



## **Designing for behavioural and institutional changes**

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### **Abstract**

Although the popularizing approach of behaviour design and the recently-introduced perspective of service ecosystem design (Vink et al., 2017; Vink, 2019) differ significantly in their purpose, focus, and theoretical backgrounds, these differences actually indicate an opportunity to integrate the two, to complement each other and facilitate behaviour and institutional changes simultaneously. To clarify the benefits and demonstrate the procedure of such an integration, this paper introduces a pilot study to implement the integrative design approach for a corporate project which aims at applying design thinking to their sales activities. The results show that the proposed approach helps designers and stakeholders to understand entangled relations between behaviour of employees and organizational social structures and also to uncover wider opportunities and more impactful strategies for change.

**Keywords:** behaviour design, behaviour change, service ecosystem design, institutional change

## Introduction

It is a known fact that service designers always influence on users' behaviour, as introducing a new service necessarily solicits and causes behavioural changes. It is especially important for the designers to navigate and support intentionally the expected behaviour of users for cocreating values in use. Moreover, in recent times the human race cope with social and economic issues requiring behaviour changes in various domains including healthcare, energy saving, finance, education, safety, and corporate human resources (OECD, 2017; Afif et al, 2018). Growing concerns about those issues increase the demand in services, of which behaviour change is their primary value proposition (Risdon, 2013; Niedderer et al., 2017). Furthermore, the high penetration of smart phones and wearable devices with the capability to sense, analyse, and intervene in human behaviour as well as the popularization of knowledge and techniques for applying behaviour science provide designers with opportunities and more credibility to improve user behaviour and develop behaviour changing products and services (Wendel, 2013).

In a typical service design project which resorts to a behavioural approach, designers first set a specific behavioural outcome and an expected target behaviour to promote or inhibit achieving the outcome. Usually a certain gap between expected and actual behaviours is defined as a problem to solve. Then designers utilize knowledge of behavioural science such as cognitive biases and heuristics in order to understand the nature of barriers against the expected action and explore effective strategies to overcome them (Datta & Mullainathan, 2014; Tanita, 2017). This approach is basically founded on the idea of a cause-and-effect relationship between human cognition and behaviour, which support designers well in solving behavioural problems. Designers and organizations welcome such scientific rigor expecting to prove the effect of design interventions (Mahamuni, 2018; Risdon, 2017). However, this approach also invites some risk of understanding the problem too narrowly in terms of behavioural and psychological conditions without considering organizational, social and cultural contexts (Lambe et al., 2020). In addition, it tends to limit the means of intervention and solution to communication and interaction at specific touchpoints (Van Lieren et al., 2019).

From the perspective of service ecosystems (Lusch & Vargo, 2014), some service design scholars focus on the influence of social structures on

behaviour of the actors (Vink et al., 2017; Vink et al., 2019, Vink 2019). Following the concepts of service-dominant logic and systemic design, Vink (2019) emphasizes the role of institutions within a service ecosystem such as rules, roles, norms, and beliefs to restrict and enable the possibility of actors' behaviours within the system. Such social structures or institutions help to maintain the actors' behavioural routines in the service ecosystem, which assure taken-for-granted patterns of service exchanges among them by reducing the uncertainties and their conscious efforts to perform those exchanges (Kleinaltenkamp, 2018). As these routinized problem-solving behaviours reproduce the social structures of service ecosystem, micro-scale human behaviours and macro-scale social structures reinforce each other, increasing their viabilities reciprocally (Giddens, 1984).

Based on the understanding of these characteristics of service ecosystems, the preceding research proposes the perspective of service ecosystem design (Vink et al., 2017; Vink 2019). Service ecosystem design engages and empowers various stakeholders to reflect critically on the existing institutions to reshape their mental models, creating conditions for altering the service ecosystem along with their behavioural routines toward preferred futures. In this perspective, design too is regarded as an activity of actors embedded in the service ecosystem not being free from the influences of its institutions. This is the reason why service ecosystem design has a strong focus on the reflexivity of actors (including professional designers) who participate collectively in a design process to recognize and reshape the institutional arrangements intentionally (Vink, 2019; Mutch, 2007; Suddaby et al., 2016). However, to implement the reformation of a service ecosystem, the design practice also needs to consider and resort to actors' unconscious and intuitive decision-making for helping the actors change their behaviour and supporting the modified behaviours become routinized once again.

