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The Role of Theory of Change

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Articulating a strategic approach to face complexity in design projects: The role of Theory of Change

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In today's world of global wicked problems, constraints and imperatives imposed by an external and uncertain environment render strategic action a quite complex endeavour. Since the 1990s, within community initiatives and philanthropic projects, the construct of Theory of Change has been used to address such complexity. Theory of Change can be defined as the systematic and cumulative study of the links between the activities, outcomes, and context of an intervention. The area of focus for this paper is to explore whether Theory of Change can support more strategic approaches in design. In particular, the paper examines how Theory of Change was applied to DESIGNSCAPES - a project oriented, among other things, toward offering a supporting service for all those city actors interested in using design to develop urban innovation initiatives that tackle complex issues of broad concern.

Keywords: Theory of Change, design strategy, strategy, DESIGNSCAPES

Aims

In today's world of global wicked problems (Rittel and Webber, 1973) such as climate change, social exclusion, economic crisis, and quality of life, design can help frame such problems and work towards solutions. Design can play a role in "sustaining, developing, and integrating human beings into broader ecological and cultural environments, shaping these environments when desirable and possible or adapting to them when necessary" (Buchanan, 1992, p. 10). In most cases, a single design solution is insufficient to address wicked problems, especially when these problems are ultimately global in nature. Instead, a series of concurrent, overlapping design interventions are needed. As such, planning and coordination become a central part of design activities (Boland and Collopy, 2004; Simeone, 2016) especially when intransigent issues or wicked problems are to be addressed systematically as to trigger multiplier effects.

How this coordination is organized is a matter of strategy, seen as a way of "discovering the critical factors in a situation and designing a way of coordinating and focusing actions to deal with those factors" (Rumelt, 2011, p. 3). For long, studies in strategy have acknowledged that the influence of external and unpredictable factors can highly affect even the best-executed plans (Mintzberg, 1994b). Strategy is a paradoxical process where the more organizations plan ahead for success (e.g. committing resources, developing specific capabilities, etc.), the more they may actually increase their chances for failure as the future is uncertain and unpredictable (Raynor, 2007). This is why John Friend and Allen Hickling argued that strategy should accommodate uncertainty and elaborate complexity rather than simplify and reduce it (Friend & Hickling, 2012).

One particular way to elaborate such complexity and improve the quality of planning is by using a framework labelled as Theory of Change (Anderson, 2004). Theory of Change emerged within community initiatives and philanthropic projects in the 1990s and has since been used for planning and evaluating social practice (Stein & Valters, 2012). Broadly, a Theory of Change approach is a process of identifying the current situation (in terms of needs and opportunities), the intended future result (expected or hoped for outcomes), and what needs to happen to move from one situation to the other (Rogers, 2014). The articulation of this 'change journey' through the use of Theory of Change can help identify more realistic goals and the strategies required to achieve the goals (Rogers, 2014). Interest in, and use of, Theory of Change as a programme/policy planning and evaluation tool has increased exponentially, as has the explicit link between Theory of Change approach and complexity (Ling, 2012; Rogers, 2008).

Even though the need to reflect upon theories of change has been deemed as necessary to craft strategies (Mintzberg, 1987) and Theory of Change has been examined as a way to support strategic approaches, e.g. in strategic negotiations (Walton, Cutcher-Gershenfeld, & McKersie, 2000), the nexus between Theory of Change and strategy remains understudied.

Within design research, strategy has long been a central theme explored from various angles (Borja de Mozota, 2003; Boztepe, 2016; Heskett, 2017; Kotler and Rath, 1984; Lockwood and Walton, 2008, Simeone, 2017). However, fewer authors more specifically focused on the ways in which a strategic approach in design could tackle complexity and unpredictable external conditions (Cross, 2008; McCullagh, 2008) and help to deal with systems influenced by a great variety of factors (Meroni, 2008). To this end, it has been suggested that design needs to make more explicit use of Theory of Change (Tonkinwise, 2015). This paper goes precisely in this direction and, as a main research question, aims to explore whether and how Theory of Change can support the articulation of strategy in design. As a case, the paper will look into DESIGNSCAPES, a European Commission-funded project oriented, among other things, toward offering a supporting service for all those city actors interested in using design to develop urban innovation projects and tackle broad problems of a complex and wicked nature. At its heart, DESIGNSCAPES acknowledges the generative potential of urban environments – or urban ecosystems (Peltoniemi & Vuori, 2004) – in which design can support collaborative and innovation processes that engage a variety of actors, including enterprises, start-up companies, NGOs, community-based initiatives, public authorities and agencies (Abbasi et al., 2019). This paper follows the 'change journey' that DESIGNSCAPES intends to spur by supporting these actors in their projects to make our cities more liveable, sustainable and prosperous.

