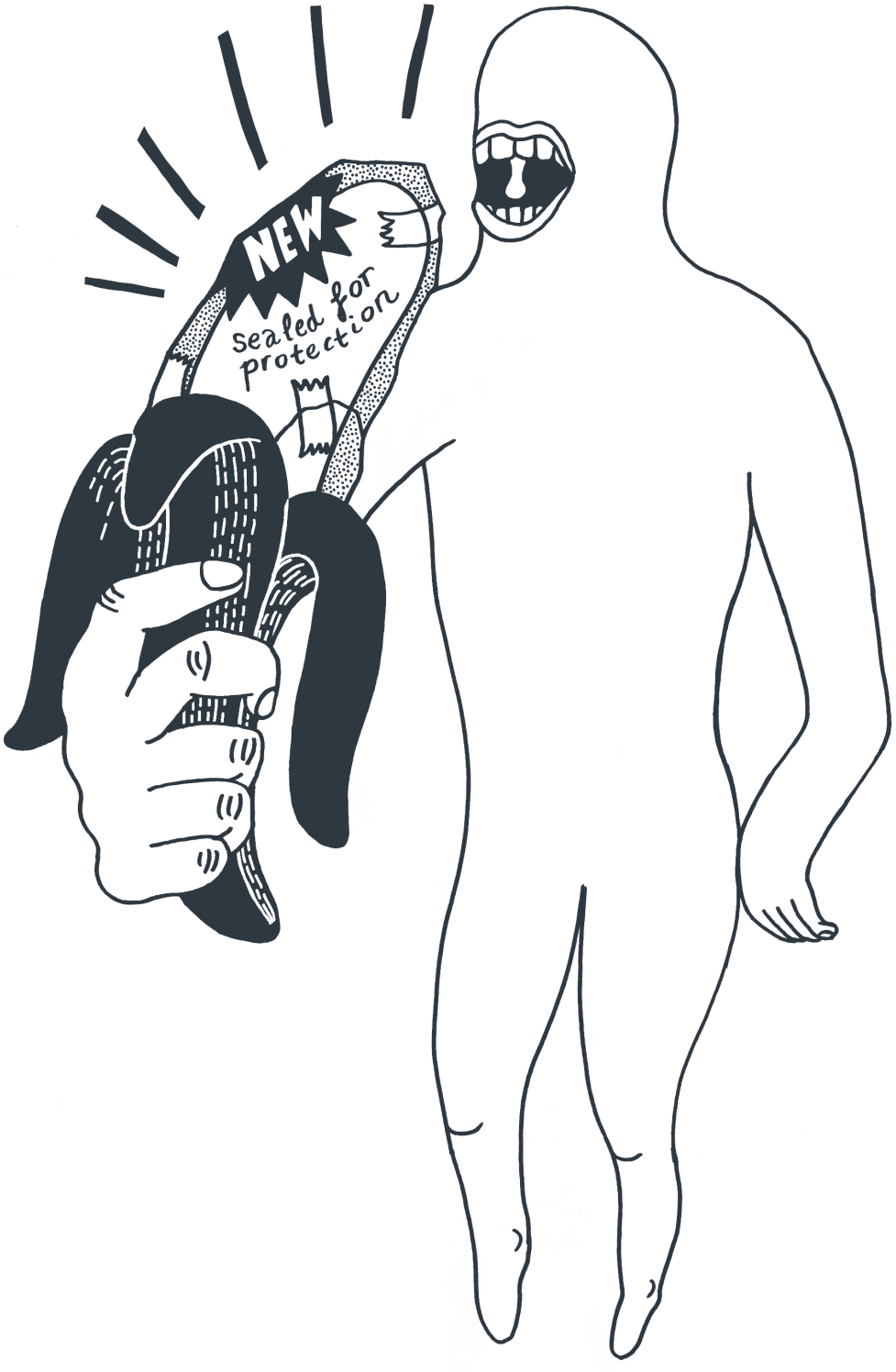
FREQUENCY OF MENTION:
21 ***out of*** **208**

COMMERCIAL INNOVATION AND MORE EFFICIENT, INSIGHT-DRIVEN MARKETING CAMPAIGNS, WHICH SPEAK THE LANGUAGE OF THE CUSTOMER

Another important purpose that design thinking serves for our respondents is *commercial innovation*. We first heard this term from our interviewees at Intuit (I4), who mildly criticized this kind of understanding as it is often played out. They felt it denotes product relaunches with minor or no modifications, i.e. a new or modified value proposition but no *"real"* major changes to the underlying product. Respective survey respondents framed this in terms of *brand redesign, building or positioning; better internet presentations and product descriptions; improved storytelling* as well *as marketing strategies.* Also the creation of *"better marketing and sales material",* e.g. for *"added value communication [to sell …] in a more effective way"* were mentioned as primary drivers for the application of design thinking.

Design thinking here is clearly understood as a brand-building and marketing communications tool. It tries to manipulate perceptions of the meaning of existing solutions (in a classical consumerist tradition). It is not a means to search for new solutions, which might sustainably improve the value-in-use, respectively value-in-context (Lusch & Vargo, 2014) for its user groups. It is important to note that the majority of answers in this category came from marketing, however.

Kaaren Hanson from Intuit (I4.1) emphasized that it is O.K. to start with such *low hanging fruits* even if they are not the best spaces in which to innovate, as she personally believes. *"In the beginning"* she recalls, *"we needed to be opportunistic. It is easier to swim downstream first. So we started to use [design thinking] to make commercial innovation much better … Whatever people care about: we use design thinking to make it better."* As soon as people realize that it can be applied beyond this realm of commercial innovation *"it is going to start to become something. that is pulled out more and more often and used as a solution to a great number of problems."* But in order to achieve that, she concludes one has to be patient and persistent.



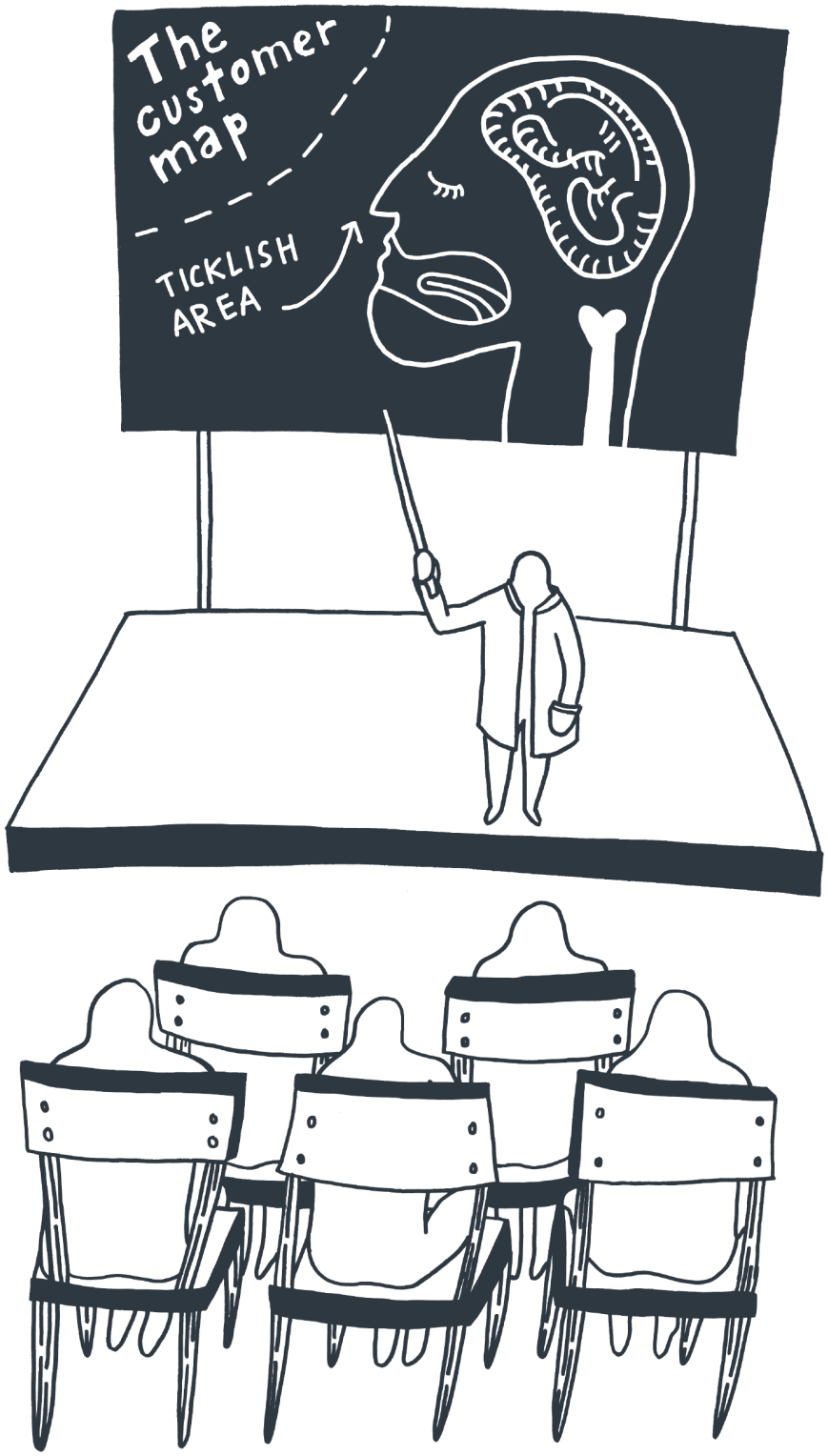
FREQUENCY OF MENTION:
19 ***out of*** **208**

THEME A7

INTERNAL STAFF TRAINING FOR HUMAN/ CUSTOMER-CENTERED MINDSET

Similar to theme four (A4), people use design thinking to develop more widespread empathy in the organization. The difference to A4 is that here respondents explicitly mentioned the educational mandate of design thinking.

Whereas in A4, primarily Marketing and R&D used design thinking in their daily work, the responses here were more evenly distributed across functions including Marketing, HR (*"training" and "personnel development"*), Sales (*"ingrain mindset in key accounts", "listen first then sell [sic]"*), R&D (*"teach development resources how to create desirable products", "develop the organization"*) and Other (*"staff development"*). The focus of design thinking activities here therefore lies in the development and implementation of *"new educational formats"*. This bears a resemblance to A1 and its mandates of innovation support and cultural change.

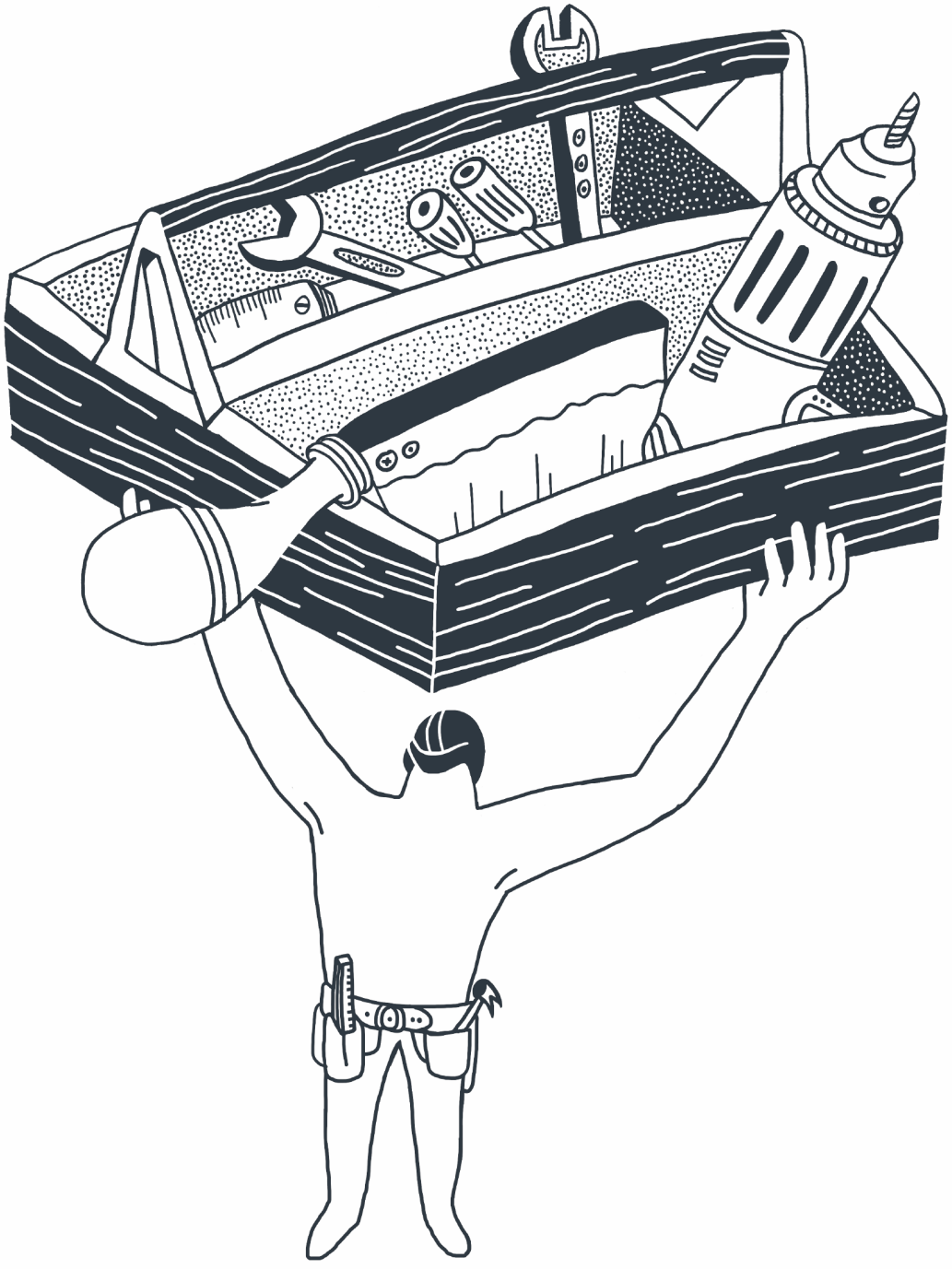


FREQUENCY OF MENTION:
18 ***out of*** **208**

THEME A8

TOOLBOX: ADAPTING SPECIFIC TOOLS AND METHODS TO FIT AN INDIVIDUAL PURPOSE

As discussed in chapter 5, some respondents regard design thinking as a toolbox for their work by integrating (often isolated) parts of the concept into existing processes or supplementary methodologies. In compliance with this view, we categorized all answers such as *"integrate methods into SCRUM"*, *"introduction of T-shape as recruiting requirement"* or *"use particular ways of [user] research"* in this theme. They all have in common that certain elements of design thinking were new and regarded as useful to the respondents, so that they integrated them into their procedures.