The arguments above on behaviour design and service ecosystem design indicate an opportunity to integrate these different design approaches to complement each other for facilitating both behaviour and institutional changes simultaneously. To explore the benefits and demonstrate the procedure of such an integration, this paper introduces a pilot study to examine the integrative design approach for a corporate project which aims at applying design thinking to their sales activities. Based on this study, it summarises the complementary relationships between the two

approaches more precisely, in order to clarify the advantage of the integration.

## **The pilot case study**

### **Background**

We implemented an integrative design approach for behavioural and institutional changes into a corporate environment, with the aim of encouraging their salespersons to learn design thinking skills and practice these in their work. This company, which has thirty-eight thousand employees, manufactures and sells digital printing and information technology solutions. The goal of this project is to transform their current sales approach of solving customers' known problems into more creative approach of finding and realizing customers' unknown opportunities. Through such a transformation, they expect to avert price competition and increase their revenue thanks to a value co-creation with customers. The company's internal service design lab, named as SDL, has been leading this project by introducing design thinking methods to around four thousand salespersons from selected divisions. As those salespersons are working at a large number of business hubs distributed over 7 regions of the nation, the SDL, located in the capital city, trained 125 salespersons as "design thinking ambassadors (DTAs)" and assigned them to promote the practice of design thinking at each local hub. Specifically, each DTA is expected to provide current and prospective customers with more innovative and competitive business proposals, by applying design thinking themselves or holding design thinking workshops with those customers. At the same time, several service designers of SDL were assigned as the "design thinking mentors (DTMs)" to assist the activities of DTAs.

Two years after the launch of the project, however, the director of SDL, who is a co-author of this paper, realized many of DTAs were not implementing design thinking workshops with customers as frequently as expected. More surprisingly, the director noticed some DTMs were not active enough to assist DTAs, instead waiting just for questions or requests from DTAs. Thus, recognizing the necessity to change behaviours of both the underperforming DTAs and DTMs, we decided to apply an integrated design approach for behavioural and institutional changes to this problem.

## Procedure and findings

In order to implement the integrative design approach in a small three months pilot study, the director and five designers of SDL collaborated with two external service design researchers who facilitated the research process. We targeted on the primary actors of behaviour change, namely the DTMs who were not active in monitoring and assisting DTAs. The research project proceeded in the following three stages.

### Stage 1: Behavioural diagnosis and intervention strategy design

The designers who participated in the project first drew an ideal journey map of the DTA's activity, which proposed and provided design thinking workshops to a customer. The journey map included the information about expected mentoring actions from the primary target actor (i.e., the DTM) and the gaps between the expected and actual actions. After drawing the journey map, the designers observed the following three critical gaps.

1. The DTM does not have regular discussions with DTAs to find opportunities to propose design thinking workshops to their customers.
2. The DTM does not check if a DTA has prepared an appropriate design brief for a design thinking workshop.
3. The DTM does not confirm if a DTA formulates a clear business strategy for providing a customer with design thinking workshops.

The designers then interviewed several DTMs to uncover the factors causing the gaps. To analyse the interview records, they applied the framework of CREATE action funnels introduced by Wendel (2013) to identify such factors in terms of six cognitive preconditions for a person to make a decision to act: Cue, Reaction, Evaluation, Ability, Timing, and Experience. This analysis revealed the following four key mental barriers preventing the target actor from performing the expected actions mentioned above.

- **Reaction** (to the requirement to support DTAs in finding opportunities to propose and make a design brief for a DT workshop):

These DTMs are afraid of disturbing the work of DTAs who are busy increasing orders for ready-made solutions rather than creating a new business opportunities. The DTM thus becomes reluctant to intervene into the work of DTAs.