Literature review

Designing for complexity

In this paper, we refer to design as a process to identify, frame and address problems and that uses modelling as an analytic approach to create and evaluate multiple alternatives and a wide solution space (Conley, 2010). Design generally harnesses divergent and convergent thinking (Brown, 2009) through an array of tools, methods, techniques and activities such as early, rapid and frequent prototyping, iterative development, visualization / materialisation techniques at varying levels of abstraction and user research, participation and testing (Buchanan, 2004).

For many years, researchers have explored how such design approaches could be used to tackle contemporary global wicked problems. The notion of 'wicked problems' was formulated by Horst W. J. Rittel in the 1960s and later further developed with Melvin M. Webber to indicate the complexity of some of the problems tackled by design as per their incomplete, contradictory, and changing nature (Rittel and Webber, 1973). Reflecting upon the ideas presented by Rittel and Webber, Richard Coyne (Coyne, 2005) noted how the notion of a wicked problem was formulated as a reaction to Herbert Simon's rationalistic proposition of a "science of design, a body of intellectually tough, analytic, partly formalizable, partly empirical, teachable doctrine about the design process" (Simon [1969], 1982, p. 58). Against this rationalistic view, the notion of wicked problems more clearly represents those situations characterized by a high level of indeterminacy and in which multiple and conflicting points of view emerge (Buchanan 1992; Teixeira, 2017; Bayazit, 2004). The related conceptualization of VUCA - short for volatility, uncertainty, complexity, and ambiguity (Bennet & Lemoine, 2014) – has gained popularity not only in management studies but also among those scholars more closely interested in how the interplay of strategy and design – as an array of tools, methods, techniques and activities and as a way of thinking (Brown, 2009) - can help organizations to cope with global competition,

geographically distributed supply chains and the growing centrality and proliferation of data (Lafley & Martin, 2013).

In design, one way of dealing with such complexity is to adopt strategic approaches which deliberately acknowledge that plans and decisions are often affected by a certain degree of uncertainty and confusion, turbulence and volatility, pressure of urgency and, possibly, cognitive and emotional overload (Friend and Hickling, 2012). Such strategic approaches might value those design processes that are open to emergent opportunities and that specifically design flexibility into the proposed solutions (Liedtka, 2002).

Strategy articulation and the strategic kernel

Definitions of the word 'strategy' in design differ, even though recurrent components of strategy can be considered: (1) being aware of resources and capabilities (Barney, 2001; Eisenhardt & Martin, 2000; Teece, Pisano, & Shuen, 1997) in the designer's hands and knowing where to direct effort and energies, (2) the related ability to frame complex problems as to identify a set of objectives that can be realistically reached (Rumelt, 2011), (3) being aware of the competitive context and the limiting circumstances in which our actions unfold, e.g. competitors or external factors that might affect our plans (Mintzberg, 1994a) and (4) the processes for defining and implementing sets of actions that take into consideration all the above. A recent systematic survey of literature carried out by one of the authors of this paper found that a consensus and quite broad definition of strategy is: "finding a balance between ends, means and ways while keeping an eye on risks as to achieve the impact needed to address a challenge".

Overall, within design research, strategy has long been a central theme explored from various angles and with contributions ranging from engineering design (Holt, 1991; Hsu, 2009), to design management (Boztepe, 2016; Cooper, Junginger, & Lockwood, 2011; Lockwood & Walton, 2008), and all the way up to collaborative design (Hyysalo & Hyysalo, 2018) and architecture and urban planning (Hill, 2012; Kempenaar & van den Brink, 2018). This paper is concerned with the specific processes of strategy articulation, i.e. those processes in which strategy is more or less strictly and explicitly identified and described, e.g. in relation to key ideas, directions to follow, goals and expected results (Love, Priem, & Lumpkin, 2002). In this sense, articulation is regarded as a discursive practice in which representations of what the organization "has been, is, and will be doing" (Mirabeau & Maguire, 2014, p. 1219) are formulated, but also circulated among stakeholders and subjected to their various interpretations. Rather than considering these processes as confined to the initial phases of a project, strategy articulation should be seen as an iterative process in which strategy is continuously re-evaluated and re-adjusted along the way and in relation to the impact of external and unpredictable factors (Liedtka, 2002; McCullagh, 2008; Mintzberg, 1978).

