A REVIEW OF SCALING CONCEPTS

ReSolve Scaling Workshops Project

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Introduction

Scaling has been gaining a lot of attraction in the development field and non-profit sector. It stems from the widespread concern that the UN Millennium Development Goals (MDGs) are not being achieved as fast and as effectively as intended. Too often, many projects or programs remain small and scattered and therefore have not had a significant impact on tackling the overall problems. No matter how effective and successful small-scale initiatives are, they are "like small pebbles thrown into a big pond" (Hartmann & Linn, 2008) and the national and international goals of MDGs cannot be achieved without effective large-scale execution. It is widely recognized by donors, funders and development agencies in the non-profit sector that pilot projects have a relatively poor track record of replication and expansion.

The current MDGs will be succeeded by Sustainable Development Goals (SDGs), which serves as reference goals for international development for the period 2015-2030. Education for Sustainable Development (ESD) has been recognized worldwide as a key element that enables sustainable development. ESD is included in the proposed target for the post-2015 agenda in the proposal for Sustainable Development Goals (SDGs) developed by the Open Working Group of the UN General Assembly on SDGs. UNESCO (2014) remarked considerable ESD challenges that remain, for instance, ESD activities are merely implemented in fixed time-frames and with limited budgets, resulting in limited impacts consequently. Furthermore, the weak linkage between ESD policies and practices; the lack of ESD's complete integration in both education and sustainable development agendas have been pinpointed as key issues. Combined with the vision and momentum of the UN Decade of Education for Sustainable Development (2005-2014), UNESCO (2014) has put forward the significance and urgency of scaling ESD action in the Global Action Program (GAP) on ESD.

The review serves as a theoretical basis for the development of SWEDESD ReSolve scaling model, which aims to build capacity among partners to identify what, when, how, and why scaling ESD activities. Its objective is to offer different ways of thinking about scaling and to trigger fruitful discussion revolving key dynamics that enable scaling to happen in the ESD context. The review is to provide an overview of scaling concepts and approaches addressed in the literature: definitions of scaling; dimensions of scaling; the objects and subjects of scaling; important drivers for scaling, and enabling conditions for scaling. However, it does not attempt to summarize all the existing literature on scaling, rather chooses to cover the most prominent research and the latest knowledge within the field. It seems evident that the research on scaling mostly centers on specific sectors namely health interventions, agriculture and rural development, or thematic areas such as community-driven development, poverty. Yet, no research or case studies specifically dedicated to scaling ESD was found when this review was conducted.

Definitions of scaling

There is no universally agreed definition of scaling found in the literature. The term "scaling" is usually used with reference to other terms such as "scaling up", "replication", "expansion", "going to scale", and in some cases, they are even interchangeable. However, no matter what definition of scaling is applied in a particular context, it usually implies moving from a small to a larger impact. The author argues that "scaling" is not necessarily the same as "scaling up" as scaling can occur along different dimensions while "scaling up" implies scaling vertically and tends to emphasize the quantity dimension. Therefore, the working term of this review paper will be "scaling" instead of "scaling up" and the most widely adopted definitions of scaling in the literature will be reviewed in the following.

According to IIRR (2000), "scaling" is defined as *"brings more quality benefits to more people over a wider geographical area, more quickly, more equitably, and more lastingly."* This definition places an emphasis on the quality aspect of the impact that scaling brings about, which indicates that impact is not only about serving more people and more communities, but also about serving them well. However, it poses a little paradox with regard to the timing aspect, meaning that the quality of impact might suffer if scaling is to be implemented quickly. Many studies argue that scaling is a long-term and gradual process, which usually takes place over a period of 10-15 years. Given that the GAP goals are set out to be accomplished within five years, it might place time constraints on ESD stakeholders and actors and subsequently "force" them to rush their scaling process and expand their ESD activities as fast as possible. The dilemma is that ESD is considered holistic and transformational education, which constitutes

an integral part of quality education. In some cases, slower expansion might be desired to ensure the high-quality impact (Dees et al. 2004).

It is notable that IIRR's (2000) definition of scaling also places an emphasis on equity. This seems to contrast with Hartmann & Linn's (2008) view, which argues that the equity aspect is more relevant when it comes to scaling interventions that aim to reduce poverty and inequity, but not necessarily the case for other development programs and policies. Nevertheless, ensuring equitable access across all population groups has been recognized as one of the main challenges in scaling coverage. The issue arising from the equity concern is that a possible trade-off might occur between efficiency and equity. It appears to be easier and more efficient to achieve larger coverage by expanding to "easy-to-reach" groups (typically middle and upper social-economic groups or urban groups). However, the vulnerable populations are unlikely to benefit from scaling efforts in such cases. Therefore, scaling might result in higher level of inequality if additional measures targeting those groups are not taken into account (Mangham & Hanson, 2010). Given that the GAP brought by UNESCO (2014) devotes special emphasis to especially vulnerable groups, including girls and women, Small Island Developing States, and Africa, the author argues for the need of paying attention to the equity aspect when scaling ESD activities. The concern for equity can shape the way scaling should be done.

Another commonly known definition has been proposed by World Bank (2005) and adapted later by Hartmann & Linn (2008). "Scaling" means *"expanding, adapting and sustaining successful policies, programs or projects in different places and over time to reach a greater number of people."* (ibid) Critical in this definition is the notion of "adapting", which implies the importance of understanding contextual factors when scaling. Expansion of successful projects, programs or policies, therefore, needs to be sensitive and responsive to the context where it occurs.

