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# Measuring the impact of design, service design and design thinking in organizations on different maturity levels

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## Abstract

While there is increasing interest in design, isolating its effects in compound results is challenging. Indeed, several studies point to practitioners struggling in finding appropriate metrics for their needs. We review extant design, service design and design thinking literature, mapping metrics to the different levels of design utilization in organizations suggested by the Danish Design Ladder. Our mapping reveals a particularly pronounced lack in appropriate measures at the final level of design as strategy. Furthermore, we identified extant metrics to reflect two groups of external evaluations – market and customer reactions – and four groups of internal evaluations of outcomes and operations. Moving on to more extensive or mature levels in design utilization, the emphasis on and variety of internal metrics were found to increase. Our illustrative case study of measuring design outcomes at OP Financial Group suggests this may be due to a shift in the aim of measurement from overall legitimatization to more nuanced development.

**KEYWORDS:** design, design thinking, service design, metrics, design utilization, organizational maturity, legitimatization, development, The Design Ladder

## Introduction

During the past decade, much has been written about the strategic value that design, service design and design thinking can add to organizations. Various reports have established a positive effect of design on project and company outcomes, such as product success and company brand (e.g., Candi et al 2010) and company profitability (e.g., SVID, 2008; The Design Council, 2008). The Design Management Institute's Design Value Index has shown the portfolio of "design-centric" companies to outperform the S&P 500 now for several years in a row (Rae, 2016). However, the time lag and intervening variables in achieving effects, and the very breadth of the potential impact of design make these measurements

difficult. The comparisons remain on a relatively high level of analysis, making them “nice to know” but not necessarily metrics that can be used for managing and developing operations in a company.

Despite the wide-spread interest on design thinking among practitioners, there remains an internal need to demonstrate its usefulness in large organizations. “Selling” design in business organizations and educating managers to think like designers can be seen as problematic (Carr et al., 2010). This can be legitimized by first offering proof of concept through the involvement of external experts, then developing internal success stories, and finally developing project-based metrics to measure the effect of design (Rauth et al., 2014). Indeed, the work conducted by Rauth and colleagues suggests that organizations will have different needs according to their level of adoption of design thinking – necessitating “more explicit ways to prove [design thinking’s] value once the initial honeymoon was over”. Frameworks for assessing the maturity of design usage in organizations typically consider both applications areas and extent of design efforts. The Design Ladder (The Danish Design Centre, 2001, see also Figure 1, below) describes four different maturity levels of using design in organizations – non-design with a lack of systematic use of design, design as finishing touch of form giving, design as an integrated development process, and design as a key strategy in business models. Similarly, the Design Value Scorecard (Westcott et al., 2013) tracks the maturity of design (ranging from ad hoc utilization to optimized, proactive processes) against three areas of utilization in the organization:

1. development and delivery (aesthetics and functionality),
2. organization (connecting and integrating)
3. strategy and business models

The Design Maturity Matrix (Artefact, 2015), in turn, has five maturity levels (initial, adopted, managed, integrated and driven) that are assessed relative to five different areas in organizations:

1. empathy (the organization’s understanding of its customers),
2. mastery (the organization’s quality of execution in design thinking and crafting)
3. character (the maturity of the organization’s support for design, design thinking and of professional designers)
4. performance (the market response to the design output of the organization)
5. impact (the maturity of the organization’s actions around its cultural, social and environmental legacy through design)

All of these three frameworks (the Design Ladder, the Design Value Scorecard and Design Maturity Matrix) suggest a progression from the outskirts of the organization to its very core. Attempts to create metrics for the impact of design, however, have rarely taken into account these different levels of organizational maturity and areas of application of design, making it difficult to create or choose metrics that are fitting to the organization at hand. As a result, most companies do not measure the effects of design in their organization (DROI, 2012; Schmiedgen et al., 2016).