FREQUENCY OF MENTION:
10 ***out of*** **208**

THEME A9

DEVELOPMENT OF BETTER TEACHING AND TRAINING FORMATS

This theme can be understood in two ways:

1) Design thinking is often used in educational contexts like schools and universities, e.g. to *"teach students entrepreneurial competencies", "to design [...] courses"* and to prepare *"workshops for teachers and pupils".*[1]

But it is also 2) applied to itself, for example in the form of new instructional designs. Uses such as the following are therefore often implemented by companies – especially in the R&D departments. *"[We do] research on how to teach design thinking",* or how to design *"better training programs on DT and innovation"* as well as how *"to develop new methods and tools".* This is because organizations frequently face the situation that they cannot simply transfer the syllabi and program structures of the manifold design thinking courses (e.g. *Bootcamps or Exec Education courses*) as taught in the aforementioned institutions (p. 35) in a 1:1 manner to their own organizational learning initiatives. Therefore, they have to contextually adapt and rewrite the course materials in correspondence with the language and culture of their organization.

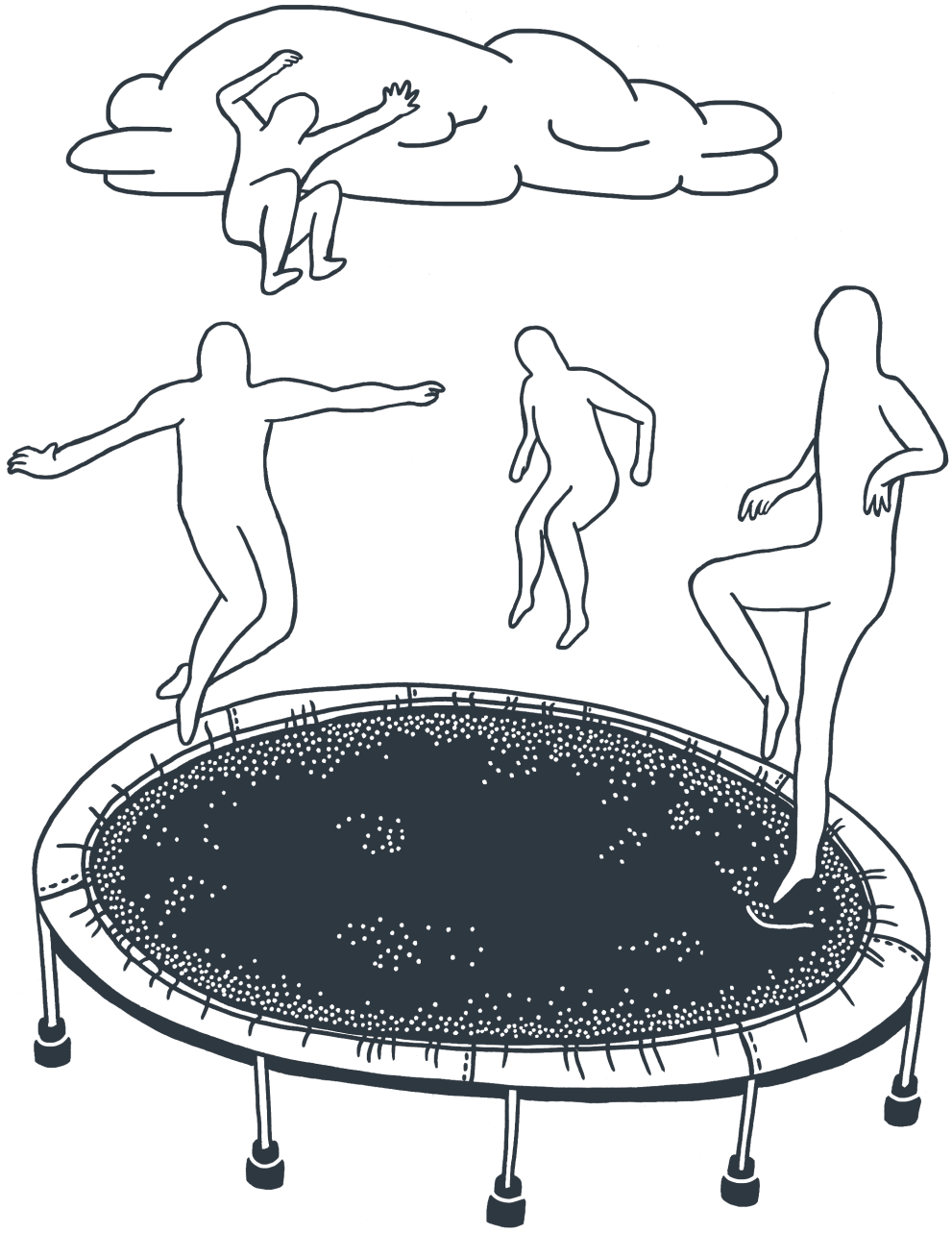
1 Many survey participants from NGO's fall into this category.

FREQUENCY OF MENTION:
9 ***out of*** **208**

THEME A10

INCREASING CREATIVITY IN TEAMS

"[We want] to become more creative and innovative." We need *"better ideas"* and *"out-of-the-box thinking"*. These were typical remarks that could have been anticipated. The pattern however was not that strong. Only eight out of 208 responses could be categorized under this general claim.

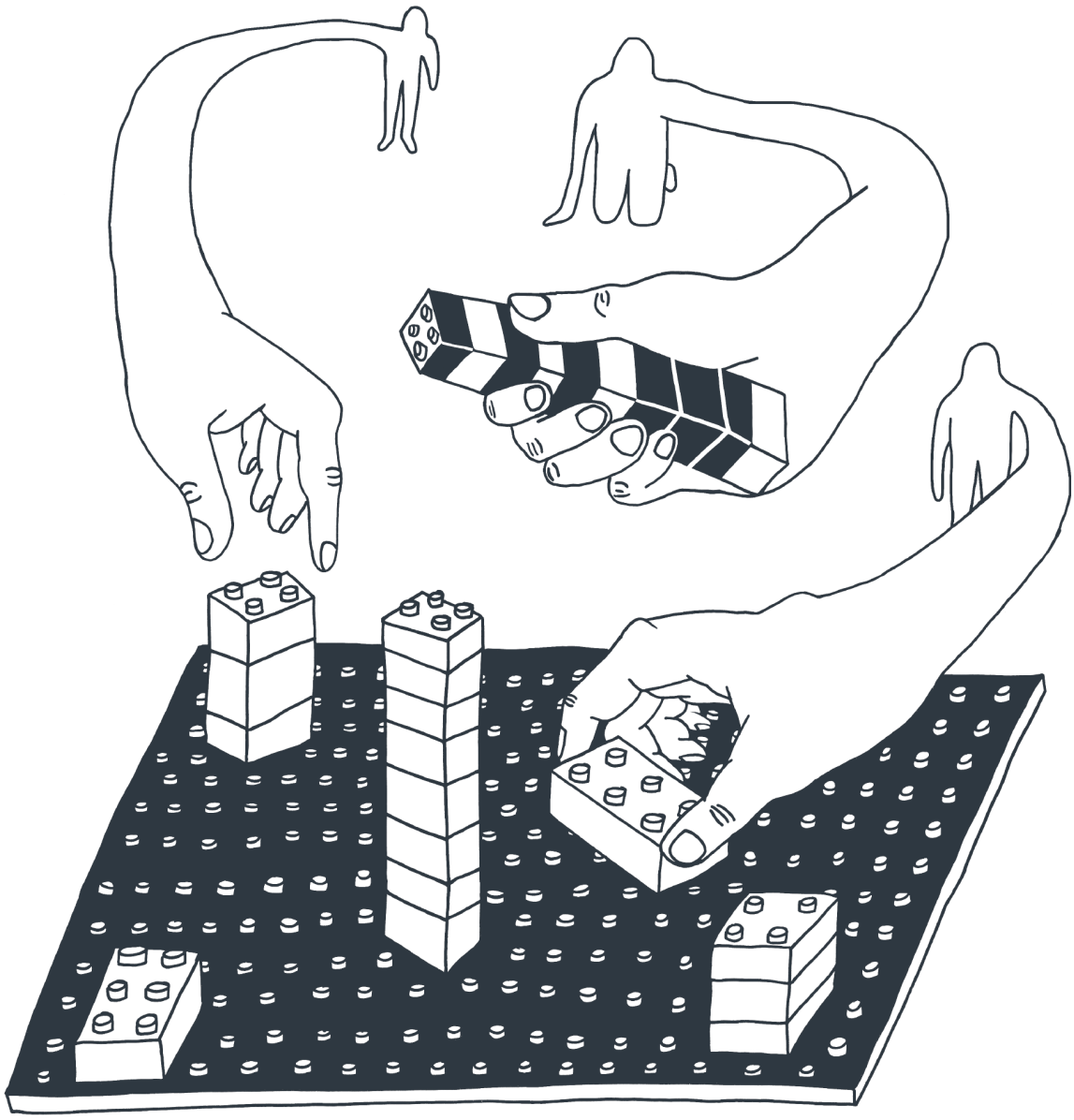


FREQUENCY OF MENTION:
8 ***out of*** **208**

THEME A11

CUSTOMER ENGAGEMENT AND CO-CREATION

Especially people from Sales and IT emphasized *customer engagement* as an important operating area for their way of applying design thinking. It overlaps with A4, the difference being that the focus is on: *"co-creation", "discussing new features with customers",* and *"technical co-innovation".*



FREQUENCY OF MENTION:
8 ***out of*** **208**

THEME A12

PUBLIC RELATIONS AND REPUTATION MANAGEMENT VEHICLE

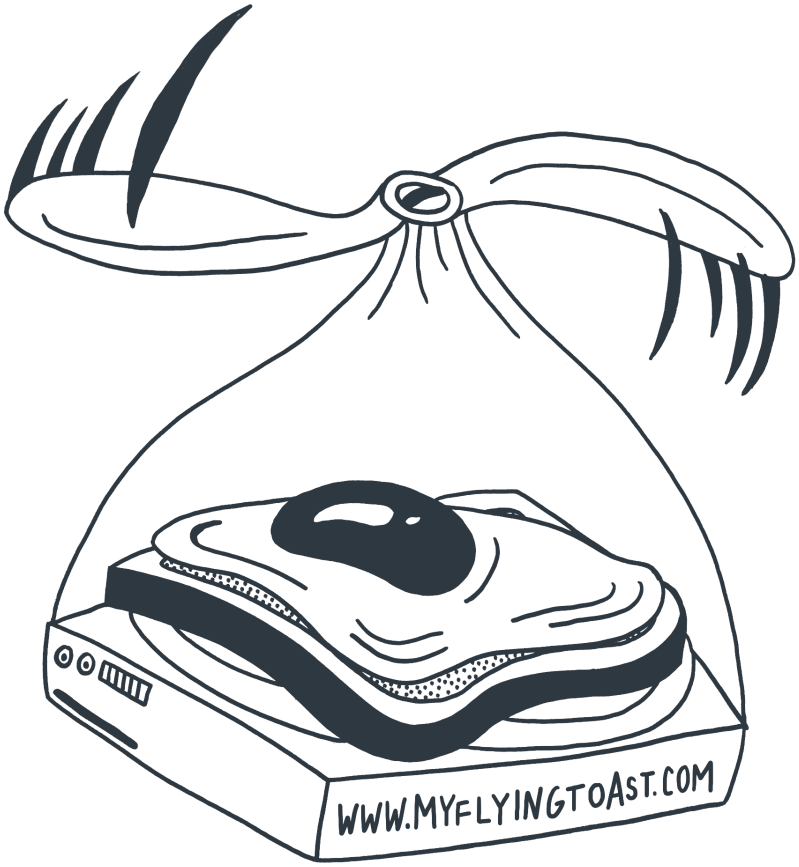
A surprising yet less pronounced theme with six out of 208 responses represents the fact that design thinking is used for *"publicity"* purposes and *"to demonstrate action leadership"* in a sense of impression management. One participant even revealed that it was introduced at trade fairs to *"look good"*.

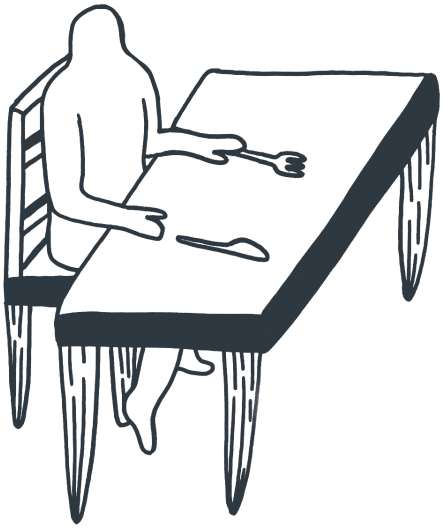
FREQUENCY OF MENTION:
6 ***out of*** **208**

THEME A13

SERVICE AND EXPERIENCE DESIGN IMPROVEMENT

Just a few respondents explicitly mentioned concepts such as *user experience* or *service experience design* as an end for the application of design thinking. But this does not mean that they do not care about these things. It may be explained by the fact that in the perception of most people, a dominant mental model where product equals service is still prevalent (G-D logic, cf. Lusch & Vargo, 2014). Further it might be reasonably assumed that goals/concepts as the above-mentioned one are already implied in categories A1, A2 and A4.





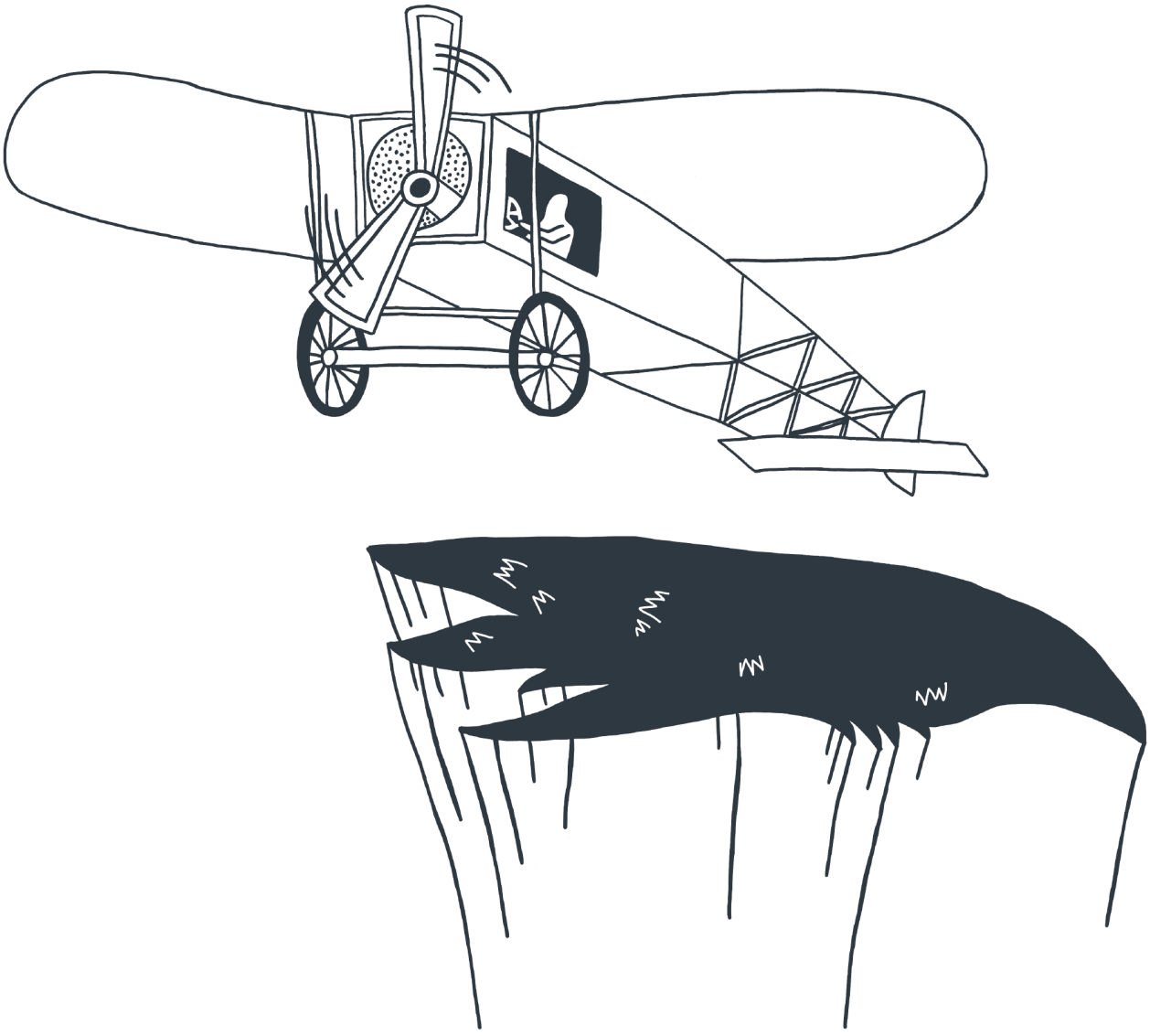
FREQUENCY OF MENTION:
6 ***out of*** **208**

TEST ASSUMPTIONS AND ITERATE SOLUTIONS

Another minor pattern regarded *"testing potential solutions"* by *"bringing back prototypes and understanding perceptions"* as the most important part of the lived design thinking practice. Unfortunately it was not fully clear from the available data whether our respondents meant the test of basic assumption (what to build) or the test of functionality (how it will work). Only one respondent clearly indicated the latter by referring to a more usability-concerned testing of "landing pages", which she attributed to design thinking practice.