- **Evaluation 1** (of the cost/benefit of helping DTAs make a design brief or a business strategy for a DT workshop):  
Some DTMs feel that helping DTAs to prepare design briefs and formulate business strategies is beyond their responsibility. The DTMs believe that their support should focus on how to implement DT but not on why it is done with what.
- **Evaluation 2** (of the cost/benefit of helping DTAs make a design brief or a business strategy for a DT workshop):  
Because DTMs do not properly understand the purpose and importance of these support actions, they feel they are not worth doing.
- **Ability** (to assist DTAs in making a business strategy for a DT workshop):  
Some DTMs are not confident in their ability to provide support.

The causal relations between the behaviour gaps and their correspondent psychological barriers are represented by the boxes and linking lines in the upper half of Figure 1, below.

As is common in a traditional behaviour design project, the participants brainstormed possible design strategies to overcome the four key obstacles in order to promote the expected actions of the target actor. The derived solutions include a strategy to provide DTMs with more specific KPIs for supporting DTAs and a strategy to prompt the DTM to make a commitment for performing the expected actions.

## **Stage 2: Psychological-institutional analysis**

After concluding behaviour intervention strategies, the project moved on to the institutional analysis stage. First, the researchers held a workshop with the director and the designers to reflect on the organizational institutional factors which reinforce existing behavioural routines of both the DTAs and the DTMs. In the workshop, the researcher asked the participants to review the interview with the DTMs and grasp the DTMs' mental models and mindsets, by looking at the statements which typically represented the DTMs' beliefs and values and the perception of their duties and role in supporting DTAs. Those statements include expressions such as "We are often begging of DTAs to apply design thinking to their work", "We should serve DTAs as their advisers to design thinking", and "That goal is not for us but for the DTAs (Figure 1)". The researchers then facilitated a

discussion among participants urging them to analyse how rules and norms such as divisional and individual KPIs, sales strategies, and training programs for design thinking skills for SDL staff are linked, and how they affect the DTMs' mental models and behaviours. Such reflective analyses finally uncovered institutional conflicts and contradictions among the sales division, the KPIs for assessing the performance of a DTA, and the SDL's KPI for the organizational design thinking promotion activities. Specifically, the sales division's current norm and culture prioritize short-term order increase for ready-made solutions over the creation of new business opportunities and customer-relationships, which contribute the DTA's KPIs. Moreover, the KPIs for the design thinking promotion activities of SDL are considered to be achieved if there is an increase in orders generated by any employee who attended the introductory seminar on design thinking held by SDL in contrast to an order increase resulting from DTAs' design thinking practices. As DTMs recognize that the share of the former (i.e., the order increase produced by the all seminar attendants) is larger than that of the latter (i.e., the order increase created by DTAs) and also that supporting DTAs demands more effort than holding the seminar, they do not have strong motivation for spending their time to assist DTAs' activities. Some of these findings were very illuminating to the participants of the workshop and made them realize that their perspective before doing this analysis was too narrow to recognize the influence of contradicting rules and norms. One of the participating designers expressed this insight by saying that "Although I might have known these contradictions unconsciously, this kind of visual representation gave me much clearer understanding of how such contradictions cause unexpected behaviour of employees."

### **Stage 3: Designing behaviour and institutional change strategy**

All the derived information and insights depicted in Figure 1 helped the participants of this study to understand behavioural problems in the context of psychological barriers and institutional arrangements including mental models, norms, and rules. One of the participants emphasized the benefit of this way of representation by mentioning, "It is not easy for us to realize institutional problems by just looking at institutions. But this kind of mapping facilitates us to discover them from the perspective of behavioural failures and pains." Based on such enriched understanding of the problems, the participants brainstormed again on the possible behavioural interventions and institutional reformations to encourage more active support activities of DTMs to DTAs.