The current study reviews existing metrics, combining them with the four-step Design Ladder (The Danish Design Centre, 2001). As research on measuring the impact of design is still rare, and the entirety of service design is still an emergent field (Fayard, et al., 2017), we were unable to conduct a formal literature review within measuring the impact of service design, rather we searched for metrics and relevant results in the context of design in general, service design, and design thinking alike (with search words such as impact, metrics and measurement). This necessitates examining the broader impact of design. As Foglieni, Villari and Maffei (2018) point out, there are two streams related to service design that can be evaluated, one being the service itself and the second being “the evaluation of service design as an approach that can bring value to organizations” (p.71). The current paper focuses on measuring the impact of the latter, as while demonstrating the quality and impact of the

products, services and programs created can certainly be helpful, design and designers have likely represented only a portion of contributors towards the end result and isolating their effect may be challenging. Thus demonstrating the quality of the end results is insufficient for demonstrating the usefulness of design, service design or design thinking in organizations.

The Design Ladder was chosen as the framework for mapping the found metrics as it has been utilized in one of the largest design maturity rankings to date, with the Innobarometer collecting self-ratings from 13 112 European companies on which level of the ladder they were (BEDA, 2017). In this single question self-assessment, design as form-giving was reported by 14% of the respondent companies, and the last two ladders of design as an integrated process and design as strategy were reported 18 and 12% of the companies, respectively. However, a full 37% of respondent companies did not use design at all and 17% of companies were on the first level of the ladder, using design only occasionally. Only 2% of respondents had marked not knowing the answer. This not only illustrates the variety in design utilization – and hence subsequent measurement needs – at European organizations, but also suggests that the Design Ladder possesses sufficient ease for organizations to map their operations against.

In addition to mapping the found metrics to different levels of the Design Ladder, we grouped the found metrics according to thematic similarity (criteria in the categorization processes are explained in more detail below). We then present an illustrative a case study of advancing design and measuring its impact in OP Financial Group to work though how these measurements may be used in practice, identifying potential benefits and challenges. Finally, we provide recommendations and ideas for future research.

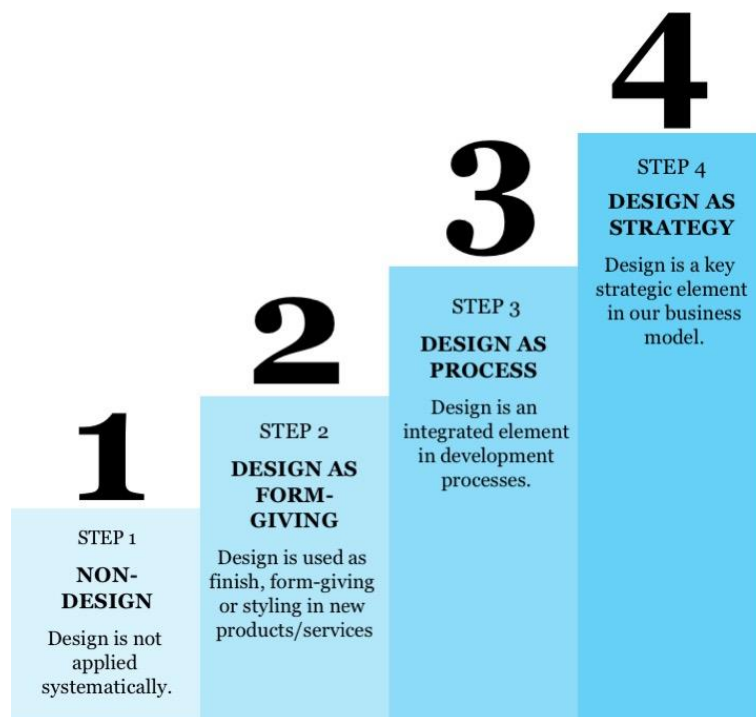


Figure 1. The Design Ladder (based on the Danish Design Centre, 2001)

## Mapping suggested metrics to the Design Ladder

Reviewing extant literature on measuring the impact of design in organizations, we grouped the suggested metrics of each literary source according to which level of the Design Ladder the metric would be suitable. This was based on three criteria: thematic similarity of what was being measured to the scope and role of design described on each level, addressing needs of legitimization and justification of the material and immaterial investments made in design at each level of the ladder, and finally, demonstrating growing the scope of design utilization in the organization. We note that there are several potential reasons and audiences for impact measurement, and have focused primarily on evaluative or summative measurements used as proof of something working, rather than formative measurement of the design output as such, aimed at improving the design (Drew, 2017).