According to our interviewees it is important to be attentive and draw a clear distinction: design thinking as an initial reflex often gets equated with better usability (I2, I4, I5, I7). In practice, both concepts are closely related. There is a difference, however, if one tests within an usability express-test-cycle (directly iterating from observation to solutions to make things work better, cf. Beckman & Barry, 2007) or if the search for a solution also takes into account the discovery and interpretation of meaning and higher-order needs.

The latter includes reframing and abductive thinking as it is attributed to design (thinking) synthesis (Dorst, 2015). This insight was actually the very reason for Intuit to engage with design thinking at all. Kaaren Hanson remembered that before its introduction her company *"focused on ease and how to make our products easier and there was a lot of activity around that. And we made our products easier. But it did not change our actual customer experience, it did not change our net promoter measure, it did not change our revenue growth trajectory, it did not have any impact."* (I4.1) Intuit concluded that *ease*, in terms of *"doing better"*, was no longer a sufficient differentiating factor, which eventually led them to launch their D4D (Design for Delight) design thinking innovation program. One substantial part of the program is to prefix problem discovery and framing to activities, which merely improve efficiency in an iterative manner.

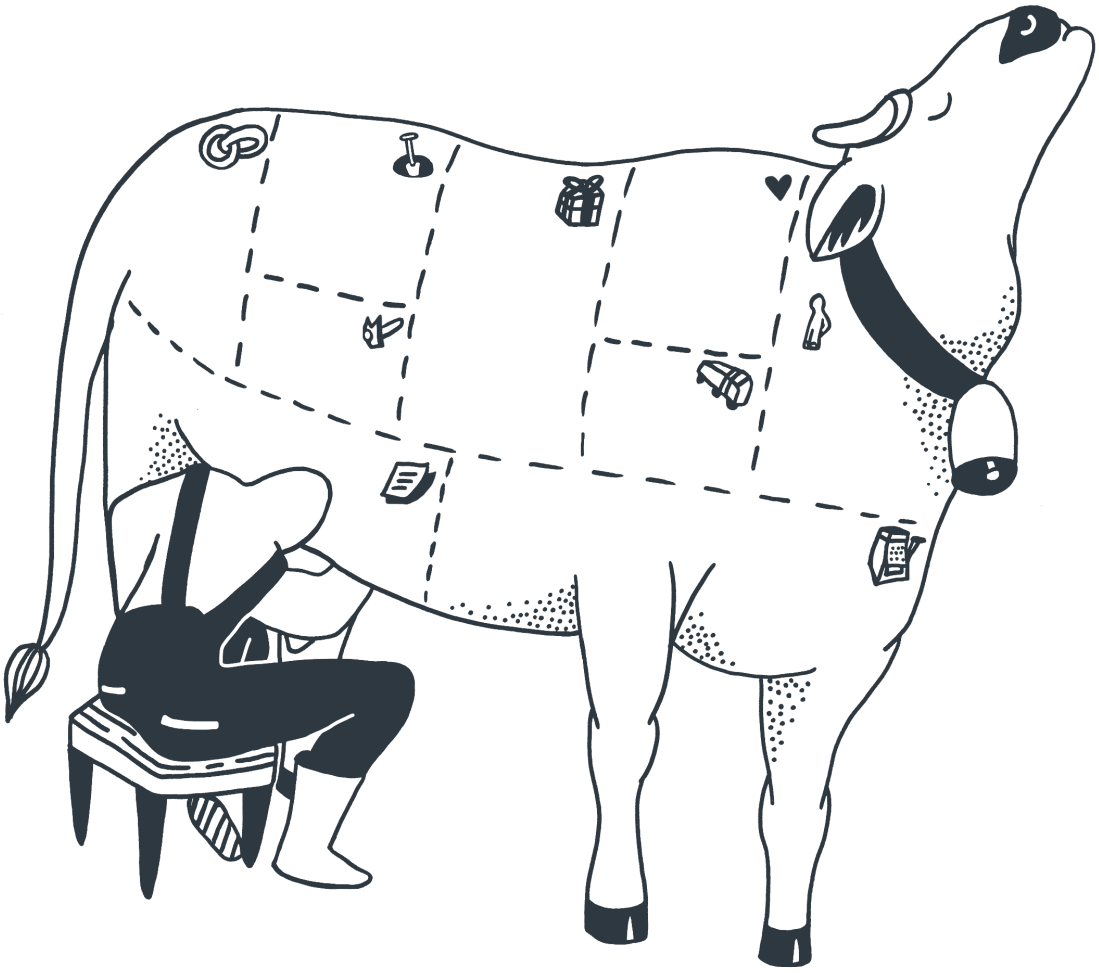


FREQUENCY OF MENTION:
6 ***out of*** **208**

THEME A15

NEW BUSINESS MODELS AND GO-TO-MARKET STRATEGIES

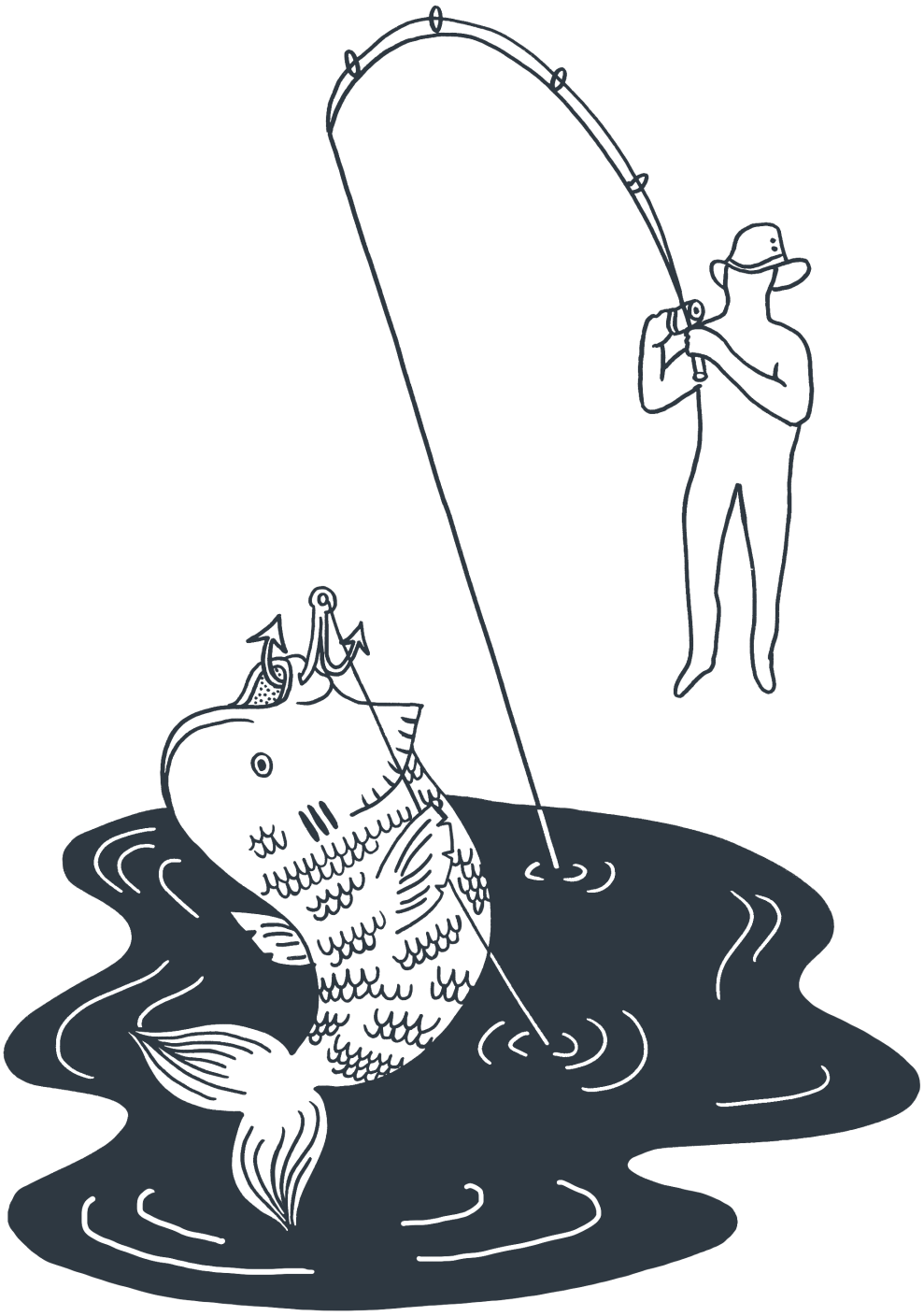
Business model innovation, or -design as an explicitly mentioned unit of change, was also a weak theme. Just six out of 208 people named this as an end to which design thinking is the means. It was usually accompanied by the reference of *go-to-market strategies* e.g. *"map the local market, understand it and create new solutions and business models".*



FREQUENCY OF MENTION:
6 ***out of*** **208**

ATTRACTIVE RECRUITING TOOL

Five out of 208 respondents (all from HR) answered that design thinking is a part of their *"recruiting and candidate experience"*. One participant referred to a whole *"program for internships and young professionals"*, and another one mentioned *"employer branding"* in this context. This corresponds with our observations that design thinking workshops often serve as events to get in contact with important stakeholders, which bears a similarity to A12 and somewhat to A8 and A18.



FREQUENCY OF MENTION:
5 ***out of*** **208**

REMAINING INDIVIDUAL OPINIONS

THEME A17

MEANS FOR MORE EFFICIENT MEETINGS AND ARRANGEMENTS

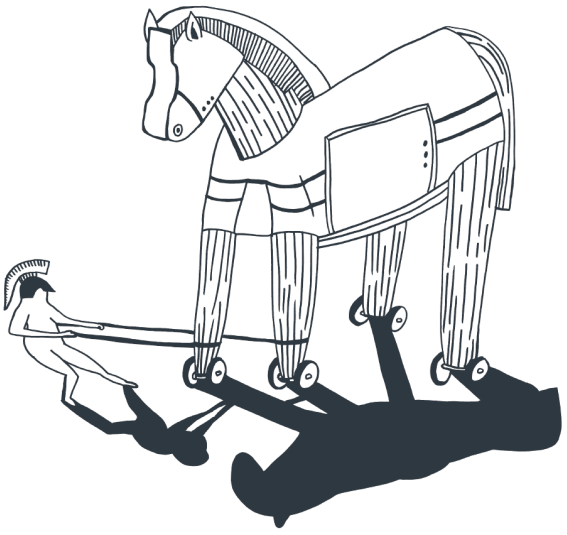
Very few participants saw design thinking primarily as a *new* way to organize their meeting efficiency and to *"better structure group work"*. All of them answered from a marketing perspective.

FREQUENCY OF MENTION:
4 *out of* **208**

THEME A18

GENERATING DEMAND AND BETTER CUSTOMER ACQUISITION VIA WORKSHOPS

Four respondents from sales use design thinking solely for customer acquisition and *"generating demand"* by conducting workshops with them.

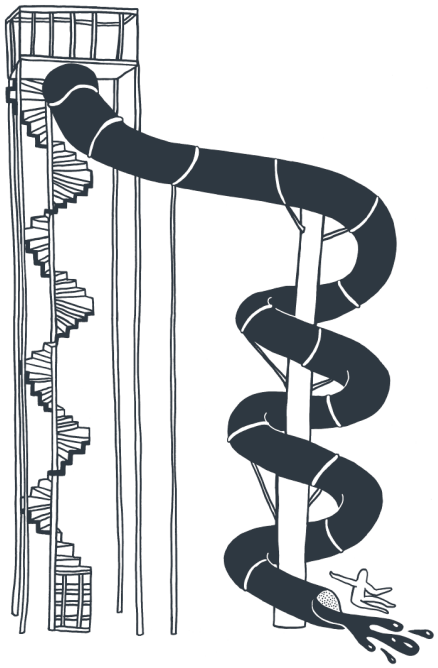


FREQUENCY OF MENTION:
4 *out of* **208**

THEME A19

IMPROVING THE INNOVATION PROCESS

Another four responses - all from R&D - pointed to the necessity of *"improving existing innovation processes"*, which is clearly linked to many of the above themes (A1-5, A7-11, and A13-15). As already mentioned in chapter 5, the design thinking way of organizing a body of innovation work is new and *unusual* to many of our respondents.



FREQUENCY OF MENTION:
4 *out of* 208

THEME A20

MEANS FOR IMPROVING THE STYLE OF DESIGN OUTCOMES, FOR EXAMPLE BETTER LOOKING PRODUCTS

Only two people explicitly referred to what many call the most classic design misconception: design thinking as a means to *"learn 'design'"* for creating *"better looking products"*, which seems to regard it as a way to make things look *pretty.*

FREQUENCY OF MENTION:
2 *out of* 208

CONCRETE ACHIEVEMENTS WITHIN THE THEMES

Having asked our survey participants questions on where their design thinking practice is localized and to which general areas it is applied, we were also interested in concrete cases of tangible outcomes. We requested participants to provide us with some examples of *marketed products or services* that had been advanced with design thinking. Fifty-two respondents answered the voluntary question and gave one or more examples[1]. To maintain the confidentiality of our survey respondents, we indicated their products and services using generic terms. Figure 14 shows the results of an extremely wide spectrum of design thinking *products* in practice. Pages 96 and 97 show selected case studies of organizations that agreed to be published in this study.