Methods and approaches to articulate strategy abound across fields as diverse as corporate (Andrews, 1971; Ansoff, 1965; Johnson, Whittington, Scholes, Angwin, & Regnér, 2017; Porter, 1980), political (Freedman, 2013) and military strategy (Echevarria, 2017). We will here consider as a starting point of our considerations the approach proposed by Richard Rumelt (Rumelt, 2011), which has spurred further reflections on what constitutes good and bad strategy (Freedman, 2013). Rumelt argues that at the center of good strategy there is a kernel, a coherent logical structure that connects thought and action:

> *Good strategy is coherent action backed up by an argument, an effective mixture of thought and action with a basic underlying structure I call the kernel. […] The kernel of a strategy contains three elements: (1) A diagnosis that defines or explains the nature of the challenge. […] (2) A guiding policy [that is] an overall approach chosen to cope with or overcome the obstacles identified in the diagnosis. […] (3) A set of coherent actions to carry out the guiding policy (Rumelt, 2011, p. 77).*

In the words of Rumelt, coherent actions are those feasible coordinated policies, resource commitments, and actions that are designed to carry out the guiding policy and that are aimed toward reaching long-term objectives or closer proximate objectives. In DESIGNSCAPES, the strategic kernel proposed by Rumelt has been used to initially frame the strategic approach of the project. The subsequent application of Theory of Change allowed to further articulate strategy and to more fully develop the logical connection between the various components of such strategy.

Theory of Change

Theory of Change emerged in the mid-1990s within the Aspen Institute Roundtable on Community Change as a new way of analyzing complex community initiatives working for social and political change. In a publication developed by the Roundtable in 1995, *New Approaches to Evaluating Comprehensive Community Initiatives*, Carol Weiss, an evaluation practitioner and methodologist, argued that a key reason complex social programs are so challenging to evaluate is that the assumptions and theories about how change will unfold as a result of them are poorly articulated (Weiss, 1995). The consequence, she argued, is that little attention is placed on articulating the steps required to achieve a long-term goal. Theory of Change therefore emerged as a way of overcoming this challenge by describing "a process of planned social change, from the assumptions that guide its design to the long-term goals it seeks to achieve" (Mackinnon & Amott, 2006, p. 2).

Overall, the core idea behind theories of change is that they define a sequence where one step (or one activity) leads to another one through cause-and-effect connections. The Tavistock Institute defines Theory of Change as a process which:

> *(...) involves the specification of an explicit theory of how and why an intervention might cause an effect which is used to guide the evaluation. It does this by investigating the causal relationships between context-input-output-outcomes-impact in order to understand the combination of factors that has led to the intended or unintended outcomes and impacts. Theory of Change, therefore, tests, and normally develops the implementation theory of an intervention and allows this to be modified or refined through the evaluation process* (Cullen, Iacopini, Junge, *&* Spielhofer, 2018)

Theory of Change is, on the one hand, a strategic planning tool. It articulates and graphically illustrates the intervention logic of a project, in other words the steps that need to be taken to realise a desired goal or impact, and the expected results of these steps. Theory of Change builds on a set of assumptions and hypotheses about what causes a problem, what particular actions will change that problem and what are the likely outcomes of these changes. In other words, it articulates a project's 'change journey', and shows the theorised causal pathways between a project's objectives, its activities, and its expected outcomes and impacts. It says: "if we take action X, then this will cause effect Y and this will eventually lead to outcome Z" (Cullen, Iacopini, Junge & Spielhofer, 2018). Theory of Change is, therefore, also a key evaluation tool because data collected along the way enables these assumed causal pathways to be tested. After the problem, project aim, expected outcomes and activities are mapped for a project, indicators should be developed to "assess progress and achievements along the 'change journey', and will be used to test the theory" (Cullen, Iacopini, Junge & Spielhofer, 2018). The integral link between Theory of Change and indicator development means that Theory of Change is a useful tool for both strategic planning and continual improvement. As Weiss stated, "The evaluation should surface those theories and lay them out in as fine detail as possible, identifying all the assumptions (…) built into the program. The evaluators then construct methods for data collection and analysis to track the unfolding of the assumptions" (Weiss, 1995, p. 67). This, in turn, opens up the possibility for assumptions to be modified or refined through the evaluation process, supporting the refinement of a strategy or initiative.