### Non-design (level 1) – external benchmarks

On the first maturity level, design is used only sporadically, and as a result, measuring its impact is unlikely. This first stage could be compared to the first-step legitimization tactic of offering a proof of concept through the involvement of external experts (Rauth et al., 2016), pointing to the positive impact of design in other organizations: Anecdotes of the impact of design in other companies, found in numerous presentations, trainings, books and for instance [www.thisisdesignthinking.net](http://www.thisisdesignthinking.net). Practitioners also refer to the large number of design agencies acquired by large organizations and increasing design-oriented venture capital in recent years as a sign of the increasing commodity of design in organizations (Maeda et al., 2017, 2018).

Organizations on this level might also find studies on the effect on design on organizational performance. For example, the Design Management Institute's 2015 Design Value Index, based on a portfolio of 16 "design-centric" companies, shows a 211 % return over the S&P 500, making it the third year in a row for results in excess of 200 % over the S&P (Rae, 2016). To qualify as "design-centric", the companies of the index needed to meet a set of six criteria:

1. Design operates at scale across the enterprise.
2. Design holds a prominent place on the company organizational chart, and either sits on the leadership team or directly reports to a leadership team member.
3. Experienced executives manage the Design function.
4. Design sees a growing level of investment to support its growing influence.
5. Design enjoys senior leadership support from the top tier of the organization.
6. The company has been publicly-traded on a U.S. exchange for the last ten years and thereby adheres to GAAP accounting rules.

A similar comparison from a decade earlier shows how share prices of UK companies that use design effectively have outperformed the rest of the market (Rich, 2004).

The Design Council's (2008) report (based on a survey of 1500 business, out of which 250 were identified as "design alert", and interviews with 503 businesses) highlights that businesses that increased their investment in design over the past three years also increased their chances of turnover growth. They also found that businesses that see design as integral are more than twice as likely as others to see rapid growth. Examining the Innobarometer data, in turn, revealed that only 44% of companies that did not utilize design had introduced a new innovation, whereas 94% of those self-reporting as at the highest ladder had introduced at least one innovation (BEDA, 2017).

### Design as form-giving (level 2) – external and internal metrics

On the second maturity level, design is used as a finish, form-giving, or styling in products or services. In addition to the very high-level comparisons between a company's "design-

centricity” and its financial success, more detailed explanations are sought. For example, companies’ efforts in product design have been shown to attract investments. According to Aspara (2009), investor’s positive product design evaluations tend to generate optimism about the financial returns of a company’s stock – and even elicit “extra willingness” to invest in the company, over and beyond its expected financial returns.

In addition, comparisons between specific design endeavors and certain financial key performance indicator become relevant on the second level. A redesign of a package may lead to sales increase in a given product, for example, or new product design may lead to cost savings, reductions in time to market or external recognition in the form of awards (Westcott et al., 2013) Companies may start to compare those KPIs already at use in the organization between those products and services where design has been involved and those that have not utilized design, looking increases in sales, revenue and return-of-investment, as well as customer satisfaction (Schmiedgen et al., 2016). Of the minority of organizations that do measure the impact of design thinking, a survey of 403 companies suggested external measures of customer satisfaction and received feedback were the most common metrics (Schmiedgen et al., 2016).

Towards transitioning from level two to level three, practitioners in technology organizations may also track or benchmark the ratio of designers to developers. Venture firm Kleiner Perkins (2017) and Techcrunch (Field, 2017) draw attention to a number of leading companies increasing the proportion of designers on their payroll, such as IBM jumping from a ratio of one designer to 72 developers in 2012, to one designer to eight developers in 2017. Growth in the design budget can also illustrate extending the reach of design (Westcott et al., 2013).