1 Many respondents used somewhat *abstract* internal project descriptions, such as "curricula for systemic coaches", "training programs", "innovation workshops", "co-creation spaces", "agile integration projects", "working conditions", "science projects" and similar descriptions.

Surprising examples of design thinking applications from the sample

As our survey participants seized the concept to tackle such a fascinating range of big and small problems, we singled out some interesting examples[2]. These are listed in the table below.

2 We chose the examples we personally found interesting and *unusual*. We are aware of the passionate discussions on *problems that could be the subject of design thinking innovation*. Our selection therefore does not denote any preferences or valuations. It is up to the reader to assess whether these are *good* design thinking challenges or not.

Function	Internal
Consulting	Rethink the effectiveness of bonus models
Finance & Accounting	Find ways to get people to comply better Create a dashboard for the CFO
Human Resources	Re-design the process of relocating people Introduce the T-profile to better choose applicants
Sales	Generate demand through design thinking workshops (acquisition tool) Rethink sales and bidding sessions
Operations & Manufacturing	Implement added value communication (commercial innovation) to sell construction tools in a more effective way

Table 3: *Some examples of outstanding or unexpected design thinking applications from the sample (random selection by the authors)*

The spectrum of outcomes
What is it that people create with design thinking?

NEW BUSINESS MODELS, **CLASSICAL PRODUCT ENGINEERING:** OUTDOOR DEVICES, ANTIPERSPIRANT, DISSECTOR SYSTEMS, BABY INCUBATORS, CEMENT PRODUCTS AND PACKAGES, SCIENCE PROJECTS, **DIGITAL USER EXPERIENCE DESIGN:** DASHBOARDS, WEBSITES, MARKETING CAMPAIGNS, WORKING CONDITIONS AND COLLABORATION SPACES, **COMPLEX ANALOGUE AND DIGITAL PRODUCT-SERVICE SYSTEMS:** PHARMACY EXPERIENCE, PICK-UP SERVICES, HEALTHCARE, SHOPPING, INVOICING, PRICE PLANS, **SOFTWARE APPLICATIONS:** FINANCIAL ADVICE, BUSINESS INTELLIGENCE, SAILING ANALYTICS, COLLABORATION, DATABASE APPLICATIONS, REPORTING, MOBILE GAMES, IT SOLUTION FOR CALCULATION OF EPEI (LEAN PRODUCTION, ETC.), EVENTS, JOB ROLE DEFINITIONS, RECRUITMENT PROCESS, STRATEGIES, CURRICULA, INTERNAL PROCESSES, ETC.

Figure 14: *Aggregated outcomes of our survey participants' design thinking practice*

Autonetzer

German autonetzer.de is a multi-sided platform for peer-to-peer car sharing. Private individuals can rent their automobiles to others if they are not in use. Renters find the right car for themselves near-by by using a website or smartphone app.

Nivea Roll-On Invisible Black & White

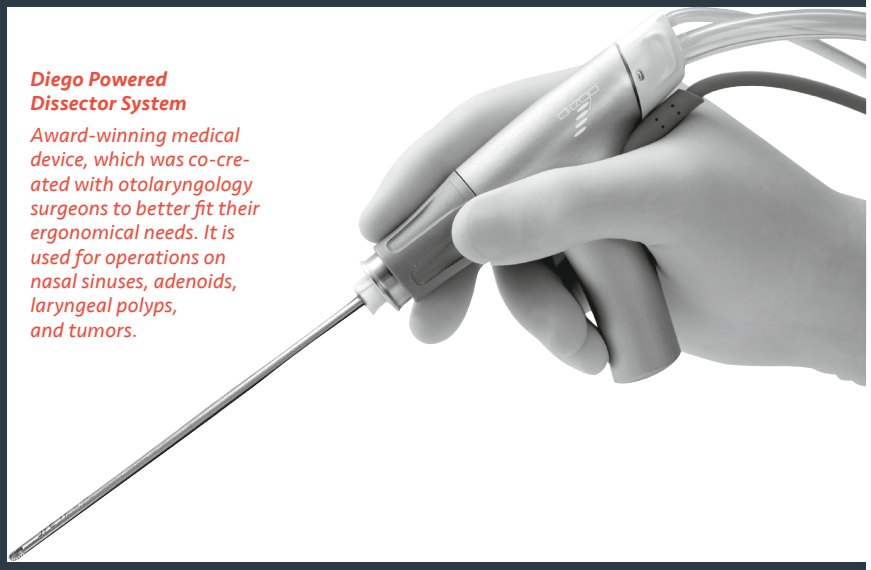
"Nivea Roll-On Invisible for Black & White Clear" 48h-non-stop pro-tection is an antiperspirant, which leaves minimal or no residue on dark and bright textiles.

Lockwell Aero

A design door handle with special ergonomics.

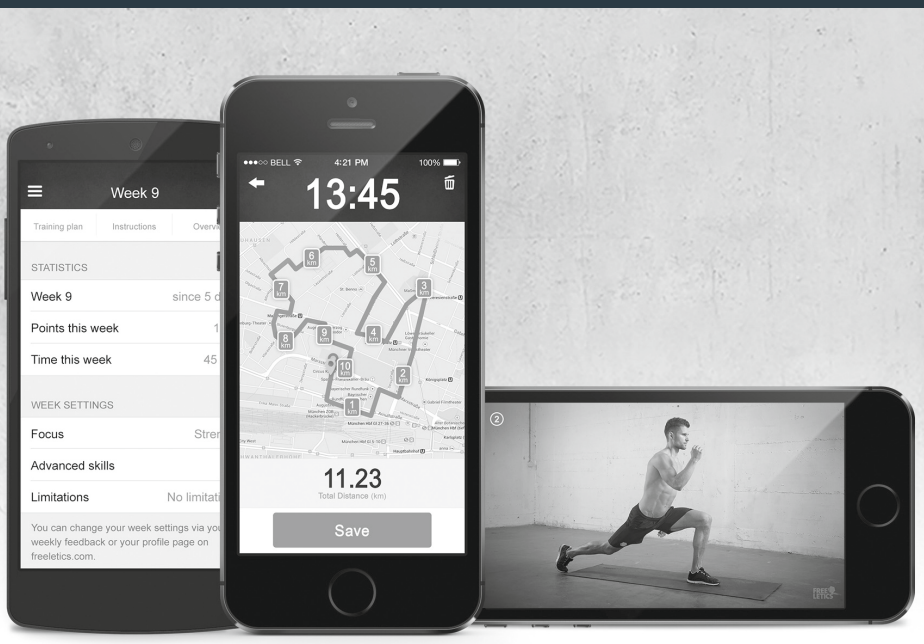
Diego Powered Dissector System

Award-winning medical device, which was co-cre-ated with otolaryngology surgeons to better fit their ergonomical needs. It is used for operations on nasal sinuses, adenoids, laryngeal polyps, and tumors.



Freeletics

Freeletics is a fitness app, which provides a 15 weeks high intensity workout including personalized training instructions. It is adapted to individual goals, fitness levels and progress.



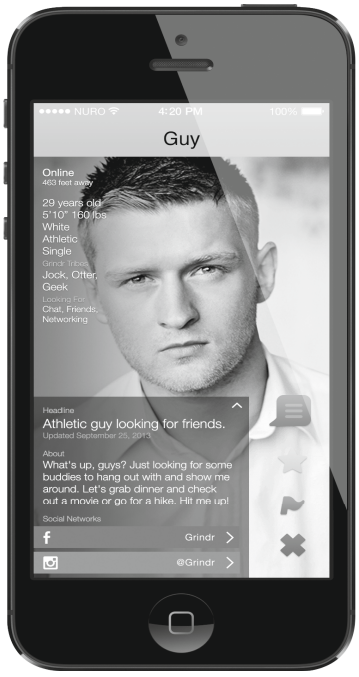
Hello Bank

Elaborated co-creation process of a launch campaign for a new digital banking service. An offline workshop setting with experts was supported by a close integration of the bank's online community, represented through an avatar as it is shown in the picture.

Figure 15: *Some random examples of design thinking outcomes created by participant organizations from our sample*

Jawbone

Jawbone is specialized in wearable devices, and building hardware products and software platforms powered by data science. Jawbone's UP system helps people live better by providing personalized insight into how they sleep, move and eat.



Grindr

Grindr is a geo-social networking app for males. It provides access to more than 5 million guys in 192 countries and helps to find the closest match for a date, buddy, or frind.

DEL Livescores

DEL Livescores is an analytics tool by "Deutsche Eishockey Liga" that provides an overview of the teams and players of the German ice hockey league.

ISN'T DESIGN THINKING ABOUT PRODUCT INNOVATION?

It has been shown that design thinking's spectrum of use in practice is immense. Many of the themes which emerged above have been separated into categories for a detailed description. Nonetheless, they cannot be understood in isolation. They are mutually dependent. Some themes were mentioned by our respondents in conjunction with others. We therefore do not claim to present *the* 20 patterns of design thinking application, as it is neither possible to reproduce all types of applications in this report nor to separate out which pattern are means or ends for others. More **empathy for better customer understanding** (A4) may be needed for **better collaboration and knowledge transfer** (A3). In combination with **improved innovation processes** (A19), it can lead to **new business models and go-to market strategies** (A15). What is the means and what is the end? What matters from our phenomenological perspective is that our respondents emphasized different facets of design thinking applications. In reality these facets can be conceived as a network of patterns nested within patterns, in which one implies the other. They are united by the fact that people perceive design thinking as a concept which can or already does help them to arrive at a variety of desired end states.

Most surprising for us were the many uses of design thinking as a vehicle for purposes other than innovation for external user groups (A1, A3–4, A7, A9–12, A16–18). As opposed to common sense descriptions of the concept, associating it with an application of customer-facing product and service innovation, we found in our practitioner sample a striking focus on organization-internal matters. It often is not the customer and his actor-to-actor network that is targeted as the end user(s). Surprisingly often, the focus is on the organization's own employees as end users. Accordingly, design challenges deal with organizational problems and matters of internal improvement.

These findings also corroborate the experiences of our senior expert interviewees. Nearly all of them recognized design thinking's contribution in fields of application other than just product or service innovation. Extending design thinkings's sphere of influence to such a wide spectrum of applications implies, however, that it may be complicated to measure and evaluate its impact.

“Our executives met and asked, ‘How can we differentiate ourselves in the market?’ And they saw design as an opportunity. […] This was really the first push. […] Now, we say: ‘Let's not just talk about the products. Everything in the ecosystem is a designed experience.’ We expanded the mandate when we realized: ‘Oh, you can do so many other things with design, you can innovate with design, you can take those mindsets […]’.”

Julie Baher, *Group Director Customer Experience,* Citrix

07

IMPACT AND OUTCOMES

"Nothing so far, but some people might have got an idea that there are ways other than just 'do a brainstorming' when you want to innovate."

A respondent

Design thinking for our practitioners has multiple meanings, is still a new phenomenon to most organizations, and, on top of that, is applied to a bewildering array of all sorts of internal and external problems. Does it live up to the expectations of our respondents? We asked them about **the perceived impact of design thinking in their organization**. First we guided them through a series of questions that were directed at validating some of the popular claims normative design thinking literature and design thinking proponents are making. Respondents answered the impact questions (see Figure 16) from their very own organizational perspective.

Improved Working Culture – 71%

Seventy-one-percent of the respondents reported design thinking has improved the working culture at their organizations. This fact was also mentioned repeatedly in other parts of our questionnaire where participants answered open questions. We found interesting nuances, however, which were also reflected in our interviews. Most respondents reported improvements in the working culture in their team. A few, however, explicitly referred to their whole organization. According to our design thinking experts, organizational prerequisites are necessary to enable a diffusion of a design thinking culture. While the concept itself may improve teamwork, it is not capable of changing a whole culture by itself. At Intuit this was clear from the very beginning: *"Design thinking was just one piece. The goal was becoming a design-driven company. So, having a culture of design thinking was important. But that's not all, you also need to have your leaders really*

Design thinking impacts organizational culture

Financial effects are less noticeable so far

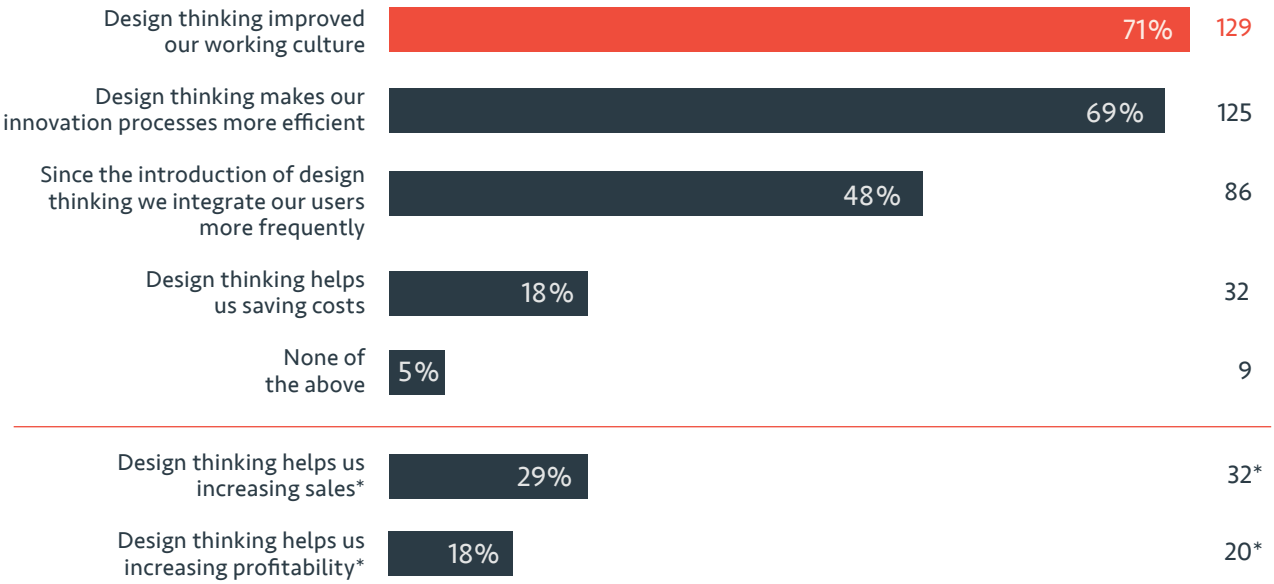


Figure 16: *What is your impression of the impact of design thinking in your organization? (Multiple answers possible, n = 181 / *only n = 111 for-profit organizations received these questions)*

understand it: There was a whole vector around design leadership and how do we really up level the craft of design, how do we get more design leaders in positions of power across the company. Design thinking started in 2007. Really having leaders understand and experience it to raise the bar that we all hold started probably in 2009. And then we started to push having a design leadership in 2011. And it was a combination of those three factors that got us to where we are, feeling really good about where we are today." (I4.1)

The implementation of design thinking was flanked by a massive change program that was itself run with design thinking principles. This program basically restructured the whole company with its focus on business processes, organizational and brand identity, organization design, building layouts and other parameters.