WHO (2009) defines "scaling" as *"deliberate efforts to increase the impact of successfully tested pilot or experimental projects so as to benefit more people and to foster policy and program development on a lasting basis."* Even though this definition is developed specifically for scaling health service innovations, there are some important elements that can be drawn upon to gain a better understanding of scaling in general. It is quite clear from the definition that WHO (2009) perceived scaling as a guided and well-planned process, in contrast to "spontaneous diffusion" – another type of scaling found in the literature. WHO (2009) also highlights "successfully tested pilots" in its definition, which explains that scaled pilots need to be backed by evidence of effectiveness and feasibility. In addition, by including the aspect of "fostering policy development", it suggests that scaling needs to occur at multiple levels, and involve multiple stakeholders. Overall, scaling has been perceived as a process of transforming pilot projects which have been successful on small scale into national or regional level policy. This way of understanding scaling can also be found in other works (e.g.: Binswanger & Atyar 2003; Cooley & Kohl 2006). It can be explained that it arose from the frustration that pilot interventions or demonstration projects have failed to make an impact at the policy level despite their success at small scale levels (Bloom & Ainsworth 2010).

The Ford Foundation (2006) demonstrates a quantitative way of thinking about scaling – *"seeking to have more impact on more people"*. It refers to scale as the measurable impact that can be achieved on a measurable number of people and communities. There are some notions that can be drawn from the "seeking" element in this definition: firstly, it suggests that scaling should be a well-intended process rather than a destination; secondly, it appears to stress the effort of finding different ways or methods to scale a certain activity.

Many definitions brought up the sustainability aspect of scaling. Research claims that scaling only matters if the intervention or project to be scaled is sustainable. On the other hand, sustainability needs to be maintained as scaling occurs. Although the linkage between sustainability and scaling are implied in one way or another, their relationship has not been articulated in the literature. How one defines "sustainable scaling" and what needs to be done to manage scaling with sustainability remain unclear.

Dimensions of scaling

There are many classifications regarding different dimensions of scaling. The paper will review some of the most commonly agreed dimensions, highlighting some of the key features and differences. According to WHO (2009), there are four different types/dimensions of scaling:

- *Spontaneous diffusion* refers to the spread of good ideas or practices on their own accord. It usually addresses pressing or clearly felt needs and involves pioneering or ground-breaking technologies.

- *Horizontal scaling* occurs when innovations are replicated in different geographical sites or are extended to serve larger or new categories of populations. It is also known as "scaling out" process across geographical boundaries.

- *Vertical scaling* happens when formal governmental decisions are made to adopt the innovation at national/international level and it is institutionalized through national/international planning mechanisms, policy changes or legal actions. It involves other sectors, stakeholder groups in the process of scaling, from grass-root organizations to policy makers, donors, development institutions and investors at the international level.

- *Functional scaling* refers to increasing the scope of activity, adding interventions to an existing package or expansion into other areas.

According to WHO (2009), spontaneous diffusion rarely happens in scaling healthcare service innovations and scaling should be a guided effort, an orderly process with careful planning. This type of scaling is also missing in GIZ's (2010) framework for scaling in development cooperation and UNESCO's guide concerning scaling ESD in the GAP. Rather, they only adopted horizontal, vertical and functional scaling. This point of view might be grounded on their belief that scaling should be a planned activity, which appears to hinder them from acknowledging "spontaneous diffusion". Hartmann & Linn (2008) argue that scaling can occur spontaneously, however, the right path for scaling is dependent on the nature of the intervention. They remarked that diffusion of even the best ideas or practices often requires an information and knowledge infrastructure that is ready in place for dissemination and adoption. This does not seem to contrast with IIRR's (2000) point of view, which states that both planned scaling-up and spontaneous diffusion have such prerequisites as a supportive environment for it to thrive.

With regard to spontaneous diffusion (or spontaneous scaling), some studies argue that this type of scaling happens more commonly in the private sector through the force of competition, when profits provide the necessary incentive, but much less in the non-profit and public sectors (Hartmann & Linn, 2008; Cooley & Ved, 2012). Westley & Antadze (2010) argue that social innovations can emerge under specific circumstances to respond to certain issues, they are not necessarily of interest to the market. While market-driven innovations can spread quickly and spontaneously, research finds that social innovations which rely on existing frameworks, for instance, political processes and bureaucracies, participatory community engagement processes, do not generally spread out instantly or spontaneously. Even when there is spontaneous diffusion, there may be a limit known as "context roof" dictated by contextual factors such as macroeconomic, social, cultural, political, historical conditions (Gillespie, 2004) and the possibility of creating larger impacts is determined by the interplay of these factors (Westley & Antadze, 2010). When interests and efforts of different actors meet and enable synergies to happen, it can lead to the growth of social innovations (ibid). WHO (2009), however, argues that despite certain advantages that spontaneous diffusion can offer, such as reducing efforts and costs involved in the scaling process, it can risk leading to incomplete or superficial implementation of the innovation, and affecting the intended outcome as a consequence.

Uvin (1995) identifies four dimensions of scaling including quantitative scaling, functional scaling, political scaling and organizational scaling, which was adopted later in the analytical framework of scaling developed by Hartmann & Linn (2008). Although this way of classification shares many similarities as the previous one, it leaves out the "spontaneous diffusion" dimension and break down "vertical scaling" into "political scaling" and "organizational scaling". The first refers to expansion through influencing the political process and working with multiple stakeholder groups. The latter refers to expansion of the organization implementing the intervention, or involvement of other existing institutions, or creation of

new institutions. While "organizational scaling" implies the internal process occurring within the organization, "political scaling" suggests an external process occurring outside the organization, and involving working with other stakeholders.