### **Design as process (level 3) – internal and external metrics**

On the third level, design has become an integrated element in product or service development processes. Here design is not an add-on, something that is performed on a product or a service, but an integral part of the way products and services are developed. Designers have a role in the beginning of the development process, where they seek to understand customer needs, and products and services are then designed to meet these needs. Design becomes design thinking.

As the advocacy of customers has now moved into the company in a form of designers, measurements from the customer’s point of view increase in relevance whereas traditional means of performance measurements are often found ill-suited for evaluating the impact of design thinking. This means analyzing customer feedback and measuring satisfaction, net promoter scores, or brand loyalty, for example. Also conversion, lifetime customer value, and market share may be measured. (Schmiedgen et al., 2016, Westcott et al., 2013) In addition to such external measures, internal and offering metrics linked to customer satisfaction may be tracked, such as customer centricity and offering related usability metrics (Schmiedgen et al., 2017). Roth and Royalty (2016) also suggest adding an internally judged measure of outcome value and novelty, based on an average of anonymous ratings provided by the team members.

Even though traditional KPIs such as sales numbers, ROI per project, and other financial measures are still valid, it becomes more relevant to measure the value of design thinking internally. This means measuring design thinking activities, such as the number of projects, concepts finished, or people trained in design. Also internal feedback at different stages of the design thinking process can be collected. (Schmiedgen et al., 2016)

Roth and Royalty (2016) suggest a number of measures on the internal process rather than project outcomes or the involvement of designers. Based on data from interviewing design thinking trainers in four organizations, they suggest measuring three running totals in projects: the number of days gone without contact with end users, number of users spoken

to, and the number of categories of users interacted with (such as elderly users or millennials). They also suggest listing prototype iterations, to measure both the overall amount and concurrent, parallel prototypes, as these have been linked to stronger outcomes in previous research.

Finally, Foglieni and Holmlid (2017) propose a 3-by-3 framework for service evaluation. with before, during and after use of the service. From the provider sphere, they note that profitability, feasibility, effectiveness, assurance, empathy, responsiveness, efficiency and productivity can be evaluated. From the customer sphere, desirability, credibility, brand equity, customer satisfaction, customer effort, social significance, loyalty and recommendation can be tracked, and from the joint sphere, visibility, accessibility, utility, interactivity, engagement and reliability can be evaluated. Although perhaps more geared toward improving the services, changes in these measures can be used to demonstrate the effects of design efforts.

#### **Design as strategy (level 4) – internal metrics**

As design moves to a strategic level, it becomes the way of doing things, rather than a part of the offering development process. On this level, design thinking is used for identifying new business opportunities or business models, or even for transforming the organizational structure to support customer-centricity. The subject or target of design is thus no longer limited to the products and services of the company. Organizations may continue to measure brand perception, market valuation and profitable growth (Westcott et al., 2013), however, the traceability of changes in these to design specifically – rather than other factors – is weak. For example, Cisero and colleagues (2017) have suggested measuring strategic KPIs, design principle metrics and overall business goals to help design for business impact to see whether better designs are effective in pursued strategies and whether the strategies in turn are effective for business performance. Entering new markets might be connected to strategic design, and the seniority of design positions within the organization can illustrate a change in the relative prestige of design in the organization (Westcott et al., 2013).

While these and the metrics on the previous three levels remain relevant, they do not offer much information for improving operations further. Indeed, many organizations reported that while they used these measures, they did not find them particularly valuable (Schmiedgen et al., 2016). Only the suggested metrics of Roth and Royalty (2016) are specific enough to suggest specific behaviors. They may in turn be rather laborious to track on a continued basis and require some training for accurate measures – the number of prototype iterations, for example, may not be that straightforward when design thinking or service design is applied in for example HR policy rather than the user interface of a mobile application.

We struggled to find metrics for isolating the effects design on a strategic level. However, another aspect that characterized the fourth level is design assimilating to the core of the company and its operations, suggesting a relative gain in the importance of internal measures. Rauth and colleagues (2014) describe a company measuring employee satisfaction scores to illustrate how the spread design thinking had affected employees, and Schmiedgen and colleagues (2016) found a few organizations that measured the impact of design thinking on working culture through employee motivation, engagement, team collaboration and effectiveness. In the context of educational outcomes, Roth and Royalty (2016) suggest measuring creative agency scores to demonstrate gains on a 11-item self-report survey. They also suggest sampling team collaboration through Interaction Dynamics Notation (Sonalkar et al., 2013). While perhaps unrealistic for corporate use, this would allow academics to measure potential changes within organizations under study.