"Most companies work to minimize deviation. That's why they choose people who always love to do the same thing. Maybe this makes things microscopically better. At the same time, however, they complain about not being imaginative and unique enough? Many cultures in companies are not cultures that are built around innovation."

Carl Bass, *Chief Executive Officer and President,* Autodesk (I3.1)

The anonymous company I2, in contrast, also hoped to change its (innovation) culture by introducing design thinking. As opposed to Intuit, it imposed the whole burden of such an endeavor on the concept alone. The results are sobering: *"We get a lot and hear a lot about design thinking. The management says we need to do it [...], they say this is really important but they do not support people in what they need to do it. It's the culture, its the company. He [authors' note: the product owner] does not have enough time to devote to this, I guess. [...] See, that's what I mean with the layers. Even he does not meet the customers. [...] Not being able to get the people in terms of schedules and not having the cultural mindset from [anonymous company], is something which is needed and valuable [...]."*

Although all interviewees from I2 testify that design thinking improved working culture in their teams, they cannot claim the same for the whole company. The inability of providing the *right* leadership and management paradigms as well as an adequate organizational structure were therefore mentioned as barriers that

basically make design thinking practice impossible. This is one of the main reasons why experts such as Carl Bass are apparently amused about the introductions of design thinking at companies whose current cultures are the concept's antitheses. It is the "bad habits built in deeply", he believes, that will force the failure of design[1] in those environments: *"Most companies work to minimize deviation. That's why they choose people who always love to do the same thing. Maybe this makes things microscopically better. At the same time, however, they complain about not being imaginative and unique enough? Many cultures in companies are not cultures that are built around innovation."* (I3.1)

Most of our interviewees knew about this danger and took a variety of measures adapted to their own organizational contexts[2]. What unites them is that none of them have found the best way to implement design thinking in their culture yet[3], although the *Intuit way* was frequently mentioned as a role model. All of them however agree that patience, persistence, strong leadership support and a willingness to invest are required in order to really nurture a design thinking culture on an organizational level.

We should therefore keep the *team vs. organization level* nuance in mind when interpreting this very important figure on impact. We will elaborate more on above-mentioned barriers to design thinking implementation in chapter 8.

More Efficient Innovation Processes – 69%

Another 69% of our respondents claim that design thinking makes their innovation processes more efficient. This was also a strong theme in the free text answers though it was more expressed in terms of **enabling an innovation pipeline continuity**[4]. These experiences were also corroborated by most of our interviewees, some of whom already had an impressive track record of innovations derived from their design thinking activities.

1 Carl Bass refuses to use the term design thinking. For the reasons described in chapters 4 and 5 he believes that it has become a mere marketing term, which at most is a *"great slogan for the conversation about the value of design." (I3.1)*

2 For instance, the supply of space, free unstructured working time, and off-site locations, for example incubators or skunk works laboratories.

3 *"[There needs to be] leadership training. 'Ambidextrous organization' is a big concept we grabbed for ourselves when I went to a customer-focused innovation program at Stanford, it was an idea that really resonated with me out of the business school side of that program. [The problem is that] bonuses are tied to executional requirements. Execution is a very different practice than innovation. So, how do you separate these things out? I wouldn't say, we have established best practices yet, but we are looking hard at these questions at the moment with our leaders." (I5.2)*

4 Design thinking, perceived as a *"new approach"*, speeds up and respectively replaces old *ways* of innovating: *"Finally we have hands-on tools for continuous innovation"*. According to our respondents, it perceptibly improves the quality of solutions (*"[they] become better and more desirable"*). This in turn brings *"continuity to the innovation pipeline"*, as one participant put it.

The innovation process enabled a *"shared vocabulary and toolset"*, which *structures communication* in a better way. One participant for example appreciated that design thinking *finally "gives names to the steps in the innovation process"*. With reference to existing processes, it was mentioned that design thinking *"is the perfect add-on to existing processes"* (e.g. SCRUM) and that it improved the overall working climate in teams and therefore collaboration (as described in chapter 6.4).

Heightened User Integration – 48%

Interestingly, less than one-half (48%) of the respondents reported that they integrate their users more frequently now than before the introduction of design thinking. This finding may imply that they already were user-centered but contradicts the strong pattern of expressed wishes to become more user-focused that was shown in | *chapter 6.4.* From our observation, design thinking often resonates with organizations that already have a heightened awareness for user-centricity. Such respondents, especially from organizations that have adopted the concept for purposes other than customer-directed innovation, may be a possible explanation for why this number is not as high as one might expect.

From our interview partners we learned that in the early phases of design thinking's introduction to organizations no established structures and protocols for user integration exist (I4, I5). Management and *non-design thinkers* often perceive design thinking as a cost- and labor-intensive *additional* work that has to be performed on top of the normal job requirements. Even with an official management mandate, user recruitment is an arduous task – so, why should teams fight for it if it just means additional work, which is not appreciated (I2, I6)?

"If you want them to do rapid experiments with customers, how do you make it easy for them?"

Kaaren Hanson, *Former Vice President of Design Innovation,* Intuit (I4.1)

Many organizations therefore try to institutionalize customer and user contact by reducing as many barriers as possible. At Intuit they developed a whole customer engagement program to do so, the so-called *Friends of Intuit.* According to Kaaren Hanson it serves one purpose only: *"If they [authors note: busy engineering teams] do not go to our customers, then we bring the customers to them. ... You have to be persistent. Once these channels are in place you are able to start moving down the barriers and getting people to interact more. And now people interact with customers 2–3 times as much as before."* (I4.1)

Impact by the Numbers – A Minority of 18%

On the other hand, only a minority of 18% has the impression that it **saves them costs** so far. Two respondents had just the opposite experience – to quote one: *"Design thinking sometimes costs a shit load [sic!] of money!"* A similar picture arises for design thinking's reported ability to increase sales (29%) and/or profitability (18%)[1]. Only a few respondents have so far explicitly confirmed such experiences.

1 Only for-profit organizations received these questions.

From the perspective of our interviewees we gained a totally opposite impression though. Their reports were full of examples that especially described management innovations that sustainably improved customer experiences and business processes by applying design thinking. At Intuit and Citrix, for example, they learned that it is not the market-facing *uber-innovations* or customer experiences that alone make a lasting impact. More likely, the many savings and efficiency increases in terms of continuous and incremental improvements contribute positively to the bottom-line[2]. The more employees acquired a design thinking mindset, the more entrepreneurial behavior could be observed – especially in the small details of daily operations and improvements.

2 Citrix for instance reported how a minor process improvement by one freshly trained design thinking employee now saves 9,000 work hours and three million dollars a year (I5.1). Similar Intuit stories fill a whole book every year (Innovation Catalysts Book). One example is a manager in finance operations. By gaining just one insight about credit card expiration, due to user observation, she was able to recover ten million dollars of income in just one year. Having made this kind of enlightening experience, she now rolls out design thinking to the whole finance operations group of 500 people (I4.2).

No Impact – 5%

Finally, nine out of 181 respondents made the experience that design thinking had no impact on the queried claims at all. Given the fact that most respondents in our sample have only two years' experience with design thinking, it was not surprising that we received some fuzzy answers or remarks like *"it's still in the early stage of its implementation"* or *"it had little measurable impact [...], other than our ability to talk about it internally"*. One respondent even concluded just one achievement: *"The consent that we do not like innovation"*. We will now look at such disenchanted experiences and their possible reasons in the next chapter.

08

REASONS FOR DISCONTINUATION

Design thinking is not necessarily appropriate, nor does it work out well in every environment. A minority of our respondents abandoned the concept, because they failed to implement it in their organization. The most pronounced reasons for discontinuation they gave us are related to problems of leadership, organizational culture and insufficient internal anchoring. Only a few respondents however explicitly blamed design thinking as an inadequate concept for their purposes.

In total 23 (or 9.8%) of our respondents reported a *discontinuation* of the official design thinking practice in their organization[1]. All of them had become involved with design thinking in recent years and ended their work with it between 2010 and 2014.

1 The authors are aware of the fact that one can hardly discontinue a mindset. We are referring to the officially sanctioned and supported design thinking initiatives and practices which are not *below the radar* of an organization's operations.

What particular reasons led the organizations in our sample to stop practicing the concept, and what can we learn from it? To get a brief overview, we asked respondents about their main reasons for ending involvement with design thinking. Again we sorted their answers – some very extensive – into themes. The reasons they provided us with can be divided into two groups. The first is reasons placing blame on design thinking itself. The second group holds insufficient organizational prerequisites responsible for failed implementation or diffusion. This is what they reported in detail:

Reasons that do not blame design thinking

Top three reasons for the "discontinuation" of design thinking
1. Design thinking as an one-off affair
2. Lack of management support
3. Failed diffusion and implementation

Figure 17: *Top three reasons for the discontinuation of design thinking*

“We just tried it one time – we were never able to bring it back to our companies.”

A respondent

The strongest theme which emerged was that of **design thinking being handled as a one-off affair.** That means no efforts for organizational embedding were carried out. Often organizations turn to the educational institutions from | chapter 4 and become project partners for a joint innovation project with them (e.g. within the famous ME310 program for engineers). Not all of these projects however are treated as a real knowledge transfer. Sometimes they get perceived as a *ready-made solution service* for innovative ideas and concepts provided by students instead of a commercial service provider. As soon as the facilitated constellation of project partner, student team and coach/design facilitator is decoupled, design thinking is no longer being applied. As one respondent put it: *"We just tried it one time – we were never able to bring it back to our companies"*. In the same category are workshop situations or *"restricted one-time projects"* with commercial service providers that are not designed for a *long-term commitment*, as one respondent framed it.

„I left and my new colleagues were not familiar with the methods."

A respondent

Another major issue is a **lack of management support**, which is closely connected to insufficient resources and financial support. Design thinking is often just practiced by single actors in parts of the organization – usually without an official mandate. Once a change in the leadership agenda arises, priorities shift and the design thinking practice is accordingly abandoned. One respondent, for instance, reported the abandoning of design thinking with the entrance of a new CEO.

Strongly tied to a lack of long-term commitment is underestimating the effort necessary to bring design thinking practice into organizations. Along these lines, respondents reported general problems such *"budget cuts due to [the] economic situation"* but also hinted at a lack of effort for organizational embedding. Descriptions of absolute basic problems like *"brainstorming was much faster and needed less management resources"* or *"[a] lack of time and problems to gather all staff members at the same time"* or even being *"too busy with daily activities when our business grew"* were brought forward to justify the decision to discontinue

design thinking. Respondents therefore perceived that the enabling factors for the concept's introduction were not fully understood by management – especially if they have not received respective training themselves.

When we discussed this subject with our interviewees, it soon became clear that they had all come across similar problems, either personally or based on hearsay. Some of our experts even hired entire design thinking teams that were laid off from other companies: "*Once there was a leadership change at [anonymous company], the whole thing exploded. All of the team members were either fired or left. We then hired them*." (I4.1) And even if a design thinking posture is officially desired, it may not be consciously nurtured. According to our interviewees, the points of tension with managers usually involve **space, dedicated R&D time, the basic understanding of the special way of working in design thinking,** and finally a lack of **financial support.**

When it comes to **space,** one interviewee remembered that design thinking teams even had to hide their working artifacts and furniture (e.g. whiteboards). There was a high emphasis on neatness in the organization: "*Things had to look really nice. But when you are doing design work, it gets messy. You might have drawings or half completed prototypes or post-it, sketches – anything. But at that time it was forbidden to have anything that looked messy. There was no place to write down something on a wall or anything. There was no space*." (I6) So the team ended up buying whiteboards on wheels that could be put into a corner to make things look *neat*.

The time factor was another source of tension. Design thinking needs time and ties up resources. If properly incorporated, it may save both, but in the beginning many organizations struggle to develop the proper ambidexterity of daily operations and the freedom to experiment (Benner & Tushman, 2003; Flynn & Chatman, 2004; Tushman & O'Reilly, 2004). A discontented interviewee attributes the desultory design thinking diffusion in the organization to "*not being able to get people in terms of scheduling and not having a cultural mindset from [anonymous company] that this is something needed and valuable and a valuable use of time.*" (I2.1)

An **understanding of the design thinking posture** by the management cannot be taken for granted either. The above-quoted interviewee fervently desires *"[...] the business side to be trained in design thinking, because we have been, while the business side hasn't."* She goes on to express the need for *"lower leveled management [to be] trained in design thinking. And they [the managers] need to insist that this is part of what happens in the process."* If this does not happen, managers are unable to lead teams with a design thinking posture, as *"they won't impose the kind of structure that's needed and that's the problem. [...] This is the core reason why rolling out design thinking and agile is a problem here [...] because [management] cannot set a mandate."* (I2.1)

Such experiences are in complete contrast to the practices at, for example, Anonymous Company III, Autodesk or Intuit. In these companies, respective managers either have design capabilities or they acknowledge and know how to lead design thinking teams. At Anonymous Company III for example, it is the task of the management to provide directions and project visions, to facilitate brainstorming or synthesis sessions and to coordinate the different team roles. They also appreciate time and resource-intensive *creative detours,* which are typical for design thinking work: *"Sometimes we think tactically and we want to solve a specific kind of a small problems but a lot of the times we think pretty broadly. [...] What is really special about [Anonymous Company III] is that the founders have always provided a really great freedom to think big about solutions. There is a huge amount of freedom and creativity [allowed] there. [...] Working here has opened up how I think about problems ... because it's like freedom given to us, to think really big and really ambitious about what can be done and what problems [to solve]."* (I7) Also our interviewees from Intuit and Autodesk agreed upon the importance of top management being proficient in design thinking[1]. For them design thinking *is* management. It is natural that the CEO also has to live the mindset: *"You have to experience it in order to understand it. We can talk about it. But you have to actually do it! [...] So in fact one of the very first sessions we did was with our CEO and his staff and that was their 'a-ha experience'. They were like: Wow! We don't work like this – yet. That really helped accelerate our progress."* (I4.2)

1 The difference being that Autodesk seeks to hire individuals with certain designerly or entrepreneurial behaviors rather than (re) training people in design thinking as Intuit does.

According to our interviewees, it is this kind of understanding for above mentioned basic factors that will let **financial support** by management fall into place naturally, once they are on board with it. Our *successful* design thinking experts were either granted sufficient time and monetary investments to put forward an internal change program in their organizations (e.g. Intuit), or a designerly spirit and R&D culture of experimentation was already in place (e.g. Anonymous Company III, Autodesk). Our *less successful* and dissatisfied interviewees often struggled to explain the value of design thinking to their leadership, which was not willing to experience it themselves. Teams here were measured against indiscriminate criteria, which often were execution-oriented and with no understanding of the above-mentioned creative detours. One interviewee, who was part of a team that developed a breakthrough device in 2007, which is now, seven years later, marketed by a competitor in cooperation with Apple, remembered: *"We did not bring in any revenue directly. There was the financial crisis, and there was our group that was 'just sitting around, talking to other people and hiring experts' without bringing in money in a visible way. The company was not willing to take any kind of risks. Only if a competitor comes up with a new idea they see that new things are possible. If a person from the inside suggests it, they will say 'Oh, it's just not possible.' And the result was incremental innovation."* (I6)

When design thinking gets introduced in an isolated manner, it could be affected by an organizational structure and culture that is not prepared to give it enough space to unfold its potential. This in turn may lead to **failed diffusion and implementation** although the method was introduced with the best intentions. The above-mentioned facets of lacking management support are expressions of this scenario as well.