IIRR (2000) categorizes scaling into five different dimensions as shown in details below. Other than institutional and geographical dimensions which are one way or another brought up in the previous two classifications, its distinction lies in technological, temporal and economic dimensions.

- *Institutional:* processes and mechanisms, wider stakeholder participation

- *Geographical/spatial:* expanding coverage to more communities

- *Technological:* extension of appropriate technologies or implementation of complementary technologies in order to increase productivity or manage the ecosystem more sustainably.

- *Temporal:* the timing and duration of scaling. Often, opportunities to advance scaling are rarely permanent, timing is critical to make sure that those opportunities are can be taken advantage to full extent (WHO, 2009).

- *Economic:* the costs and economic viability of scaling – how much it would cost to scale up, how economically viable it would be to scale?

Cooley & Ved (2012) develop their theory of scaling based on the discipline of "strategic management". They state that scaling can occur along five dimensions:

- *Geographic coverage:* new locations
- *Breadth of coverage:* more people in currently served categories
- *Depth of services:* additional services to current clients
- *Client type:* new categories of clients
- *Problem definition:* current methods to new problems

It is clear that there is some overlapping among different classifications. There has been no universally recommended system of dimensions of scaling in the literature. However, most studies agree upon the fact that scaling is a complex, multi-dimensional and non-linear process, which should not only occur in one dimension in order to be effective and sustainable. Especially, horizontal scaling and vertical scaling usually go together. IIRR (2000) draws out the interrelation between them by stating *"as one goes up higher the institutional levels (vertical scaling), the greater the chances for horizontal spread; likewise, as one spreads farther geographically (horizontal scaling), the greater the chances of influencing those at the higher levels."* In addition, functional scaling can run in parallel with other forms of scaling, which suggests that it is principles, processes and rules of a project or program that are scalable, not its specific activities and procedures because those are often strongly affected by the local conditions where they emerge (Gillespie, 2004).

Approaches to scaling

Scaling is a learning process

The early work on scaling was undertaken by David Korten (1980). Korten's model (see Figure 1) portrays scaling as an integral part of the learning process. The learning process approach proceeds through three successive stages, each of them involves a different learning task. It also highlights that some of the trade-offs may be made during the process.
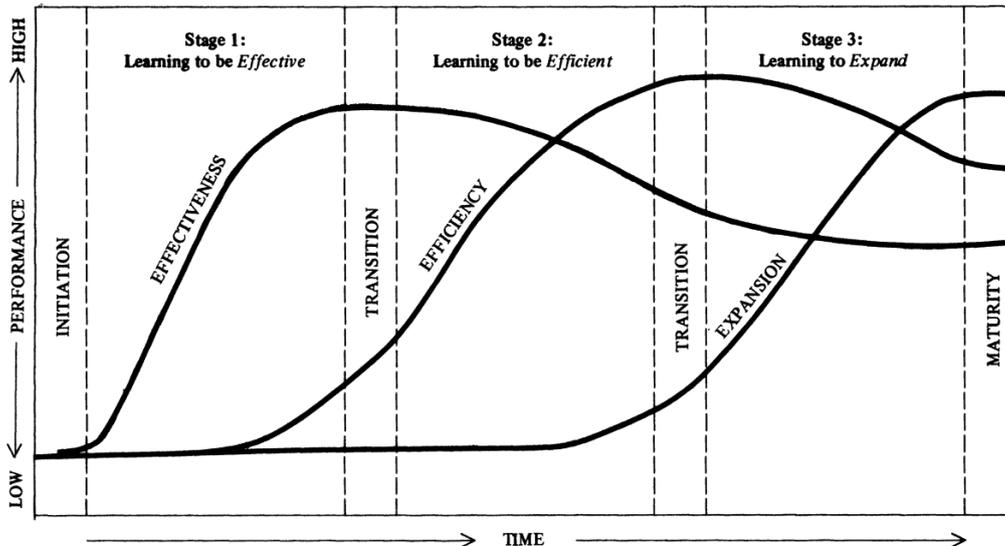
Figure 1. The program's learning curve (Source: Korten 1980)

- Stage 1 – Effectiveness: Developing a solution that works. Focus on a high degree of fit with beneficiary needs.

- Stage 2 – Efficiency: Finding a way to deliver the solution at an affordable cost. Focus shifts to reducing input requirements per output unit. At this stage, some loss in effectiveness might happen in exchange for efficiency.

- Stage 3 – Expansion (where scaling occurs): Developing a way to deliver the solution at a larger scale. At this stage, both effectiveness and efficiency might suffer due to trade-offs with expansi on requirements. They will be maintained at an acceptable level.