## Thematic categorization of the found measures

After mapping extant literature to each of the four levels of the Design Ladder, we proceeded to classify the found metrics according to what they measured. First, the metrics were divided into *external* and *internal* metrics based on whether they examined internal or external evaluations or operations. Market and customer reactions were classified as external evaluations, whereas employee assessments were classified internal, as were metrics on the internal operations of the company (such as the composition of staff). Second, internal and external metrics were grouped according to the thematic similarity of the target of measurement. Here, we found two repeated groups within external metrics – *financial performance* and *customer evaluations* – and four internal groups – indicators of the *extent of design usage* within the organization, internal evaluations of the *project outcomes*, *development process* metrics and *employee outcomes*. The resulting matrix of organizational maturity and metrics classifications is presented in Table 1 (below).

Table 1. Metrics for the impact of design on each level of the Design Ladder (with metrics from previous levels remaining relevant on subsequent levels, but with decreasing emphasis).

	Performance and operations	LEVEL 1 Non-design	LEVEL 2 Design as form-giving	LEVEL 3 Design as process	LEVEL 4 Design as strategy
<b>External</b>	Financial performance and valuation of the company	Benchmarking other, more design-centric, companies: Share prices Turnover growth Performance Acquisitions of design agencies Amount of innovations	Sales Revenue Return-of-investment (ROI)	Market valuation and market share Growth profitability	
	Customer related metrics		Customer satisfaction and feedback	Lifetime customer value Net promoter scores (NPS) Brand loyalty Brand perception Brand equity Conversion	
	Other		Product/service awards		Entering new markets
<b>Internal</b>	Design extent and emphasis indicators		Ratio of designers to developers Growth in the design budget	No. of projects No. of concepts finished No. of people trained in design	Seniority/rank of design positions within the organization
	Project outcomes		Cost savings Reductions in time to market	ROI per project Value and novelty of resulting service or product (averaging anonymous internal ratings) Usability metrics of resulting service or product	
	Development process			Internal feedback Amount and frequency of contact with users (running total of days without interaction with user, amount of users interacted with, amount of user categories interacted with) Amount and concurrency of prototype iterations (list with open/closed status)	Team collaboration (e.g. Interaction Dynamics Notation) Team effectiveness
	Employee outcomes			Customer centricity Responsiveness Empathy	Employee satisfaction Employee motivation Employee engagement



## Case OP Financial Group – design metrics on different maturity levels over time

To illustrate measuring the impact of design at different organizational maturity levels in design utilization, we investigated a case of an organization from an industry that traditionally has had very little contact with design – the financial sector. The selected case company, OP Financial Group, is the largest financial company in Finland, offering services in banking, non-life insurance, and wealth management for business-to-customer and business-to-business markets. The case description was formed iteratively and collaboratively based on both the experiences of two of the authors working in the design and customer research functions of the company, and based on discussions with design management staff in the company and going over company documentation.

In 2011, OP hired its first in-house designers in Oulu (a city in Northern Finland, 600 km away from Helsinki, the capital), where a new development unit was established. Using user-centered design methods, the first outcomes were two mobile applications that were, and still are, successful. At this low maturity-level, however, the impact and reach of design within the organization was still clearly limited in scope: the designers were working only within offering channels (mobile and web) and not on any business areas. The design practice itself covered both service and UX design right in the beginning of the development unit. The use of user analytics per application could be seen as early attempts to measure the impact of design in the very beginning. Later on in 2012, Net Promoter Score (NPS) measurements were launched in order to track whether customers would promote the applications to others. Despite the positive effects of using design methods, design practice did not at this time spread from the Oulu development unit to the headquarters in Helsinki and was carried out only in separate channels.