A good number of methods are nowadays available to help crafting theories of change for specific projects or programs. Although these methods build on slightly different conceptual theorizations, they share the idea that a Theory of Change should articulate logical steps that lead to change.

Theory of Change has been criticised on the ground that it might oversimplify complex contexts of interventions (Ruesga, 2010) and might not decisively contribute to clarify ill-defined issues (Stein & Valters, 2012). A way to address these issues is to keep a critical eye while taking into account beliefs and assumptions underlying a specific Theory of Change (Archibald, Sharrock, Buckley, & Cook, 2016) and while drawing sequences of steps and related cause-and-effect connections (Ruesga, 2010). Along these lines, DESIGNSCAPES proposed its own model for Theory of Change as "a way of mapping the 'change journey' of a project or innovation so you can see the connections between the 'presenting problem' the project wants to solve, the expected impact on that problem at the end of the project and everything that's supposed to happen in between" (Cullen, Iacopini, Junge & Spielhofer, 2018). Figure 1 shows an overview of the steps needed to identify the five key elements of a Theory of Change for a specific project.

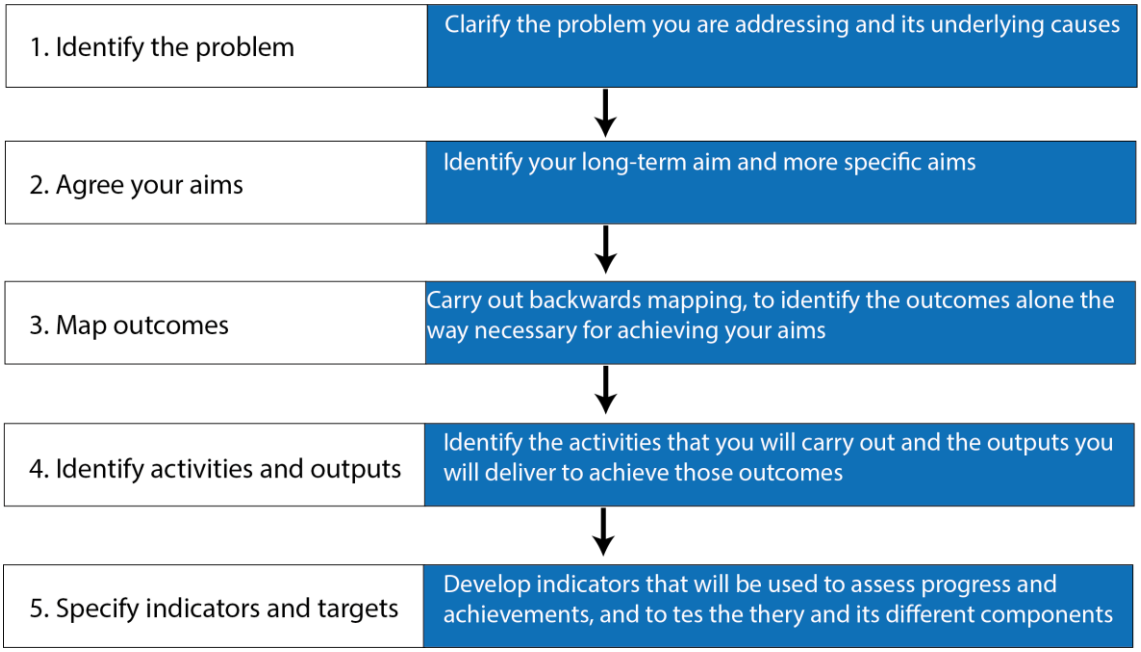

Figure 1 Steps needed to identify the five key elements of a Theory of Change for a specific project. Source: Adapted from Cullen, J., Iacopini, G., Junge, K., and Spielhofer, T (2017)

In the next sections, we will more closely look into how Theory of Change has been applied in DESIGNSCAPES.