Scaling is part of the triad "innovation – learning – scaling up"

Linn et al. (2010) present scaling as part of a dynamic and interactive process, which includes three phases: innovation, learning and scaling up (see Figure 2).
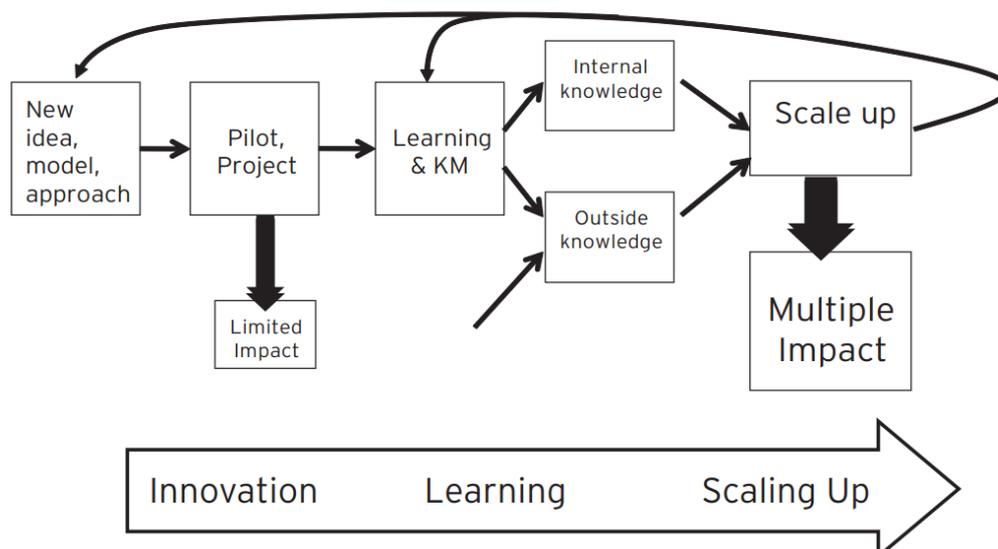

Figure 2: The links of innovation, learning and scaling up (Source: Linn et al. 2010)

During the *innovation phase*, a new idea, model or approach is embedded in a pilot project, which only results in limited impact. During the *learning phase*, the experience from the design and implementation of the pilot project is monitored and evaluated, which leads to the creation of internal knowledge within the organization and dissemination of external knowledge outside the organization. This knowledge in turn can be used to scale up the original idea, model or approach and multiple impact can be generated in the *"scale up" phase*. The experience from scaling will feed back into new ideas, models or approaches as well as learning and knowledge management. Besides, outside knowledge can also feed to the effort of scaling when another organization takes up on the learning experience of the organization that implements the pilot project.

Universalist and contextualist approaches

Hancock (2003) describes two approaches to scaling: universalist and contextualist approach. *The universalist approach* suggests that scaling is a universal process driven by a set of simplifying rules and procedures that can be easily replicated and adopted on larger scale. It does not require identifying and working with local variability, hence takes less time and efforts. On the contrary, *the contextualist approach* stresses that interventions or practices need to be tailor-made to address local context-specific conditions when scaling. Contextual factors could limit the potential scope and speed of scaling. Therefore, this approach would take more time and efforts than the universalist approach.

Hancock (2003) argues that effective scaling requires a balance of both universalist and contextualist approaches. This combined approach calls for identification of universal elements and context-specific elements, which is to assure to produce the desired outcomes but also create room for adaptation to the local context. Summerville & Raley (2009) confirm that successful models for replication "remain agile in their ability to balance essential and adaptive elements over time". Essential elements are identified in certain categories despite their variation across different programs: participant demographics; desired intensity and dosage of the program; duration of the program; key initiation and transition points for participants; staff qualifications and configuration. Drawing on this view, one can argue that the concept of agility could be incorporated in the understanding and application of scaling. Agility is often defined as the ability to adapt to unanticipated changes, embodying the attributes of both flexibility and adaptability (Sherehiy et al., 2007). It emphasizes an integration of response ability and knowledge management so that an organization could "rapidly, efficiently and accurately adapt" to changes and uncertainties in the environment it operates (Dove, 1999; Ganguly et al., 2009). The role of knowledge management in agility is also in line with Linn et al. (2010)'s view on the links between learning and scaling. Thus "agile scaling" could be arguably an approach to achieve effective scaling.

The Ford Foundation (2006) also supports the above perspectives, stressing that success does not come from the application of standard models and appropriate variation, nor standardization is the key to scaling when working in multiple contexts. The context-dependent nature of the scaling process implies that there would be no simple rules or clear sequential steps to reach scale (WHO, 2009).

Whether to scale

Before delving into important drivers for scaling, it is important to take a look into the question of whether scaling should be done. It is commonly accepted that not all projects or interventions should be scaled or can be scaled. However, the issue of "whether to scale" has not been articulated and addressed thoroughly in the literature. Hartmann & Linn (2008) argue that it would be in vain to replicate or extend something beyond the natural limits (e.g.: physical limits, environmental limits). "Boutique" projects with high unit costs that cannot be reduced when scaling are not suitable for wider expansion either, because they will likely be too costly. Besides, some interventions or projects that are highly contextual and heavily dependent on participatory processes in the community may pose difficulties to scaling. Large scale will be efficient to some innovations but may not be the case for others when it can result in inefficiency. Therefore, a decision regarding whether to scale calls for consideration and reflection on the optimal size of the program. Mulgan et al. (2007) explain that optimum scale is not only a matter of economics with regard to the cost structure, but also a matter of culture and a matter of essential relationships. In some cases, it is "scaling down" instead of "scaling up" that should be implemented, especially when diseconomies of scale and quality/quantity trade-offs are in the picture.

Summerville (2009), in his report that synthesizes experience related to designing, testing and replicating various social programs, points out four basic criteria (four key questions) to determine whether a program is ready for replication.

- Does it address an important social problem or need?
- Is it effective and if so, what makes it effective?
- Can it achieve positive results in a timely fashion?
- Are the program's essential elements clear and replicable?

Summerville's (2009) view can be found somewhat consistent with Hartmann & Linn's (2008). If a program was scaled prematurely without evidence of effectiveness and efficiency and clear potential for scaling, it would risk a failure and result in wasting resources. These resources could have been dedicated to other programs that have been proven that they should be and can be scaled.