"[Management] won't impose any kind of structure that's needed and that's the problem [...]. This is the core reason why rolling out design thinking and agile is a problem here: management cannot set a mandate."

Anonymous Interviewee 2.1, *Senior Project Manager and Agile Coach, Anonymous Company | Labs*

Some of our interviewees remembered that isolated skunk works/innovation labs or siloed team constellations performed design thinking processes, whose results got *"thrown over"* (I6) to execution-oriented functions, once a minimum viable product or prototype was developed. If teams or units are isolated and in another working mode than the rest of the organization they may have *"a lot of problems convincing people that [they are] doing useful work"*. Interviewee 6 remembered: *"Just the name 'design thinking' was something people in other parts of the organization laughed about"*. A common ownership for emerging ideas and projects is hard to maintain under such circumstances: *"We were never really acknowledged. Our insights were handed over to some guy in the engineering department and when the time came to redesign the [device] he would just say: 'Oh, I had this wonderful idea.' There wasn't a meeting where the director said: 'Look what great work the CDT [Center for Design Thinking] did!'"* (I6)

A few interviewees however managed the tension between exploration and execution and established, and respectively still create, the interfaces and organizational structures that nurture a successful design thinking diffusion. Today Citrix, for example, is on the threshold of creating an ambidextrous organization in which design thinking can diffuse throughout the organization[1]. Only a few organizations that were not design-driven in the first place (such as Anonymous Company III or Autodesk) have managed the shift to an organization-wide ambidexterity (cf. Figure 7, p. 30). Based on our interviewee sample, only Intuit has so far successfully displayed the perseverance and rigor to diffuse design thinking as an integral part of its corporate culture.

Reasons that attribute failure to design thinking itself

The remaining reasons for discontinuation are individual opinions from single respondents. One participant experienced design thinking in his organization as just a method of **personal image cultivation instead of substantial change.** *"Design thinking [itself] is no change management. It rather is – 'oh, look at me! I've have done this and that.'"* Another respondent pointed to the fact that **design thinking alone is not sufficient to run a start-up** and that the lean start-up methodology (Blank 2005; Ries 2011) is much more helpful in growing a business. Our more experienced interview partners had a more differentiated view[2]. Their opinion was that these two concepts complement each other perfectly rather than being competing methodologies.

1 *"Peoples bonuses are tied to executional requirements. Execution is a very different practice than innovation. So, how do you separate these things out? I wouldn't say, we have established best practices yet, but we are looking hard at these questions at the moment with our leaders."* (I5.2)

2 *"Both design thinking and lean-startup have a sort of a basket of tools that you can use to do those things. ... If you do design thinking in an isolated manner you may actually miss a couple of things. You may miss the discipline, e.g. being articulate about your hypotheses, seeing what you got and moving forward while learning in a disciplined way. The other thing you'll miss, in my sense of it and from what I've seen, is typically applied to the product itself, where lean is really clear that you think about your marketing, your business model, your customer – every aspect of the customer experience and not just the product."* (I5.2)
Or, as another expert pointed out: "You're putting forward a hypothesis, you test the hypothesis – it might be about the market, it might be about the business model, it might be about the product [...] You're going to build it, test it, iterate [...] I think design thinking is a little more formative – you might not even know what you're making and then it turns out it's a thermostat. Then you think, okay, now we're going to iterate and be more in that lean cycle. We're not going to question the fact that we're doing a thermostat. Design thinking might help you in that sort of early phase." (I4.1)

"[In 2007 we] had a lot of problems convincing people that we're doing useful work. Even the name design thinking – people in other parts of the organization laughed at it."

Anonymous Interviewee 6, *Former Senior Employee,* Center for Design Thinking

Another respondent finally rejected the notion that design thinking can be taught. He stated: *"[I]t's all about staffing, [it] needs the right time and right people; it won't turn an insurance company into a creative hotspot [but it] can be very effective if executed at the right time and with the right people. If you have outstanding people they will work fine with design thinking, or without."* He shares this opinion with one of our interviewees, Carl Bass, CEO of Autodesk. Carl also believes that a **design thinking attitude is already in the hiring.** He strongly refuses the idea that one can (re)train people: *"First we beat creativity out of people [note of the authors: in the school system], then we hire them for efficiency, and then we try to train creativity back into them? Ridiculous!"* (I3.1) He believes that many of the big design thinking initiatives are doomed to failure as the wrong people get trained in something they do not even believe in. For him the key to innovation lies in hiring correctly. We heard a similar standpoint at Anonymous Company III, which does not want to bother itself with retraining people either: *"Everyone here really cares about the user. There are engineers who care about their engineering problems and maybe the users are less relevant. We just do not hire these kinds of engineers here. Every engineer has to care about the user and has a respect for design."* (I7)

We also received two answers, which from the point of view of the respondents, directly blame the *method* for their insufficient innovation outcomes. One person argued that although *"good innovative products [have been] developed, [those products weren't] considering the environment in which and for which they were developed."* Another one stated, *"it claims it takes business into account, [but] it really doesn't at all."* Both experiences are antitheses to the exact challenges design thinking is supposed to solve. It remains unclear to what *kind of design thinking* the answers refer.

09

THE CRUX WITH MEASURING

"How would you measure it? Measuring implies that hard metrics can be derived and tested against competing methodologies. Besides, if design thinking is embedded in your organization it cannot be measured as a single concept. Therefore we measure our general performance with several KPIs, but we cannot determine specifically to which level design thinking contributed to this."

A respondent

The measurement of innovation-related activities is a hot topic among practitioners, especially managers (Schepurek & Dulkeith, 2013). As design thinking researchers, we are frequently confronted with the growing demand for design thinking KPI's or inquiries such as: *How can I show my manager that design thinking has an impact on the bottom line? He wants upfront proof that the 'method' works.* Or: *Our current 'innovation method' can be measured throughout the whole process. How do you do that in design thinking?* As most of these questions are asked out of context, it is nearly impossible to answer them. Notwithstanding that some may argue that these questions may counteract the whole notion of design thinking, they should be taken seriously. Design thinking in the perception of decision makers is gauged against other *competing* methodologies or concepts, which may have respective KPI's – whether appropriate or not. Therefore we asked our survey participants if *they measure the success of design thinking in their organizations.* Those who replied 'yes' (40) and provided details (29) were asked how they actually do it and what gets measured; those who said 'no' (127) were asked to provide some keywords indicating their reasons for not measuring (101).

We hoped to learn more about the measures that organizations apply to their innovation and design thinking activities. What we found was vaguely coherent. There are hardly any ideas about how to operationalize adequate metrics

although, as | *chapter 7* has shown, a majority of respondents perceive design thinking as producing positive, concrete outcomes. Again – we believe – this has to be understood in connection with the fact that most of our respondents just began recently to engage with design thinking. Table 4 displays the pattern[1], which emerged.

1 Themes which were mentioned at least three times.

Why people say that they cannot explicitly measure the "success" of design thinking

#	TOP TEN THEMES (IN ORDER BY FREQUENCY OF MENTION)
1	Respondents have no idea how to do it.
2	Design thinking has just been introduced and is not yet established. It is too early to make claims about its impact, as there is not enough experience with it yet.
3	No resources are available for measuring, especially in terms of people who have the knowledge of how to do this.
4	No *design thinking KPI's* exist that are known or available to the organization.
5	Insufficient time leads to perception of measurement as an additional labor-intense task.
6	Measurement is seen as another cost-incurring task and therefore avoided.
7	Design thinking is not formally or officially introduced in the organization. As it operates under the radar, it is not supported by the management and hence not measured: *"What has never been introduced formally won't be measured"*.
8	Respondents believe it is impossible to measure mindset or culture.
9	It is not clear against what standard one should measure: Competing method(ologies), other project management techniques or…?
10	Evaluating design thinking via measures or KPI's makes no sense. Reflection (in action) is seen as more appropriate than measuring.

Table 4: *Why don't you measure the success of design thinking in your organization? (n = 101)*

"Design thinking is part of the culture and the approach to work with customers. And it is adapted to our needs, approaches and mixed with other methods processes. So what should we measure? A mindset? A part of a method?"

A respondent

Remaining single opinions of four respondents pointed to no less interesting viewpoints: 1) It is rather contradictory *"to measure ideation processes"*, 2) if something is not taken for granted it will not get measured (*"Design thinking is not viewed as a 'real' process. It's an unproven theory."*), 3) *"It is still so young, and the innovation departments are reluctant to strangle themselves with further KPIs"* and 4) *"We are the first company in our market to apply design thinking. So first we encourage and educate the market. We measure the results and feedbacks from design thinking-related events we have organized [...]."*

Knowing about the various reasons not to measure, we were then interested in the concrete metrics used by those who do measure. We received a mere 23 responses. The only strong similarity between them was their measuring of *customer feedback and satisfaction*, e.g. via NPS (net promoter score) or brand perception surveys. Other reported metrics[1] were either context-specific to the responding organization, highly use-related[2] or very general (e.g. *sales and revenue* or even *ideas per hour*), and there was no detail given of how specifically they are measured. In other words, only a fraction of respondents have (rather vague) metrics they can make use of. Most of them do not know how to, or do not want to, measure their design thinking activities.

Therefore we also asked our interviewees how they approach the topic. Interestingly, a similar picture emerged. Basically everyone wants to measure something but realizes that it is "*hard to trace back design thinking's dedicated impact on financial performance [as] there are too many confounding variables*"[3] (I4.1/2). Furthermore, companies have totally different metrics they care about, which are, in turn, influenced by certain processes. "*In our company it takes years until a product is launched on the market and a patent is granted. Keeping track of all the projects and measuring the overall impact – especially the business impact – of*

1 Other measures that were reported: Success stories and case studies; *Extent* of employee engagement and team collaboration; # of projects with second-round funding and *conversion rate* from projects to strategic plans for implementation; # of projects or innovation opportunities created; # of trainings, # of people exposed to design thinking; # of coaches/innovation facilitators; Special evaluation procedure: EFQM for C2E (a certification program for recognizing *high levels of organizational performance);* Wins and losses of placed *innovation bets*.

2 Typical usability metrics affecting the user experience that were reported: Conversion rates, # of live customers, task level satisfaction.

3 *"Once design thinking is part of the company's DNA, it's even much harder to separate it out and say [what] caused [what]. It was easier when there was just a session [authors note: a workshop]."* (I4.1)

design thinking after a short period of time is extremely difficult for us." (I1) This is why most of them do not believe in generally valid design thinking or innovation metrics either.

> *"The way we look at success is not so much about metrics. There are so many things that can confound a metric. [...] It is better to use stories! Stories that had a significant financial impact."*
>
> Wendy Castleman, *Innovation Catalyst Leader,* Intuit (I4.2)

Intuit tried hard to tackle this problem. They soon realized that if design thinking activity inevitably leads to problem reframing, this in turn creates the creative detours mentioned in the previous chapter. Such detours often make initial metrics obsolete. *"The metric that mattered to the team when they started, what they were asking for, was 'increase conversion'. The metric they ended up getting was something completely different. But everything felt much better about it. And ultimately it increased conversion."* (I4.2) Therefore our Intuit interviewees believe that knowing adequate and valid metrics upfront is nearly impossible when the goal is to come up with something new. The Intuit management now came to terms with such measuring ambiguity, as Kaaren Hanson explains: *"Executives are fine hearing that. If you say I'm going to save you $38 millions, they'll say, 'oh, you just made that up.'"* (I4.1) Nonetheless this doesn't mean they've given up on measuring. Appropriate measures just develop alongside the problem spaces on which the employees work. They are documented in little stories[1] that provide a rationale on how a solution or innovation can be tied back to classical metrics: *"We look at all the usual metrics the company cares about: revenue, cost, profit, employee engagement and customer engagement. Basically these stories are all about that."* (I4.1) It is then the responsibility of the Intuit Innovation Catalysts *"to decide what makes sense for them when compiling a story."* (I4.2) The *numbers behind the story-approach* of Intuit therefore takes into account the broad spectrum of possible design thinking applications. It additionally serves as an internal inspiration pool for prospective users of design thinking in the organization.

1 Intuit collects these stories internally every year. They fill a whole book. A story usually consists of the design heroes/team, the challenge they solved, the learnings they gained, the solution they came up with and the metrics they finally impacted (often cost savings, customer engagement and additional revenue). For more information on Intuit's Innovation Catalyst stories visit http://bit.ly/dtmetric

10

DISCUSSING PARTS WITHOUT A WHOLE?

"[M]anagement practitioners like the concept of 'design thinking' because it gives a label to something that is needed within management, but unless it is articulated, it remains undervalued."

Johansson-Sköldberg, Woodilla and Çetinkaya (2013, p.132)

Despite design thinking's long tradition in design practice and research, our study has shown that it is still a relatively new phenomenon to most organizations. In many respects it is perceived as a new concept, or even paradigm, which crosses boundaries from one domain to anothers. This is why friction comes as an attendant symptom within the discourses it originates from, as well as in those it enters anew.

We aimed to disentangle perceptions of critical dimensions that are subject to frequent discussions within the practitioner discourse of design thinking, namely:

ITS ENTRY POINTS INTO THE ORGANIZATION | *chapter 4;*

UNDERSTANDINGS OF THE DESCRIPTOR | *chapter 5;*

ITS FIELDS OF APPLICATION | *chapter 6;*

ITS LOCALIZATION WITHIN ORGANIZATIONAL FUNCTIONS | *chapter 6.1;* **and**

REASONS FOR DISCONTINUATION AND FAILURE OF THE CONCEPT | *chapter 8.*

We found that there is no standard path in acquiring design thinking knowledge and training. This leads to a situation in which a market of diverse opinions vies for dominance. Besides the already widely different conceptions of design thinking in the managerial practitioner discourse (chapter 5), the phenomenon of talking at cross-purposes with designers and their understandings of design thinking can be observed[1]. It is therefore important to know that the older and more traditional design discourses concerned themselves instead with cognitive aspects of how designers think as they work[2]. This contrasts with the actors of the *new design thinking movement* (Hassi & Laakso, 2011). The more recent discourses tend to have a *prescriptive* character, in which facets of the concept are presented in terms of a process, toolbox and method for management (Lindberg, 2014, p. 182). The more scholarly discourses from the design realm, in contrast, look at *designerly thinking* as an academic construction. Such discourse has a *descriptive* character as it emphasizes design thinking's recursive and reflective capabilities (ibid).