Research approach

Methods

This paper uses a case study approach (Eisenhardt, 1989; Eisenhardt and Graebner, 2007; Yin, 2009) which allows analyzing the phenomenon with a certain degree of depth and which is suited to the exploratory nature of this research. Case studies allow identifying key insights over time (Paré, 2004) and work especially when the focus is on a contemporary phenomenon within real-life contexts (Yin, 2009). Case studies have been steadily used in organizational studies in the past decades (Berg, 1968) and more recently (Breslin and Buchanan, 2008, and scholars analyzed the relevance and the limitations of this approach (Dasgupta, 2015).

The authors of the paper are active members of the DESIGNSCAPES consortium and directly contributed to the definition and the development of this project, also through the methods and tools here presented. This role gave the authors the chance to gather data during the first two years of the project, also using ethnographically-inspired methods (Czarniawska, 2012).

The case

DESIGNSCAPES is a project funded by the European Commission and carried out by an international consortium that brings together a group of researchers with backgrounds in design-enabled innovation in cities and urban contexts, expertise in stakeholder involvement, collaborative research and learning processes and experience in linking practice, evaluation, policy and research. One of the core ideas of DESIGNSCAPES – inspired by the work of Jane Jacobs (1969) - is that cities offer particularly promising environments in which local design-driven projects can spur creativity and innovation, improve performance and efficiency (and hence increase the competitiveness of European organizations) and tackle wicked problems and important issues of broad concern. The overarching aim of DESIGNSCAPES is to select a number of promising ideas and projects from various European cities, to provide them with some direct funding and to support them with mentoring and coaching activities on how to use design approaches and methods. In more practical terms, DESIGNSCAPES organizes various open calls in which it asks European enterprises, start-up companies, NGOs and public authorities to submit a description of their design-driven projects. DESIGNSCAPES then selects a total of about 100 projects and backs them through (1) funding up to 25.000 euro, (2) a series of freely

distributed publications, toolboxes and training modules on how to use design methods and tools to support urban innovation processes and (3) a mentorship program.

DESIGNSCAPES acknowledges that the organizations behind these design-driven projects carry out their activities not as isolated entities, but rather as components of a business and innovation ecosystem, i.e. an interconnected population of organizations in which single units are strictly interdependent and influence the whole system (Peltoniemi and Vuori, 2004). Urban innovation has to do with processes of co-creation that actively seek the inclusion of diverse actors. This is why DESIGNSCAPES is particularly interested in supporting those projects that heavily rely on collaborative processes and local communities. The 'change journey' that DESIGNSCAPES intends to spur is precisely a change in some existing business and innovation ecosystems of European cities by offering funding and support to those design-driven projects that have the potential not only to tackle local urban issues, but also to propose solutions that can be scaled and replicated in other urban environments.

A number of factors demonstrate the complexity of DESIGNSCAPES. First, DESIGNSCAPES is embedded in open systems thinking, where a system interacts with internal and external agents to the degree that boundaries are fluid. The funded design-driven projects and interested stakeholders form a dynamic innovation ecosystem which is characterized by a continual realignment of synergistic relationships of people, knowledge, and resources that promote harmonious growth of the system in agile responsiveness to changing internal and external forces. Therefore, DESIGNSCAPES has three complexity based attributes: an emerging intervention which changes and evolves as it is implemented; local interaction between independent units which give rise to system behaviour; and context matters due to local agents interacting in urban settings.

Analytical description of the case

Definition of the strategic kernel

The strategic kernel of DESIGNSCAPES was initially codified in the proposal that the consortium wrote in relation to a call for funding issued by the European Commission in 2015[1]. The strategic kernel initially elaborated in the DESIGNSCAPES proposal can be summarized in Table 1.