Scaling objects and subjects

The objects of scaling

Most of the literature remains unclear about what exactly is being scaled up. Scalable innovations can be defined in both general and specific terms, with both explicit and flexible elements. Defining an innovation for scaling is an iterative process and definitions might be adapted to different circumstances and acquired knowledge when scaling progresses (Dees et al., 2004). The scaling objects is not limited to a certain technology, educational practice or component, a community initiative but could also be managerial processes needed for successful implementation (WHO, 2009 & 2010) or the processes and principles behind the technology or innovation (IIRR, 2000). According to Dees et al. (2004), there are three most common forms of scaling social innovations in order to serve a specific purpose, including *organizational model* (overarching structure dictating human and resource mobilization), *program* (an integrated set of actions) and *principles* (general guidelines and values). However, these forms are interrelated and their distinction is often blurry in practice.

Despite the ambiguity of the scaling objects, some studies attempt to identify key attributes of an idea, innovation or model that will likely enhance the potential of scaling (e.g.: WHO, 2009 & 2010; GIZ 2010; Cooley & Ved, 2012). They are referred to as CORRECT features and explained in the table below.

Credible	based on sound evidence, or advocated and recommended by respectable people and institutions
Observable	ensuring that potential users can see results in practice
Relevant	addressing pressing problems or sharply felt needs
Relative advantage	demonstrating relative advantage over existing ideas, models or solutions
Easy to understand	not complicated and not difficult to grasp
Compatible	fitting well with established norms, values and practices
Testable	can be tested without requiring full committment adoption until the results have been seen and confirmed

Table 1: Key attributes of scaling objects

The CORRECT criteria can be utilized for scalability assessment of a specific idea, innovation or model. An idea, innovation or model can be evaluated against each of these seven key attributes in order to determine its potential for scaling so that informed decisions regarding whether to scale can be made accordingly.

Many studies state that it is critical to identify core elements of ideas, innovations, and models that are fundamental to the success of scaling. These features which have been tested earlier and proved to be effective should remain intact during expansion, otherwise the desired results would not be achieved (WHO, 2009). If it is not clear, the innovation or model may not yet be ready to be spread, thus should be tested, refined, and simplified before widespread adoption (Dees et al., 2004; Cooley & Ved, 2012). It is argued that deliberate effort in simplification is one of the determinant factors for the success of scaling as simplification can enhance the feasibility of scaling.

Cooley & Ved (2012) argue that while many models proposed to be scaled are described as "best practices", few of them actually meet this standard. Therefore, they suggest applying standards of evidence to assess the readiness of innovations/models for scaling. A spectrum of evidence standards include *innovation* (minimal objective evidence), *a promising practice* (anecdotal reports and testimonials), *a model* (positive evidence in a few cases), *a good practice* (clear evidence from several settings or evaluations), *best practices* (evidence of impact from multiple settings, meta-analyses, expert reviews), and a *policy principle* (proven in multiple settings, considered widely applicable, and a "truism" essential for success). An intervention should be deferred to be scaled until it proves to reach at least the standard of good practice or best practice (Cooley & Ved, 2012; Cooley & Linn, 2014).

The subjects of scaling

The scaling subjects refer to organizational roles in the scaling process, and seek to answer the question "who performs what functions" in order to take a model or innovation to scale. Research suggests that three different organizational roles are involved in scaling: *the originating organization, the adopting organization,* and *the intermediary organization*. The originating organization develops and pilots the model while the adopting organization takes up the model. According to Cooley & Ved (2012), the adopting organization may be pre-existing or newly created and in many cases of collaboration, the role of the adopting organization can be shared between the originating organization and its partner(s). The originating organization and the adopting organization can also be the same when the originating organization increases its scope of operations and undertake major changes for the purpose of scaling. The conceptual distinction between these two organizational roles implies that the originating organization embodies innovation while the adopting organization represents application of the innovation at scale (MSI, 2015).

The intermediary organization is a neutral third-party that provides assistance to the scaling process. It can perform many functions, including but not limited to strategic planning, impact evaluation, fundraising, advocacy and marketing, convening and coordinating stakeholders, change management, organizational development, systems strengthening (MSI, 2015). The intermediary organization, according to Cooley & Ved (2012), often plays essential roles in assessing and strengthening the required capacities of the originating organization and adopting organization for the scaling purpose.

Important drivers for scaling

Drivers are understood as the motivating or driving forces that drive scaling forward. These drivers are often brought up in reference to other terms such as triggers, catalysts or sparks in the literature (e.g.: IIRR, 2000; Gillespie, 2004). Identifying and recognizing the "sparks" that can lead to the successful spread of a certain innovation, intervention or project is important to initiate the scaling process in the beginning. The studies show that the triggers or catalysts could be endogenous (originating internally) or exogenous (originating externally). They could be planned or come unexpectedly; unpredictable or follow some of the local, national or global trends. The key drivers for scaling, which have been recognized in the scaling literature and will be discussed in the following, encompass vision and leadership; incentives and accountability; external catalysts; and communication.

Vision and Leadership

Many studies show that a vision for scale, or the notion of "thinking big", is a critical driver for extending the impacts of an innovation, model or intervention. The Ford Foundation (2006) supports this view, stressing that the potential to create impact on a large scale should start first and foremost with an ambition for scale, which can be embedded in an organization's mission and goals, values and beliefs. On one hand, mission and goals, help define the desired scale – whether it's a geographic location (e.g.: community, country, region, the world) or an issue (e.g.: sustainable development, gender equality, poverty alleviation) or a discipline or field of practice (e.g.: community development). Values and beliefs, on the other hand, support finding the appropriate approaches to how scale should be achieved. An organization that values grass-root approaches and community participation will likely incorporate them in their scaling efforts.