In 2014, steps were taken to extend the scope of design at OP. The Helsinki office formed a design subcontractor network to support business units. This allowed for inserting design to all business areas, but still kept design practice on a very operational level. Designers entered the development process usually very late in the project, only to contribute in user interface design.

Late 2015, OP started hiring more strategic designers, such as service and business designers. Nine new designers were hired to support the early stages of the development process, as well as to support business units in decision making by bringing in customer insights and by creating early stage prototypes. At this point, OP started referencing to the Design Ladder (The Danish Design Centre, 2001) in order to understand the level of design maturity in the organization. The goal was set on the fourth, highest ladder in the model. While reflecting on where the organization currently was on the ladder, OP started measuring “Design percentage” to capture how systematically design was considered in development projects. This represented the percentage of the development projects utilizing designers, design methodology, or design thinking at some point during the project from idea to launch. In January 2015 only 10 % of the projects utilized design, whereas in December 2015 the design percentage had gone up to 38 %. By the end of 2015, NPS had become a somewhat standard metric in the organization both on a brand level and on touchpoints.

As the whole financial sector is facing disruption, in 2016 OP announced its new strategy for aiming to become a multidisciplinary service company, expanding its offering to new business areas. The company also announced plans for almost doubling its investments on R&D. Both changes drive demand for design and designers not only in operational but also strategic design. During 2016, the OP designers already worked in ca. 150 projects, the

design percentage reaching 78 % by the end of the year. During that time, the role of designers had evolved to become members of the project team from the beginning to the end. This placed OP firmly on the third level on the Design Ladder, where design is an integrated process in the organization. While the design percentage allowed for a concise illustration of the growing extent of design in development projects – the percentage approaching 100 % – it no longer captured the extension in the role of design in the organization. New measures were needed to track and improve the impact of design.

In 2018 (as we write this article), OP is aiming at reaching the fourth ladder: design as strategy. Currently OP has 84 designers working daily (48 internal, 36 external designers) in an in-house design agency. This, in fact, makes OP Design one of the biggest design agencies in the entire country of Finland. When a company invests this much in a function, the need for measuring its value becomes pronounced. In a self-assessment conducted through the Design Maturity Survey (Artefact, 2015) in 2018, the five pillars of design capabilities ranged from managed to integrated, with cultural, social and environmental impact ranking as the most mature design capability in the organization. This highlights that while still informative, NPS and the design percentage no longer capture all of the intended targets of design. While one can separate the internal and external impact of design on lower maturity levels in the Design Ladder model, on the fourth level where design starts to become a strategy, it affects the organizational culture so widely that isolating the impact of design within a holistic service experience starts to become impossible and secondary. This led OP to decide focusing on measuring the internal impact of design in three different ways. As it had become acknowledged in the organization that design drives better business, external metrics no longer served their purpose.

Currently, in 2018, OP measures design impact in three different ways:

- 1) *Feature turnaround time.* When services and features are better designed, the development is faster. The focus is on developing only things which are meaningful for customers and drive business results. There is less waste in OP's development.
- 2) *Internal satisfaction for design projects.* After a project is finished, project participants are surveyed. They are asked questions such as "Did you learn something new?", "Did the design methodology bring new innovations?", "Would you recommend design tools to your colleagues?". This measures organizational learning and satisfaction in design thinking, and provides qualitative input for further developing the role of design in the organization.
- 3) *Innovation maturity in the whole organization.* Rather than track the impact of design on the end-result or sales numbers, for example, OP now strives to show the connection between design thinking and innovation maturity on an organizational level. A large sample of OP personnel is surveyed two times a year in order to understand the innovation maturity and the cultural change in the organization. Employees answer on a scale from 1 to 7 to claims such as "I find design relevant to my own work", "I have a possibility to learn how to apply design in my own work", "At OP, design is a key ingredient in developing new products and services", "Design is a key element in business development", "Design gives OP a competitive advantage". The survey provides an executive view on cultural change and design thinking maturity and gives actionable results for leading this change in the organization.