Table 1. The strategic kernel of DESIGNSCAPES

A *diagnosis* that defines or explains the nature of the challenge:	The specific challenge to be addressed is that a good number of European organizations miss out on the potential to utilise design as a source for improving their efficiency, stimulating growth and tackling current urban issues and wicked problems.
A *guiding policy* [that is] an overall approach chosen to cope with or overcome the obstacles identified in the diagnosis:	Offering a supporting service that provides these organizations with some funding and with some design-based approaches and methods that help them tap into the generative potential of existing urban ecosystems.
A *set of coherent actions* to carry out the guiding policy:	- Set-up of an open call that offers financial support and mentorship for about 100 design-driven urban innovation projects - Creation and free distribution of a design toolbox and of an evaluation toolbox for urban design-enabled innovation and some related training modules - Creation and free distribution of a series of reports and studies on urban design-enabled innovation (e.g., reports

[1] *http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/co-creation-02-2016.html accessed 21 November 2018.*

	on the results of the open calls, a white paper focused on policy implications and recommendations, city snapshots and academic and popular press publications)

This strategic kernel was further specified in relation to work packages, deliverables and milestones needed to operationalize the whole DESIGNSCAPES project.

However, the articulation of strategy as stemming from this kernel has some limitations which restricted its utility. First, whilst problem, actions and rationale are shortly articulated, a more fine-grained definition of outcomes and impacts is missing. Second, the links between aspects of the coordinated actions are unclear in terms of which steps are necessary and what these steps are a result of. As such, rather than a 'change journey', the kernel provides a logical flow that expresses a linear relation between diagnosis, guiding policy and actions. Third, the underlying assumptions of the programme, where existing knowledge is low or where the model contains risks, are not articulated. Finally, the strategic kernel is not iterative and it is difficult to use as a data collection tool.

For all these reasons, DESIGNSCAPES used Theory of Change to further articulate its strategy.

Application of Theory of Change

In this project, Theory of Change provides a transferable tool to enable i) the partners of the consortium to understand DESIGNSCAPES and its 'change journey', and ii) the stakeholders in the selected design-driven projects to identify the presenting problem they want to change; the desired solution at the end of their project (the project impact) and the steps required to get from problem to solution (activities, outputs and outcomes). In other terms, it is the main data gathering tool to assess the effectiveness and added value of design in the innovation process and its contribution to efficiency and competitiveness.

The Theory of Change is used to shape the plan of the whole DESIGNSCAPES as well as to aid with the evaluation of it, and as a subject of training for the 100 design-driven projects. The Theory of Change articulates the stages of DESIGNSCAPES and the premises underlying the project and guides the project whilst being adapted to changes in circumstance as it is frequently redrawn and reconceptualised. For example, the selection of the design-driven projects to be funded, the training topics, and the dissemination strategy are all considered to be causally interlinked and are considered stages towards the ultimate goals of the project.

The project is still in progress and its most recent Theory of Change articulation is presented in Figure 2.