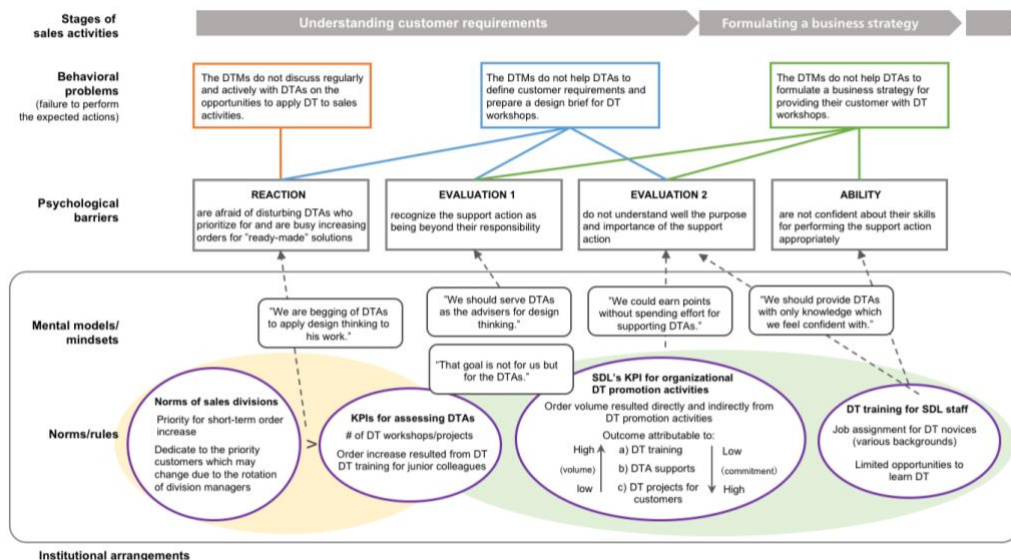


Figure1: Psychological-Institutional Analysis for Behaviour Change

While the ideas for intervention created in the behaviour design stage aimed at promoting the expected target actions by directly overcoming their barriers, the ideas generated after the institutional analysis were derived more from attention paid to the institutional factors causing the barriers. For example, regarding barrier (a), a designer of SDL concerned about the norm and the mindset of sales hubs which prioritizes short-term order increase over the formation of more future-oriented business opportunities. This designer proposed the idea of pairing a DTM and a DTA to work together in creating a new proposal for a target customer by applying design thinking so that the DTM demonstrates practically the values of design thinking for the DTA and the sales hub, motivating them to learn more and use it. Relating to barriers (b) and (c), the director of SDL, noticing the belief of the DTMs that the performance of DTAs is beyond their responsibility, also proposed changing the role of a DTM from a mentor to a partner who achieve same goals (with some appropriate KPIs) with DTAs. As for barrier (d), another designer suggested supporting a DTA with a team of both experienced and less-experienced SDL designers instead of doing it by individual DTM. In discussing these ideas, which demand the changes in the role, activity and goals of the target actor, the participants realized that it is more essential for such change strategies to enhance the contribution of SDL to the sales hubs and the company than to encourage the target actions independently (Proposition 2). The SDL director actually expressed this learning by saying:



Once we grasp the whole picture, we could uncover what should be essentially changed. This is similar to when we have a well-researched stakeholder map. If we see the problem as some local and individual scale trouble, we tend to patch over it. But when we understand its relation to a whole organizational issue, we look for a true solution.

In the next workshop, the participants further developed tactical ideas applying their knowledges of behavioural science to enhance the practicability of the proposed strategies above. They paid attention in particular to possible negative reaction from some DTAs who were afraid of failing to persuade their customers, who were not necessarily familiar with design approach, of the effectiveness of design thinking workshops. One of the tactical ideas proposed to overcome this barrier is to not let DTAs propose design thinking straight away to their customers. Rather it first suggests that DTAs apply sales tools such as business case study to user-centered solutions in order to trigger conversations, so as to discover the customers' real interests from their perspective of end-users. Once the customers identify such interests, it becomes easier for DTAs to propose a design approach to them. The tactic here is to frame design thinking in the context of ordinary sales activity. The knowledge of behavioural science behind this tactic is called familiarity or availability heuristic, which means that people show a stronger preference to something more familiar or easier to imagine over those unfamiliar or hard to imagine. This idea also follows the well-known finding in this field that the consistency of the expected action and the target actor's desired self-image encourages that action.

## **Benefits of the integrative design approach**

Assuming the complementary relationship between behaviour design and service ecosystem design, we experimented with the integration of these two approaches in a pilot study and derived the following propositions to summarise the benefits of integration.