Many interventions and projects are reported to show a lack of vision for scaling when they are designed or executed in the first place. They are either designed as "one-time" events when donors and funders merely focus on immediate results or "boutique" projects which are too expensive to scale due to their high unit cost and intensity of human skills. These kinds of projects could be successful on limited or small scale but demonstrate inherent challenges to the ability of replicating and expanding on larger scale. A vision for scale and a strategy about how it should be done need to be developed early in the beginning, becoming an integral part of the planning process (Hartmann & Linn, 2008; GIZ, 2010). In other words, a pilot should be designed with scaling vision in mind so that it could be scaled or would be ready for scale once proved effective. This notion is contrary to the fact that many pilots tend to wait until they become successful to start thinking about scaling. One could argue this was due to the need of showing evidence of success and impacts to donors or funders before it is taken into consideration for replication or expansion. It is no doubt that developing a vision for scale early on plays an important role in determining the success of scaling. Healey & DeStefano (1997) state that if such a vision does not exist, efforts need to be undertaken to generate it. However, how visioning plays out when considering on-going or completed projects or activities for scaling remains a question that has not been touched upon in the scaling literature. One could also argue for the need of re-visioning in order to drive a project to scale, stemming from the belief that a vision should be evolving over the course of its development rather than being static.

In addition to vision, leadership plays an essential role in pushing scaling forward. Scaling is about people and leaders are a crucial element of human capacity where they demonstrate high influence in the scaling effort (Gillespie, 2004). Research recognizes the presence of "champions" who possess outstanding characteristics and unique skills that are of importance to scaling. They are visionaries who not only show their strong belief in the potential of an idea or innovation but also are persistent and committed to the pursuit of scale. Other common features of such "champions" are that they have the ability to articulate a clear vision and build coalitions, well-connected and credible to mobilize the resources needed for scaling (Hartmann & Linn, 2008). One example is Muhammad Yunus, Grameen Bank founder, Nobel Peace Prize 2006 winner, who not only pioneered microfinance but also successfully led its expansion in Bangladesh. IIRR (2000) states that "Some people are the sparks, some recognize the sparks", meaning that they can recognize and capitalize on the opportunities for increasing impacts or have the ability to open up such opportunities. These opportunities can come from everywhere and come unexpectedly but some may follow local or global trends. However, the most profound sparks of all, as suggested by IIRR (2000), are people with a vision and a community which not only have motivations but also find values in scale.

Incentives and Accountability

An incentive is defined as "the promise of a reward or the fear of a punishment that encourages certain behaviors and discourage others" and accountability is "the obligation or willingness to take responsibility for one's actions" (Chandy et al., 2013). Unlike the previous driver, there has been quite a lack of systemic consideration and analysis of incentives and accountabilities as a scaling driver in the literature to date. Nevertheless, recent studies have attempted to introduce them as a critical factor facilitating scaling and their recognition has been growing steadily in the research field (e.g.: Binswanger & Aiyar 2003; Hartmann & Linn 2008; GIZ 2010; Chandy et al. 2013). It can be argued that scaling is a change process that could be hindered by actors' unwillingness to embrace change or political bureaucracies.

Therefore, appropriate and compatible incentives should be in place to reinforce action needed from key stakeholders to push forward the scaling effort. Emphasizing the significance of incentives in pursuing development goals, the Swedish aid agency SIDA states, *"A successful approach to the problem of development must focus on how to generate appropriate incentives so that the time, skill, knowledge, and genuine effort of multiple individuals are channeled in ways that produce jointly valued outcomes... Unless development aid properly addresses the incentives of underlying collective-action problems, it will likely be ineffective or, worse, even counterproductive."* (Quoted in Chandy et al., 2013). Hartmann & Linn (2008) reinforce that a system of incentives and accountability is perhaps the most important set of drivers as it encourages actors to incorporate scaling as a key criterion for defining success.

In the commercial sector, incentives are automatically embedded in the market-driven system. Businesses are encouraged to expand and reach the optimal size of scale under the motive of seeking profits and the force of competition. However, such incentive mechanisms cannot be found in the not-for-profit or public sector. Rather, incentives in the non-commercial sector are claimed to be varied from project to project, program to program (Hartmann & Linn, 2008). Also in these sectors, the presence of political and bureaucratic incentives, while encouraging new and different initiatives, might discourage systematic and sustained scaling over the long haul (Chandy et al., 2013).

Incentives can be positive as rewards for accomplishing scaling goals or negative as penalties for failing to achieve the goals. Incentives can come in various forms, ranging from monetary to non-monetary such as promotion, recognition and status. Incentives can also vary among different actors as they have different interests and diverging objectives. For instance, innovators have a tendency to be concerned about recognition and impact while managers may be more motivated about status and turnover. Financiers can be driven by financial return in case of investment or reputational return in case of funding or philanthropy. Staff is often concerned about job satisfaction, thus can demonstrate resistance to radical changes in structures, processes or systems that growth requires (Mulgan et al., 2007). Therefore, understanding different motivations of different actors would be important to align or realign incentive schemes when scaling.