These different understandings in practice often lead to passionate but unproductive controversies about the real definition of design thinking. Certain designers, dependent on the school of thought they feel attached to – as well as our study's senior design thinking experts – emphasize aspects of design thinking as a collective or individual posture or mindset. Examples for this perspective express design thinking as a corporate culture, working mode, way of thinking, or lifestyle. Other actors, in contrast, tend to plead for utilitarian uses of isolated elements of the concept, e.g. "creativity technique", "technique of organizing collaboration [sic]", "tool for understanding users", event-like public relations tool, etc., regardless of what the *'whole'* might be for experienced design thinkers | cf. chapter 5. Experts in turn might perceive this view as myopic or ignorant. They criticize the random use of parts from design thinking as resulting from *laziness* or naivety – with the design thinking novices being unable to forge them into a coherent whole.

The next pages will argue that diffusion in practice usually goes both ways: the mere use of techniques can create a mindset, whereas a certain posture may foster the use of design thinking-related techniques and practices.

1 We had many single responses from people with a professional design background (e.g. industrial design), who – compared to the majority of answers – made defiant remarks or reasoned from a totally different perspective. Responses such as *"it just comes naturally to me"*, or *"I reflect in action"*, and which describe design thinking as *"sense-making"*, bear resemblance to certain schools of (design) thought. These perceptions are often neglected or are just unknown by entrants new to the design thinking realm (cf. chapter 5).

2 That this may lead to a whole series of contextual misunderstandings has been shown by Johansson-Sköldberg et al. (2013). Not only do the discourses have different epistemological starting positions, they also differ with regards to their perspective on the subject and its epistemological core concept. Table 10 (in annex 12.2, p. 134) delineates an overview of the conceptualization of the discourse streams. While they identified the different design thinking discourses and proposed a way of segmenting them, we looked at the conceptual dimensions and elements, which actually diffused into practice from the perspective of the management discourse.

10.1

THE MANIFOLDNESS OF PERSPECTIVES ON DESIGN THINKING

"It is a combination of different layers. One is the mindset, one is the methods and one is the culture. It works best, when you are fully into all the levels."

A respondent

If we multiply the spectrum of understandings with the twenty themes of application it becomes clear that there is no *right* way of practicing design thinking. The diverse viewpoints confirm that any attempt to confine design thinking to a single meaning could be misleading. A *'new'* management concept such as design thinking will never diffuse unchanged. It always becomes something different when it is acted upon (Carlgren, Elmquist, & Rauth, 2015). We therefore empathize with the notion of design thinking as a boundary object[1] – a view that is increasingly proposed by scholars. Hassi & Laakso (2011), for example, describe it as *"a bundle of certain elements that are interlinked and manifested through practices, thinking and mentality"* (p. 6). Carlgren et al. (2015) propose a similar framework, which deconstructs the concept into **principles, practices, techniques** and an accompanying collective or individual **mindset**[2] (p.15). In the design realm many of the techniques and practices emerged out of principles (e.g. human-centeredness, thinking through building, experimenting, etc.), which are already embodied in the designers' ways of thinking and approaching the world. The same holds for entrepreneurial activity, where posture usually determines ways of approaching problems as well as the methods and tools used. If we now look at design thinking and apply Carlgren et al.'s lens, we see that organizations try to traverse this evolution the other way around[3].

1 "Boundary objects are both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use and become strongly structured in individual-site use. They may be abstract or concrete. They have different meanings in different social worlds but their structure is common enough to more than one world to make them recognizable, a means of translation. The creation and management of boundary objects is key in developing and maintaining coherence across intersecting social worlds." (Star & Griesemer, 1989, p. 393)

2 Depending on the organizational context, principles will be more or less pronounced, and enacted in a variety of practices. They are further embodied in collective or individual mindsets, which influence the practices and vice versa. Mindsets and practices in return are supported and influenced by the manifold design thinking tools (such as the Stanford Bootcamp Bootlegs, IDEO HCD-Toolkit, etc.).

3 Some practitioners apply design thinking to achieve specific goals in a rather mechanistic manner, others in order to develop (best) practices and mindsets, which should help them become more innovative. This can happen a) without the intent of developing a dedicated *design thinking attitude* (principles and mindsets) or b) in the hope of disseminating and solidifying the principles of what is perceived in the organization as an innovation culture. Others believe that posture, i.e. the principles, comes first and that practices and mindsets are the mere enactment and embodiment of the latter. So whichever way it goes, it becomes clear that a certain co-evolution takes place. The mere application of techniques (e.g. ethnographic research or all the methods from i.e. the Stanford Bootcamp Bootleg (2010) and practices (e.g. empathy, user involvement, collaboration) may have an impact on an organizational culture. This means it can produce the corresponding mindsets in people that make them following the principles naturally.

“That continues to be our challenge. Building design thinking into all processes. It doesn't end when you have an idea that is really great.”

Wendy Castleman, *Innovation Catalyst Leader,* Intuit

Companies rarely have the posture first. Usually they start with the visible techniques and adapt certain practices. They might copy them from designers, innovative role-model organizations or entrepreneurs. They do this in order to implicitly or explicitly arrive at the principles (and sometimes mindsets), which are perceived as desirable *guarantors of success*[1]. However, not everyone might want to establish a design thinking innovation culture. Some might just use isolated elements like creativity techniques once in a while. Our data suggests that such an approach is appropriate as long as neglecting the interrelations of **mindsets, principles, practices and techniques** does not lead to disappointments (e.g. due to exaggerated expectations) and a situation in which the method gets blamed[2]. Given the right leadership and awareness, it is quite possible to diffuse design thinking practice in organizational culture in both ways: tools and practices towards mindset and principles, or vice versa (cf. Hatch, 2004)[3].

The data presented in this study reveals that managers have to be aware of design thinking in management discourse as still a concept in the making. **Its introduction at times leads to unintended consequences and side effects.** The reason for this lies mainly in the fact that managers are not sufficiently prepared to deal with the ambiguity design thinking creates. A conceptual lens as the one described above could provide them with valuable guidance to better understand the interrelations of those design thinking elements they currently use. This is important, as *their* way of doing design thinking might quickly become subject to internal and external discussions. Consequentially, it might unfold as a source of tension in the organization. **So if managers are more conscious of their very own design thinking practice they might be better prepared to judge what the approach potentially may become in their organizational context** (cf. *our twenty themes on p. 58*). This can prevent disappointed expectations as well as applications or notions of design thinking that are restricted permanently to a certain field of application too early in its introduction. The next subsection will therefore look at the role of management and how it can support the emergence of pleasant surprises in the diffusion of design thinking, as companies like Intuit and Citrix experienced them[4].

1 In their interview study, Carlgren et al. (2014) found five shared main principles **(focus on user, challenge the problem, include diverse viewpoints, make tangible, and experiment),** some of which were already the goal that many organizations in our sample wanted to achieve (cf. chapter 6: **focus on user** (T4, T7, T11), **diverse viewpoints** (T3, T17), and **experiment** (T14)). These principles already constituted qualities that justified an introduction of design thinking. Or in other words, diffusing one or some of these principles into all functions of the organizations was the goal for which design thinking was the chosen means.

2 Although small in numbers, we also had some responses that blamed the concept itself, without acknowledging its different representations (see chapter 8). Some reports in management discourse therefore also describe experiences of disappointment with the subject (Madsbjerg & Rasmussen, 2014, pp. 49–67).

3 This is described in detail in Hatch's 'Dynamics in Organisational Culture, ' (2004). Hatch proposes a model of cultural dynamics similar to Carlgren et al.'s (2014) conceptualization of design thinking. She argues that an organization's **values** (e.g. principles and mindsets such as being open for collaboration, embracing playfulness and experimentation, deferring judgment, etc.) are realized in **artifacts** (techniques and practices; e.g. flexible shared spaces and room set-ups, sticky notes, messiness and prototypes, behavioral manifestations like *brainstorming rules,* etc.). The artifacts become symbolized (conscious or unconscious associations with concepts or meanings, which also include leaders and managers, for instance direct superiors such as the CEO, or innovation catalysts). **Symbols** are interpreted and formed into **assumptions** (fundamental beliefs about reality and the nature of the organization; similar to principles, e.g. including diverse viewpoints, the user as measure of all things). These manifest themselves in **values** (or a certain collective mindset). As the whole process permanently happens in both directions, changes occur in "clockwise and counter-clockwise influences in time." If symbols and artifacts (techniques, practices) are aligned with existing organizational assumptions and values (current principles and mindsets), they might get absorbed pretty quickly. If however the ideas introduced to the cultural system are very *foreign, "[c]ultural processes of acculturation, accommodation, and reinterpretation [...] come into play, and change initiators must recognize that their sense of control over the process will be diminished as others confront the new artifacts, construct symbols with them and make their own interpretations of the meaning of the change and intent of the change agent."* (p. 207)

4 *"When we started this initiative, my wildest dreams weren't what it is today. It is so much in the culture. In the expectations that leaders have, that teams have, that employees have. The work that's done. The buildings are different [...] everything has changed about this company [...] other than just its general passion for customers. It's hard though to claim that that's all design thinking because of all the other things that happened in the same time."* (I4.2)

10.2

OUTLOOK – CONSEQUENCES FOR MANAGEMENT

Chapter 7 and 8 touched on several aspects of management's role in (not) fostering and facilitating design thinking. Although our respondents often mentioned that design thinking improves culture on a team level, we also saw many indications that their altered working modes stand in stark contrast to the working culture in the rest of the organization (chapter 7). Chapter 8 showed that failed design thinking initiatives in our sample usually sprang from issues with leadership and a lack of management support[1]. There are growing calls for managers to cease *delegating* design thinking work to teams. Because at its worst this means that design thinking work will get managed and measured to death according to the very management paradigms it was supposed to replace. Managers should rather act as role models for *design thinking behavior*. At least they should be knowledgeable about the concept and the structural and cultural consequences it may yield. Management that is not able to set a proper mandate, give enough space, remove barriers, and guard the *new foreign* working mode of their teams against the odds of the more execution-driven part of the organization is therefore still seen as a huge problem by both our respondents as well as our interviewees (I2, I3, I4, I5, I6, I7, I8). Figure 18 (next page) lists some typical side-effects management has to be aware of when introducing design thinking (Rhinow, 2015). Many of these effects threaten the status-quo of power relations between managers and their team members. This becomes especially problematic if management believes it can introduce design thinking as a tool (e.g. certain isolated methods and practices). Often out of the mere tool use, the aforementioned contrasting principles and mindsets emerge within the team. Teams often realize quickly which enabling conditions they need to really *master their tools*. As soon as they realize the gap between what is demanded from them versus which principles and mindsets are immanent to the organizations culture, conflict is inevitable.

1 Even positively formulated answers from our respondents provided us with many hints to what was seemingly lacking before the introduction of design thinking: *"The side effects are great: it teaches respect, patience, empathy and it's fun, which increases the quality of teamwork considerably." "[We are now] thinking more critically and creative."* Through its introduction people now feel they are allowed to *"encourage each other"* to *"think through crazy ideas"*, and they take *"ownership of problems"* or *"give shy people space to participate"*. Phrases such as *"it changed the mindsets of everyone"* or it *"force[s] entrepreneurship"* were found in quite a few answers in all parts of our survey. What does this mean for management? What are the consequences if people are empowered to finally "*think in an intrapreneurial way?"* What does it say about current management if respondents are relieved to finally have *"a language about innovation"* or if they feel they *"simply need the methods [...] to make up for missing product management"?*

WHAT MAY THREATEN THE STATUS-QUO OF MANAGERS

Design thinking can come with side effects. This is especially the case if elements of it get introduced to reliability-oriented environments without the explicit intention of initiating a cultural change (Martin, 2009c). We collected some of the most common threats:

- A strong user focus and a shift to experimentation may decrease 'predictability' of innovation efforts and increase ambiguity, even in daily operations. It will become more challenging for managers to 'plan and measure' organizational outcomes in the beginning of its introduction.
- Leadership will increasingly get distributed to teams, which replace classical notions of leadership[1]. This may lead to internal conflicts and might increase the costs of inexperienced teams at the outset of their design thinking practice.
- Problem reframing, experimenting and opening up to unexpected solution spaces empower employees to question their tasks at hand as well as overall strategic directives. Such an intellectual freedom is a byproduct that might not be desired from the outset. It quickly raises more broader questions, e.g. whether leadership is able at all to act within strategy and management paradigms that are appropriate for a design-centric organization.
- Diversity and multiple viewpoints are crucial. However, these might raise new discussions or more misunderstandings and conflicts if not facilitated properly. A shared culture of open and constructive feedback is needed to deal with these consequences while staying efficient.
- Design thinking never comes alone: every organization has to create its own interfaces on how to integrate it into its processes and existing working methodologies. If this challenge is not addressed adequately, the working surroundings might restrict or even contravene teams in their design thinking work.

1 *„[T]here may be multiple agents, and it has been observed that the great individual is sometimes a figurehead, a stand-in for the team. [...] agency is more complex when multiple interacting agents are involved. For example it is possible that a less powerful agent may well take the crucial action that determines the success or failure of a change.“ (Poole, 2004, p. 17).*

Figure 18: *Threats to the status-quo – possible consequences of design thinking's introduction (Rhinow, 2015)*

"[C]ontrol of the power of leadership lies in the sensitivity of managers to their own symbolic meaning."

Hatch (2004, p. 207)

The changing role of management

Leading design thinking teams or even a whole design-driven organization requires different leadership styles. Applying design thinking within traditional management paradigms yields the paradox that it will get regulated by the very circumstances it should change[1]. Managers who try to apply design thinking as a *quick fix* for their organizational problems tend to see the *enabling conditions* for design thinking as design thinking itself. Design thinking as a concept alone, however, cannot carry the burden of changing a whole organizational culture (if this is the goal). Only if it is enabled by pre-existing innovation capabilities,[2] it may co-evolve as an enabler and vehicle for cultural change (Carlgren 2015; I2, I3, I4, I5, I6, I7). The critical point seems to be co-evolution. The more design thinking becomes the very part of an organization's innovation capabilities, the more the cultural environment will change and vice versa (cf. Hatch, 2004; Carlgren, 2015). This implies: if design thinking should bring about change in the innovation culture of organizations, the role of management will have to change, too.

Change of course does not happen overnight. Only a few organizations seem to be willing to go the arduous route[3] of setting up a whole – or shall we say another – change program, which may accelerate a design thinking diffusion. Many organizations still willingly or unwillingly restrict design thinking's potential to more manageable areas of application (**like commercial innovation, customer engagement, PR and employer branding tool, or organization of team work and collaboration**). This is fine as long as it is their intention. But if not given the chance to unfold beyond these boundaries, much of design thinking's potential will remain unused. Side effects like growing shadow organizations with discontented teams may emerge. The few companies from our interviews that did not limit themselves early and gave design thinking a chance to diffuse in their organization, beyond its initial field of application, happily ended up with organizational change beyond their initial

1 This is also one of the reasons why former proponents of design thinking declared it *dead*. Bruce Nussbaum (2011) for instance heavily criticized the tendency to tame and squeeze the concept into old linear and industrial working paradigms. He believes an unreflected implementation leads to the same stage-gate thinking that design thinking was supposed to resolve – which could render his understanding of the concept useless.

2 cf. p. 117.: e.g. physical space, dedicated R&D time, training on all hierarchy levels, or financial support to name but a few.