### **(1) The integrative design approach promotes deeper understanding of target behaviour.**

- In the pilot study, the workshop to implement the psychological-institutional analysis helped the participants to widen their perspective and confidently recognize the influence of contradicting rules and norms

on the behaviour of target actors. It is often the case that a designing for behaviour change project focuses too narrowly on the psychological barriers against the target behavior, without being aware of invisible institutional conflicts evoking psychological reactions. However, as the designer who participated in the workshop mentioned, it is not always easy for designers and stakeholders to gain a clear picture of such institutional contradictions and also anticipate how they might cause unexpected behaviour. To assist with understanding, this paper introduced an effective way of representing behavioural problems in the complex contexts of psychological barriers and institutional arrangements.

## **(2) The perspective of service ecosystem design prevents behaviour designers from wasting resources and from losing opportunities for innovation.**

- As is demonstrated in the pilot study, when people see the behavioural problem in a target actor's local context, they tend to come up with strategy to intervene with some pinpointed and patch-like solutions. The integrative approach, however, facilitates designers and actors to grasp the whole picture and to uncover what should be essentially changed, considering the possibility of more drastic institutional reformations. Although such an institutional reformation usually demands more resources and efforts from actors and organizations, a challenge for simultaneous behavioural and institutional changes could, in return, bring them chances of innovating existing service ecosystems for more impactful benefits.

## **(3) Behaviour perspective guides institutional changes.**

- Service ecosystem design practices empower the reflexivity of the actors to reshape their mental models, catalysing their institutional work of creating, disrupting, and maintaining social structures for the preferred future (Vink et al., 2019; Johnson-Laird, 2013). However, examining and deciding which element of institutional arrangements to create, disrupt, or maintain becomes difficult without some criteria. As the participant in the pilot study realized, the psychological-institutional analysis of the integrative approach enables us to criticize the existing institutions in relation to some observable and empathizable behavioural failures and pains. Complementing the vision of a service ecosystem reformation with some concrete goals of behaviour changes thus helps the actors to figure out what institutional changes are appropriate and necessary based on whether they enable and sustain the desirable behaviour changes.

#### **(4) Behaviour design approach enhances the practicability of service ecosystem design.**

- Even after the practice of service ecosystem design has succeeded in letting the actors recognize the necessity of changing their mental models and behavioural routines for reforming institutional arrangements, those actors might still confront the gap between their intentions and the actions that need to be taken, due to some psychological barriers such as status-quo bias or present bias. This paper shows in the pilot study how the knowledge of behaviour science can support the implementation of institutional changes by nudging expected behaviour of actors as well as resorting to their reflexivity.

## **Conclusions**

Although the case introduced in this paper is a short pilot study which has a limited number of participants and has not practically implemented created strategies at the moment of writing this paper, it has demonstrated the process and benefits, summarized as the four propositions, of the integrated design approach for behavioural and institutional changes. In particular, it has exemplified the effectiveness of visualizing entangled relations between behaviour, psychological barriers, mental models, and social structures not just for understanding the problems in richer contexts but also for discovering wider opportunities and more impactful strategies to change.

The proposed approach also contributes to the conceptualization of the micro-macro relations of innovation in service ecosystems. Previous design research (Vink et al., 2019) recognizes the limitation of the direct applicability of research on innovation in service ecosystems for practitioners, mainly focusing on changing institutional arrangements at a macro-level aggregation (Vargo & Lusch, 2016). To break through the limit, the earlier research explains how the actors change their social context at a macro level by shifting their own mental models at the micro level (Vink et al., 2019). The integrative design approach for behaviour and institutional changes advances further the understanding of micro-macro linkage of a service ecosystem by emphasizing the behaviour and the decision-making of actors at the micro-scale.

However, to assure the impact of the four propositions and also their practical applicability, it is necessary to test the approach with more cases in real design scenarios, inviting the participation of target actors of behaviour change in the design process. One of the important issues we have to consider for future study is the level of complexity we confront when a design project deals with multiple target actors and organizations with different institutional arrangements. The question then inevitably arises as to whether the format of visualization introduced in this paper could represent appropriately the entangled relations between a large number of behavioural and institutional factors in a comprehensible and useful way for the designing actors. In addition, we would need to have some criteria for deciding who and when to invite in the design practice both as the target of behaviour change and as the actors for innovating service ecosystems.

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