GIZ (2010), drawing on their experiences in scaling their development programs, introduces such incentive mechanisms as financial and commercial incentives, competitions, incentives through transparency and peer-to-peer learning. Chandy et al. (2013) stress that incentives and accountability should be given adequate attention in the scaling agenda of both governments and aid agencies. Accordingly, they proposed a number of instruments for designing effective incentives and accountabilities. At the country level, governments could include such mechanisms as incentive grants, contracting, and competitions; and subsidies and other financial incentives, community empowerment, information provision, and improved internal management among providers. In aid agencies, donors can support scaling through the application of varied instruments such as Cash on Delivery, programmatic financing, support for competitive approaches, and aid for democracy development and community empowerment. Nevertheless, it is important to bear in mind that there is no blueprint for the design of appropriate incentives and accountabilities, as well as there is no blueprint for successful scaling.

Accountability, on the other hand, is needed to ensure incentives can be linked to shared objectives as well as prevent the misuse of power because power usually increases when scaling happens. This can be done by incorporating scaling as an important element of performance feedback, which means monitoring and evaluating a project or program in terms of the ability to create conditions for successful scaling. However, evaluation only leads to accountability if it also feeds back into the incentive system for individuals or institutions involved in the scaling effort. Not only does accountability need to direct upward to the institutional or political leadership and outward to donors but it also needs to go down to beneficiaries and communities and other partners involved. Research identified three key factors that determine the function of accountability mechanisms, including: (i) availability and use of information, (ii) mechanisms for monitoring performance, and (iii) adequate incentives for compliance. (Hartmann & Linn, 2008)

External Catalysts

Such external catalysts as natural disasters, civil unrest or economic crisis or any shifts in the contextual environment can trigger changes and scaling. Hartmann & Linn (2008) argue that the collapse of old systems or occurrence of crisis can push for rapid new solutions and increase the urgency for scaling. However, these occurrences can be simultaneously negative because it can decrease the capacity needed for achieving scale (Gillespie, 2004).

Other contextual or institutional changes such as a shift in donor mission, philosophy, commitment, or funding mechanism or a new donor coordinating mechanism also play a key role in driving programs or projects to scale as scaling often requires substantial financial resources to establish and run large-scale operations (Gillespie, 2004; Hartmann & Linn, 2008). In aid-dependent countries, donors even carry a bigger responsibility in the scaling effort because funding recipients are obliged to follow donors' preferences. However, it is stated that donor agencies, in practice, have not given sufficient attention to scaling as well as are not organized effectively in a way that they could support scaled programs or interventions. It is quite clear that resources are invested heavily in pilots but rather thinly in replication. Hartmann & Linn (2008) argue that donor alignment with government systems and government ownership of development programs will help create spaces in terms of policy, finance and politics that enable successful programs to grow and spread.

Communication

Other than the previously mentioned drivers, some studies also advocate the role of communication (or communicating) in laying a solid foundation for scaling (e.g.: Gillespie, 2004; Bloom & Chatterji, 2009; Summerville, 2009). Communication refers to the organization's ability to persuade key stakeholders that its idea, innovation or model is worth adopting or/and supporting. As mentioned earlier, scaling is a change process that tends to bring out inertia in people, it is important that actors not only get informed clearly and frequently but also become convinced of the values it could bring to them. A good communication strategy can build up recognition and reputation, thereby fostering positive associations and partnership, such as attracting champions or investors who can support scaling across different levels. Whether a communication plan can be effective or not depends very much on the act of "framing". Bloom & Chatterji (2009) argue that when the right "framing" is put forward, it can enhance the ability to scale – scaling can occur faster and make greater impacts. Framing is often understood as a communication tactic that highlights some bits of information about the subject of communication in order to make it more salient – "noticeable, meaningful and memorable" to audience (Entman, 1993). The ultimate purpose of framing is to attract stakeholders' attention, increase their interest or overcome their resistance to adopting an idea or innovation as the ambiguity related to the impact of an innovation might hinder them to do that (Pfeffermann, Hülsmann & Scholz-Reiter, 2008). Even though framing has been quite a popular topic in the theories of communication, journalism, advertising and branding, it is rather under-researched in connection with scaling. Little is known with respect to how an idea, innovation, or model should be framed in order to enable scaling. Some suggested that innovative ideas should be framed in accessible and inspiring ways in order for communication to become effective (e.g.: Pearson 2006). Nevertheless, it seems clear that framing is the most difficult task in the innovation process because it often requires processing a large amount of data, and extracting interesting stories from that data. It also requires the ability to identify patterns, to analyze and separate the important information from the less important information in order to generate insights that serve the communication purpose (Beckman & Barry 2007).

Gillespie (2004) emphasizes the importance of communicating in relation to past success because the demonstration effect may be the trigger for scaling either internally or externally. Past success is crucial to inspire new success and it needs to be communicated well. Therefore, a good internal communication strategy as well as working with the media plays a key role in spreading success stories.

As scaling is a complex process where action and impact are not simply a matter of straightforward cause-and-effect relationships, it affirms the notion that there is no recipe or blueprint for successful scaling. All the factors that drive scaling must be combined with opportunity whereas opportunity is something that can be realized and grasped but cannot be directly controlled. (Westley & Antadze, 2010)

Conditions for scaling

Challenges to scaling

It is difficult to discuss conditions that enable scaling without mentioning challenges or constraints to scaling. There is a growing body of literature that addresses obstacles to scaling and suggests possible solutions. Binswanger and Atyar (2003) identify five key problems that can hinder scaling efforts: high costs, hostile institutional setting, differences in values and poor coordination between stakeholders, lack of adaptation to the local context and poor logistics. Samoff et al. (2011) attribute the failure of scaling to the absence of three important factors: leadership, local interest and demand and funding. Money was also reinforced as the key constraint to scaling in many other works (e.g.: Bradach, 2003; Bloom & Ainsworth, 2010). Bradach (2003) argues that the failure to replicating social innovation is usually associated with strategy and management issues while most of the time it simply boils down to the issue of lacking financial resources.