3 *"I would say the companies who have any success are focused on their customers. I do talk to [managers of other companies] frequently. They are interested in the innovations. They want things that are going to be successful and raise them to a new level. However, if they don't actually care about their customer experience, it isn't going to work. Because in order to really be revolutionary and different and inspirational in things that people buy, it's got to solve their problem, right?" (I4.2)*
"I [also] started a LinkedIn group recently to bring people together who do not just talk about creating [...] a design thinking catalyst program, but who have actually taken action and created one. Thus far we have 15 companies on the list! There is really a lot of talk and very little action. [...] The model of a silo group, e.g. a design thinking or innovation consultancy group within the company, is much more prevalent. But then of course the impact of such a group is limited by how much you can touch." (I4.2)

“Design thinking is [sometimes treated as] a checkbox. ‘Ah yes, we talked to customers, we brainstormed, we did some prototyping.’ It was really awesome, that was earlier, now we're building stuff and we're gonna ship it [...]. I’m already done [with design thinking]!’

I hear that all the time. [...] That's a real challenge when trying to roll out design thinking in an organization that has other processes and ways of working. People absolutely genuinely believe that they did their design thinking.”

Wendy Castleman, *Innovation Catalyst Leader,* Intuit

imagination[1]. The time it takes design thinking to diffuse may also explain why the demand for design thinking metrics may be misleading or are requested too early for most of our respondents (Schmiedgen et al., 2015). How could they possibly measure what has not been internalized and therefore cannot yet be managed?

Allow measurements to emerge

Chapter 9 has shown that some companies such as Intuit have already learned to embrace design thinking's ability to produce 'creative detours' and problem reframing. They know that limiting problem spaces to their initial objectives will also limit chances to find related measurements. Intuit however has 7+ years of experience with design thinking. For most of our respondents, the perception of design thinking's outcomes instead follows the early stages of a cascade[2] (see figure 19, page 128), as proposed by Liedtka et al. (2013). First, **changes in how people think** become visible. They are followed by **changes in the internal conversation** and **measurable changes in perception**. Only then, they conclude, will **changes in hard measurable outcomes** become apparent (p. 204 ff.). *"If you shift people's mindsets, you set in motion a series of behavioral changes [...] and, ultimately ... the 'hard' outcomes they produce (p. 201)."* Organizations in the early stages of this cascade should therefore focus on measuring outcomes, such as activity and behavioral change within their teams and management before they turn their attention to financial ratios. Doing so prematurely might stifle any display of innovation behavior right from the beginning, as some of our experts learned.

1 *"When we started this initiative, my wildest dreams weren't what it is today. It is so much in the culture. In the expectations that leaders have, that teams have, that employees have. The work that's done. The buildings are different [...] everything has changed about this company [...] other than just its general passion for customers. It's hard to claim that that's all design thinking because of all the other things that happened in the same time."* (I4.2)

2 *"What we need to understand (and measure) is what produces those results. As managers, we do not want to manage profits per se but the behaviors that systematically lead to profitability. And so the questions that matter are what behaviors are associated with better outcomes and how we can encourage and ultimately measure them. [...] The outcomes produced by design thinking [...] represent only the tip of the iceberg of what matters to us in our search for the demonstration of design's impacts." (Liedtka et al., 2013, p. 205)*

"If you shift people's mindsets, you set in motion a series of behavioral changes [...] and, ultimately ... the 'hard' outcomes they produce."
(Liedtka et al., 2013, p. 201)

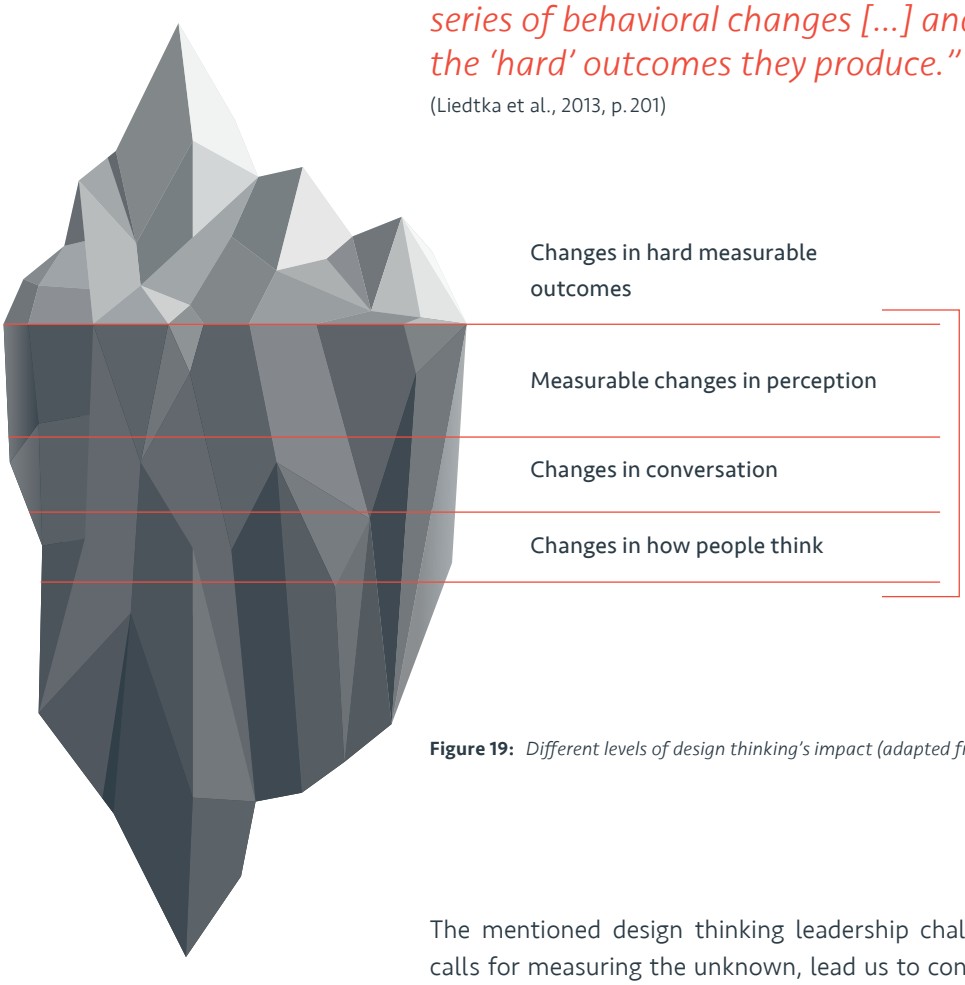


Figure 19: *Different levels of design thinking's impact (adapted from Liedtka et al., 2013, p. 207)*

The mentioned design thinking leadership challenges, as well as premature calls for measuring the unknown, lead us to conclude that **managers have to be more knowledgeable, realistic, and reflective when introducing or managing design thinking in their organizations.** This also entails being aware of the intended and unintended consequences mentioned, which could accompany design thinking.

Recommendations for action

For design thinking to thrive, and not be restricted to functional units, narrow fields of applications, or even lone fighters doing "their" design thinking against all organizational odds, managers should pay attention to some basic enabling factors as laid out in Figure 20.

WHAT TO DO?

- When rolling out design thinking, official top-level (CEO) and leadership support is needed right from the beginning.
- Management has to understand the importance of design thinking. This is best guaranteed by positioning leaders with design thinking experience across positions of power. Only such leaders know how to properly set the right constraints to middle-management and teams who will come in contact with design thinking.
- A design thinking rollout needs new support systems and processes. The main role of managers therefore is to organize the set-up of innovation capabilities, i.e. reduce barriers and institutionalize resources needed to practice design thinking. These are usually context-specific capabilities that might require structural changes. Often these areas have to do with time and access to resources and people, e.g. space, material, other colleagues, customers, etc.
- Design thinking diffusion requires the empowerment of key persons who have a leadership role and act as change agents (e.g. coaches, ambassadors, facilitators, catalysts, etc.), who help managers to better facilitate their teams. They will be the ones who help teams to set vision and focus as well as to challenge initial questions.
- Organizations will need different incentive systems. So far these systems have been tied to greater execution behavior.
- Attention needs to be paid to internal recruiting and promotion of leaders who already display behaviors associated with what the organization plans to adopt as their design thinking mindset.

Figure 20: *Enabling factors for design thinking*

Given these factors, the very purpose of leadership will be to first nurture the appropriate behaviors, principles and structural changes. This in turn can enable the autonomy necessary to allow design thinking to diffuse the organization. If management acknowledges the complexity of the concept and stays open to broaden its mandate, design thinking might spread beyond its initial realms of application.

Design thinking is, and always will be, a (un)learning journey for all of us. At best it becomes a journey where **parts become a whole** and bring about the kind of positive change that organizations fervently desire.

11

POSTFACE & ACKNOWLEDGEMENTS

This study is accompanied by an editorial preparation of qualitative case studies on the impact of design thinking in different organizations. Respective stories of design thinking successes and failure as well as further research insights will be published regularly at > ***http://thisisdesignthinking.net***
Our goal is to provide an open platform for the community of design thinking researchers and practitioners in order to further elaborate the concept with and for everyone. We warmly invite the readers of this study report to become an active part of this endeavor. For more information feel free to refer to our site's FAQ section or contact us at thisisdesignthinking@hpi.de.

We thank all our survey participants and expert interviewees who had the patience to either fill in the questionnaire or bear our many questions.

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12

12.1 ANNEX STUDY DESIGN

Data Collection

We collected survey data[1] from March to June 2014, and interview data from March to April 2014. The participants were chosen by convenience sampling and via a multitude of channels. First we did desk research and collected names of organizations that officially claim to practice design thinking. Second we sent out a call for participation via a mailing list from our own institution including > 500 design thinking practitioners and to our mentioned collected list that was produced by desk research. Finally, we placed the same call on our websites[2] and spread it via social media channels – especially Facebook and LinkedIn groups. The main sampling frame was drawn with regard to only those organizations that consciously associate themselves with design thinking as a descriptor for what they are doing.

In chapter 3.3, p. 25 we introduced the list of our qualitative interview partners with whom we had personal conversations of about 60–90 minutes per organization. As soon as we realized that the majority of our survey participants have fewer than three years of design thinking experience, we decided to select two groups of interview partners. The five interviewees of group one (I2–I6; see Table 1, p. 25) were chosen as they have had more than seven years of design thinking experience on an organizational level. Here we strove for a balanced mix of organizations. These organizations are either associated with the successful implementation of design thinking programs,[3] and even served as role models in initiating the current design thinking movement. We further included at least one organization that is perceived as experienced, but which is often associated with having problems in its implementation of design thinking.. The remaining two organizations (I1, I8) were selected to collect contrasting information from organizations that integrated design thinking just recently. However, it is important to note that independent from their *organizational design thinking maturity*, our interview partners were all experienced design thinking experts. Only one had fewer than three years of experience with the subject.

1 We used the *Qualtrics* software suite to construct our online survey.

2 http://hpi.de/en/dtrp/projects/projects-201314/impact-by-design-how-design-thinking-affects-international-organizations-and-vice-versa.html and http://research.thisisdesignthinking.net

3 Based on desk research in the business press and design thinking literature, we looked for organizations mentioned most as either having a *design tradition* or design-driven change programs.

The quotes of our interviewees bear grammatical irregularities due to spoken language. If necessary we edited these irregularities within the running text to achieve a better readability.

Data Analysis

As displayed in Figure 1 (chapter 3.1, p. 15) we started with a statistical analysis of all closed survey questions (1.1). The responses of the open-ended and half open questions (1.2) went through a manual and inductive coding process. Two independent researchers coded them. Emerging themes and categories were discussed and aligned for inter-judge reliability and appropriateness. Major themes were identified and prioritized according to their frequency of occurrence (2). Relations and common patterns of interpretations in the resulting data were then identified for final interpretation. This was not only done for the final evaluation of the data (4) but also via several intermediate steps, which informed the themes of our semi-structured interview guides (3).

The themes and categories we deduced from the open-ended questions are all arranged in their order of priority, i.e. whether there was a strong, medium or weak frequency of occurrence of the particular patterns. If interesting outliers emerged, we addressed them too. Survey data is complemented with findings and quotes from our qualitative interviews (3). Such text occurrences are marked by an attached ID (e.g. (I4.1)). If not stated otherwise, all text occurrences which are set in “” quotation marks and with no source reference attached to them are original quotations from our survey respondents.

12.2

ANNEX TABLES AND FIGURES

The different design thinking discourses according to Johansson-Sköldberg et al. (2013)

Discourse streams	Originator	Discourse Character & Academic Perspective	Relation to Practice / Epistemology Core Concept	Audience
Management discourses	**IDEO & other industry leaders**	Showcase success cases → *experiences, some connections to innovation research*	How we do design thinking *(Kelley & Littman, 2001, 2005)* and how anyone can use it *(Brown, 2008, 2009; Kelley & Kelley, 2013).*	*Company managers (potential customers)*
	Roger Martin (2006, 2009a, 2009b)	Use success cases to illustrate theory development → *cognitive/ management science/ planning theories*	How successful production companies use design thinking and how 'any' organization can do it.	*Company managers & educators (academics, consultants)*
	Boland & Collopy (2004)	Scholars apply their theoretical perspectives to the design area → *different perspectives*	Design thinking as analogy and alternative.	*Academic researchers & educators*
Design discourses of *designerly thinking*	**Simon** (1996 [1969])	Economic & Political science	Rationalism: *The science of the artificial*	*Academic researchers & educators in the design field*
	Schön (1983)	Philosophy & Music	Pragmatism: *Reflection in action*	
	Buchanan (1992, based on Rittel & Webber, 1973)	Art history	Postmodernism: *Wicked problems*	
	Lawson (2006 [1980]); **Cross** (2006, 2001)	Design & Architecture	Practice perspective: *Designerly ways of knowing*	
	Krippendorf (2006)	Philosophy & Semantics	Hermeneutics: *Creating meaning*	

Table 5: *The streams of 'designerly' and 'managerial' design thinking discourses (adapted from Johansson-Sköldberg et al., 2013, p. 130)*

Register of Illustrations

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LIST OF ABBREVIATIONS

AMER	*America*
APAC	*Asia-Pacific*
B2B	*Business-to-business*
CDR	*Center for Design Research at Stanford University (A community of scholars focused on understanding and augmenting engineering design innovation practice and education)*
CEO	*Chief Executive Officer*
CFO	*Chief Finance Officer*
DT	*Design Thinking*
EC SME	*European Commission Micro, Small and Medium-sized Enterprise classification*
EFQM for C2E	*Quality control assessment and recognition scheme Committed to Excellence*
EMEA	*Europe, Middle East and Africa*
FAQ	*Frequently Asked Questions*
G-D logic	*Goods-Dominant-Logic*
HR	*Human Resources*
ICT	*Information and Communication Technology*
IT	*Information Technology*
KPI	*Key Performance Indicator*
ME310	*Mechanical Engineering Course Number 310 (Program in which master's-level engineering and design students from top global engineering and design universities solve design challenges for corporate partners)*
MOOC	*Massive Open Online Course*
NPD	*New Product Development*
NPS	*Net Promoter Score*
PR	*Public Relations*
R&D	*Research and Development*
S-D logic	*Service-Dominant Logic*
UCD	*User-Centered Design*
Ux	*User Experience*
UxD	*User Experience Design*

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