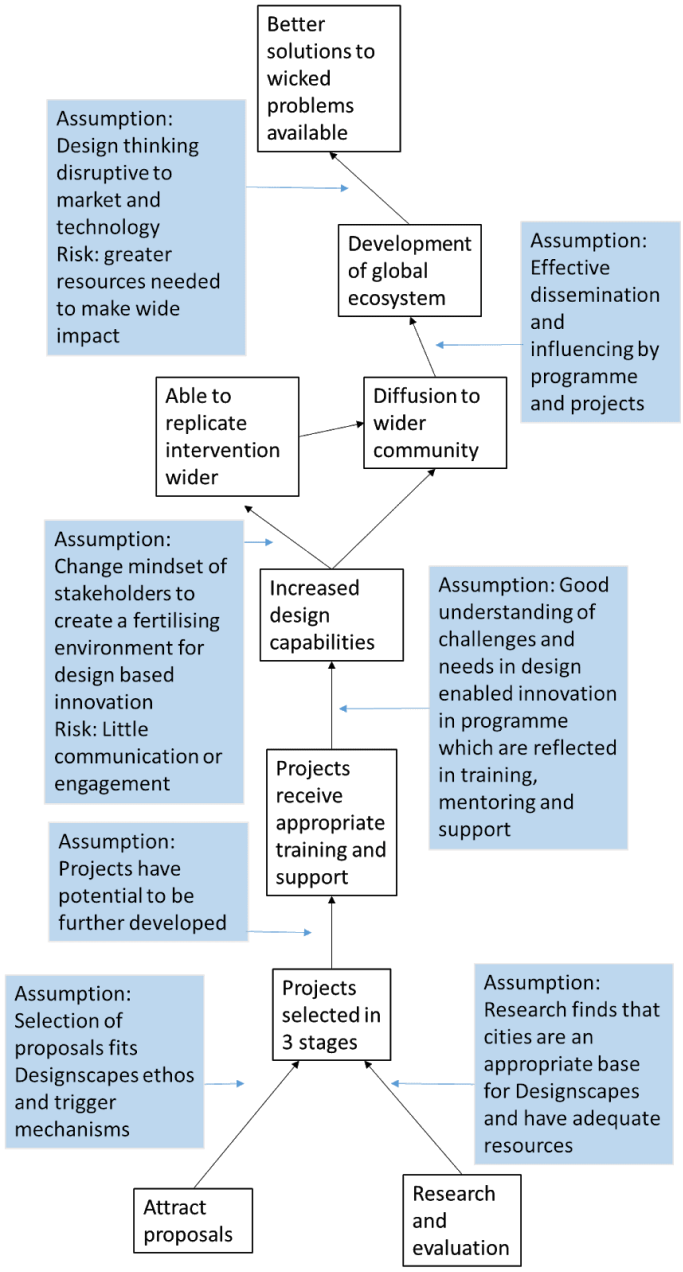

Figure 2 Articulation of Theory of Change for DESIGNSCAPES

The Theory of Change articulated above splits DESIGNSCAPES into seven stages, some of which occur beyond the life-time of the project. These stages are: research and marketing; selection of design-driven projects; training and support of design-driven projects; improvement in design capabilities; replication and diffusion; ecosystem development; and new robust solutions to wicked problems. Each of these stages is along a critical pathway and the stages are causally linked: for example, without appropriate support, project staff will not be able to improve their design capabilities. The assumptions underlying the Theory of Change ladder towards wider impact are articulated for each stage.

As an example of how Theory of Change can shape a project as well as describe it, an early assumption in the Theory of Change is that "selection of proposals fits DESIGNSCAPES ethos". If this assumption is fulfilled, the funded projects will be able to trigger a social movement. The development of local social movements is crucial to achieving later outcomes such as the development of a global ecosystem and the diffusion of innovations. If the approved design-driven projects are not focused on core values such as co-creation and social inclusion, then DESIGNSCAPES will struggle to achieve crucial outcomes; this may mean that DESIGNSCAPES must set up alternative levers and mechanisms to disseminate the innovations funded.

Because this assumption was identified at an early stage, the guidance for the jury members in charge of selection the design-driven projects to be funded was tailored to help fulfil the assumption through assessment questions. These questions asses whether the application submitted to the DESIGNSCAPES open call support co-creation in their proposals:

- Are people, users or citizens put in the centre of the innovation?
- Are users/citizens involved in the development and initiating the project idea?
- Is there any explicit co-creation planned with citizens, consumers or users?

By having an evaluation which uses the Theory of Change, the change potential of these design-driven projects is more likely to be realised. The evaluation assesses the programme – also through indicators and targets - whilst holding it accountable to the theory outlined in the model. By predicting areas of difficulty, plans are more likely to account for these potential issues.

Discussion and conclusions

DESIGNSCAPES is still in progress and various versions of its Theory of Change are being articulated over time. The first batch of design-driven projects are being selected and supporting material and processes are in place or are being finalized (e.g. freely available design toolboxes, training modules, mentorship programmes). While DESIGNSCAPES progresses, we will be able to more fully assess the impact of Theory of Change in the articulation of strategy and in relation to the outcomes of the project. However, we can already share some preliminary considerations.

The strategic kernel that, at an initial stage, was used to describe DESIGNSCAPES in the original application for the European Commission (Table 1) worked quite well to communicate the key strategic orientation of the project. The strategic kernel quite clearly represented the main challenge to tackle, the guiding policy to address such challenge and the related key actions to implement such policy. However, the strategic kernel expressed the relation between these components as a linear logical flow. As such, it did not fully render the complex interactions occurring during the envisioned 'change journey'. Theory of Change worked much better as an instrument to map the assumptions and hypotheses behind the main stages of DESIGNSCAPES and the causal relations among them.