Enabling conditions for scaling

Research states that scaling is an inherently complex process and can be a major investment of time, energy and resources. Scaling involves the organization and management of vast amount of money and enormous number of people. Money is needed for the cost of establishing and running large-scale operations while people are required to manage those operations (Chandy et al., 2013). However, scaling is more than an issue of money and people. It requires a combination of multiple factors in order for scaling to happen. Hartmann & Linn (2008) argue for the acknowledgement and development of "spaces for scaling" where opportunities can be created and potential obstacles need to be removed so as to establish a supporting environment for scaling. The most important spaces are identified in the following:

- *Fiscal/financial space:* Fiscal and financial resources need to be mobilized for scaling.

- *Natural resource/environmental space:* The impacts of interventions on natural resources and the environment need to be considered in a way that negative impacts must be mitigated while positive impacts must be leveraged.

- *Policy space:* The policy framework needs to allow scaling or needs to be adjusted to support scaling.

- *Institutional/organizational/staff capacity space:* The institutional and organizational capacity needs to be created to pursue scaling.

- *Political space:* Political support from important stakeholders needs to be ensured for scaling.

- *Cultural space:* Possible cultural obstacles or support mechanisms need to be identified and adjustments need to be made to fit cultural values and norms.

- *Partnership space:* Partners need to be mobilized to support the scaling effort.

- *Learning space:* Knowledge about what works and what does not work in scaling needs to be created and managed through monitoring and evaluation.

Research shows that growth in scale can call for a series of radical changes within multiple "spaces". Among those spaces, financial space, institutional (organizational) space and political space tend to receive more attention in the research stream. With respect to financial space, Chandy et al. (2013) state, "understanding the prospects of finance for scale requires an assessment not only of the size of resources but also how resources are being applied". This refers to assessing whether attention to scale is sufficient or not, whether investments show an appropriate level of focus, and whether specific resources can be gathered to persuade others to support scalable programs.

Within the organizational space, scaling might call for the adaptability or replacement of leaders. This stems from the belief that they could potentially become a hindrance to the scaling process. Leaders may have to change their leadership styles and methods or even need to be replaced if they are not suited,

or cannot develop their leadership capacity to the extent needed for the growth. Other than that, in many cases, growth can also require the evolvement of organizational systems and roles, for instance, robust processes and systems, more formal structures, clearly defined roles and rules, more discipline and accountability (Mulgan et al., 2007). Organizational readiness, as Dees et al. (2004) emphasize, is critical factor for growth. It means that an organization needs the will as well as the ability to develop capabilities needed to execute the scaling effort successfully.

It is quite often stressed that systemic change or changing the way society thinks is the ultimate goal of scaling. However, it rarely occurs in practice and many innovations fail to achieve system-level transformations (e.g.: Mulgan et al., 2007; Westley et al., 2014). Mulgan et al. (2007) further argue that scaling requires far beyond the capability of individual innovators and institutions and it is political leadership that can play a decisive role in most cases of systemic changes.

Mulgan et al. (2007) introduce the notion of "effective demand" and "effective supply", arguing that successful growth depends on the combination of these two factors, which function as the "pull" and "push" factors respectively. Effective demand refers to the social recognition of an unmet need and the financial capacity to address that need. Effective supply can be defined as the generation of innovations, the development of these innovations into forms that are well-fitted to demand patterns and possible to demonstrate effectiveness as well as their communication and dissemination. Despite that, Mulgan et al. (2007) state that the ideal conditions of demand and supply existing simultaneously are rarely the case in practice. Given that social innovations are highly context-dependent, what counts as "effective supply" or "effective demand" depends on specific situations and circumstances.

The literature presents multiple drivers and "spaces" that can drive the scaling process. Nevertheless, Jonasova & Cooke (2013) argue that not all of them have to be considered or developed with the same degree of attention and emphasis for all cases. Instead, effective scaling calls for identifying and focusing on the core factors that apply to a particular case. This view is also consistent with the fact that scaling is a highly contextual dependent.

Conclusion

Even though there is no universally agreed definition of scaling, it usually implies moving from small impact to larger impact. At the same time, many definitions of scaling put an emphasis on the quality and sustainability aspects. Four common dimensions of scaling include: horizontal scaling, vertical scaling, functional scaling and spontaneous diffusion, of which the first three are regarded as a guided and well-planned effort and more emphasized in the scaling literature. Most of the studies on scaling also agree that scaling is a complex and multi-dimensional process, and in order to be effective and sustainable, it should occur along multiple dimensions. Several factors have been pinpointed as important drivers for scaling including vision and leadership; incentives and accountability; external catalysts; and communication. Furthermore, in order to enable scaling, it is important to take into account multiple "spaces", where opportunities for scaling need to be seized and obstacles to scaling need to be removed. Of all the "spaces" brought up in the literature, those have received the most attention are financial space, organizational space and political space. However, as scaling is a highly context-dependent process, it is evident that there is no blueprint for successful scaling, thus not all the drivers and "spaces" need to be in place in order to push the scaling process forward. Rather, identifying and focusing on the core factors that are applicable in a specific case is key to effective scaling.

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