At this stage, aiming to reach the fourth ladder, the company has found these three internal metrics a sufficient base for further development efforts towards the final level of integrating design to strategy. When moving to the fourth level of the Design Ladder, the next step would be measuring the strategy in action – what are the concrete actions in practicing design as strategy and what are their impact to the business.

## Discussion and conclusions

While design, service design and design thinking are growing in popularity, measuring their impact is challenging due to difficulties in separating the influence of design specifically from other internal approaches affecting organizational outcomes. This is particularly evident on the higher maturity levels in design utilization, when the role of design transitions from form-giving to an overall process and strategy. Our review of the literature revealed scant metrics, with companies either not attempting to measure the impact of design at all or then looking for increases in financial performance or customer satisfaction (e.g. Schmiedgen et al., 2016) which might coincide with increased investments in design, but would not allow teasing apart the impact of design from other operations. While impact measurement literature were searched for in design, service design and design thinking alike, nearly all of the identified academic studies had been framed in terms of the impact of design or design thinking rather than service design. In general, practitioner literature was more abundant than scientific studies on the issue. Clearly there is more work to be done.

Comparing existing metrics and different levels of design utilization maturity, we suggest that as companies progress within the Design Ladder, the focus shifts from external to internal metrics. In the first two levels of the ladder, the main need for metrics is the legitimization of design investments, first by referring to external benchmarks, and then by illustrating the gains made within the company through initial investments. Moving from the second to the third level of the ladder, tracking growth in the utilization rate of design provides feedback on the efficacy of efforts and highlights the transformation in the organization. However, as design becomes integrated to development efforts on the third level of the ladder, more nuanced measures are needed to inform of the state of design and design thinking within the organizations and track progress.

As design permeates strategy on the fourth, final level of the ladder, external benchmarks become even less useful. While companies may start to connect design to employee engagement and satisfaction at this level, most studies do not deal with metrics that would be particularly useful at this comprehensive level. Schmiedgen and colleagues (2016) suggest that project-specific traditional measurements and a story-based approach of showcasing each effort might be most useful. However, this makes comparison across projects, functions and divisions challenging, and might not be particularly helpful for informing subsequent development efforts in design and in the organization. As progress is crucial for development motivation (Amabile & Kramer, 2011), we would argue that organizations in the fourth level would continue to benefit from being able to systematically track the impact of design. This seems to be echoed in our case study of measuring design at OP Financial Group during the past six years.

Indeed, metrics that would allow isolating the effects of design are missing from all levels of maturity in design utilization. However, demonstrating improvement in traditional key performance indicators accompanied with increases with the utilization of design might serve organizations well enough in their legitimization and development efforts on the lower levels of the ladder. Once design becomes integrated to the operations of a company, more nuanced measures are required to support continuous development efforts. We would thus suggest that new measures for the impact of design are most needed on the most advanced levels of design utilization, where design is built-in in the organization. This could mean developing metrics to measure organizational development in design rather than measuring the effects of design per se, moving from evaluative to formative impact measurement (Drew, 2017). Proceeding on the design utilization ladder, design may have already gained legitimacy and a certain face value at the organization, lessening the need to demonstrate its usefulness. Organizational actors may become more concerned in gaining information that can be used in further developing *how* to use design, rather than *whether* or *when* to use it. Measuring such organizational development in design at OP, for example, could mean following how design thinking is applied on organizational level – tracking the evolution of

the organizational structure from company-centric to customer-centric – or how it is used in business model creation more specifically.

In sum, while measuring the impact of design remains elusive, current metrics may suffice in legitimizing increased organizational investments in design. The discrepancy between existing measures and organizational needs becomes more pronounced transitioning to design as strategic – here both academia and practitioners stand to benefit from a better understanding of the dynamics. The need for these strategic level measurements might be particularly pronounced in service design, the rise of which has been ascribed to designers seeing the necessity to “move upstream” in the innovation process with a more holistic approach (Fayard, et al., 2017). Longitudinal research, in particular, on strategic design efforts in organizations is acutely needed to illuminate the key mechanisms, effects, and successful practices in design to enable continued development as the organizational maturity level of design utilization grows.

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