In the 'Literature review' section, we characterized 'strategy articulation' as a process in which strategy is more or less strictly and explicitly identified and described. In DESIGNSCAPES, the strategic kernel provided a simplified and somewhat underspecified articulation. This kernel represented the DESIGNSCAPES strategy as a cascading flow (Table 1). Conversely, the strategy articulated by Theory of Change (Figure 2) is more of a reticular nature. Stages, assumptions and risks are mapped throughout a journey in which it is possible to see dependencies and linkages. While the logic suggested by the kernel is linear, the Theory of Change provides a more spatially distributed articulation in which the temporal dimension (i.e. the progression from one stage to the other) is plotted as to show stages as simultaneous, interdependent or sequential. In other terms, Theory of Change allows working with visual diagrams that articulate strategy at a more fine-grained level.

As Figure 2 above displayed, assumptions underlying a project are crucial to a Theory of Change. Whilst the strategic kernel outlines the overall plan of a project, the underlying rationale or potential flaws remain implicit. The Theory of Change makes these dependencies clear through outlining the implicit assumptions of the whole project logic, which are often unconsciously held by participants, yet are crucial to the success of a project. The Theory of Change model demonstrates that, at each stage of DESIGNSCAPES and before the outcomes can be achieved, the project must address the underlying assumptions. In addition, the theory on which DESIGNSCAPES has been based was inspired by Jane Jacobs (1969) and much of the success of the project will rely on the veracity of her theories as applied to European cities. Therefore, the theoretical aspects of any intervention are laid bare and testable in real-world settings.

The staging of Theory of Change is also worth consideration. Theory of Change requires participants to be specific as to hone an intervention in a clear and explicit way. This is often difficult to do at programme inception when the wider ecosystem that an intervention will be working within remains largely unknown. Because the strategic kernel is a more open and generalised tool, it may be a better starting point for a design strategy as has been the case in DESIGNSCAPES. The adoption of the kernel at an initial phase of DESIGNSCAPES was particularly suitable for at least two reasons: (1) it allowed to present a simplified version of the strategy in a way that was easier to understand by external people, e.g. the EU reviewers (i.e. of the call from which DESIGNSCAPES got funding) that, presumably, had very little time to read and evaluate many

applications; (2) the fact that strategy was not fully specified also allowed the project partners to interpret it in light of their interests, needs and agendas thus avoiding tensions and conflicts in the nascent consortium.

In DESIGNSCAPES, the integration of strategic kernel and Theory of Change helped to articulate strategy at different levels of refinement in relation to the needs of different phases of a project. Possibly, such integration worked particularly well precisely because it allowed to represent strategy at varying levels of abstraction and to translate such strategy for different stakeholders.

In addition, Theory of Change was introduced in DESIGNSCAPES by the Tavistock Institute, one of the partners of the consortium. Other partners of the consortium - some European design schools - were particularly intrigued by the possibility offered by Theory of Change to spatially and temporally visualize strategy in an iterative way. Such design schools saw Theory of Change as a way to use modeling - i.e. various visualizations of the articulation of strategy - as an analytical tool to more fully explore various strategic pathways and alternatives.

Theory of Change is not infallible or even necessarily reliable as a predictor for a project pathway. The assumptions outlined in a strategy are made without hindsight so it is difficult to predict the assumptions. Indeed, the reliability of a specific theory of change is a useful data collection point because if the theory maps poorly to 'reality' it can be an indication that the underlying premises of a project made poor assumptions. This is a particular risk in the complex contexts that projects are articulated within since there are almost always unintended outcomes for the activities undertaken.

However, the identification of poor assumptions and of where causal logic breaks down highlights a further strength of the Theory of Change approach: its iterative nature. In DESIGNSCAPES, the Theory of Change is revisited frequently, by the evaluation team and as a whole consortium at face to face meetings. This allows the project to understand where key blockages and success factors are so that the project team can adapt to circumstances and data as it is uncovered, rather than spend the funding period making similar mistakes.

We conclude this paper by highlighting an important shortcoming of the current study. While the usefulness of Theory of Change (e.g. for strategy and/or program planning, evaluation, reaching shared understandings) has amply been written about, DESIGNSCAPES is still ongoing. As such, future and deeper analyses of the project outcomes will allow a fuller examination of the potential of Theory of Change and the practical implications of its application in relation to a broad array of design-driven projects. This will also probably give us the opportunity to more closely assess some of the critiques presented in academic literature against Theory of Change (e.g. that it might oversimplify complex contexts of interventions). In its current iteration, the paper intends to present preliminary rather than conclusive considerations on how Theory of Change can help address some of the complexity specifically associated with collaborative and community-oriented design.

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