Scaling: Innovation's Missing Middle

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Table of Contents

Overview

Despite enthusiasm for small-scale investment in piloting new innovations, there appears to be a broad failure in the Humanitarian Sector's ability to scale up and scale out successful ideas.

This creates a need to understand and address the neglected elements of the innovation lifecycle that lie between the conclusion of a pilot program and the ultimate wide scale operation and optimization of an established program.

This is innovation's missing middle. It is a complex space that needs much more attention if an ever growing number of pilot program investments are to "grow up" and deliver meaningful value in the world.

Both authors are hands on practitioners of innovation within an enterprise context. Dan has spent several decades driving innovations with global commercial enterprises and government agencies. Ian has 15 years experience in the Development and Humanitarian sectors and has been directly engaged in leading innovation in the areas of their development, humanitarian and policy work.

Leveraging this hands-on perspective and interviews with key figures engaged in developing, managing and funding innovation in the humanitarian sector, this paper seeks to provide a framework for thinking about what blocks scaling and how to technically progress from proven idea to broad based operation. We hope this will help organisations as they attempt to fund, manage, and execute the scaling journey.

The Problem – Failing to Scale Good Ideas

I would not give a fig for the simplicity this side of complexity, but I would give my life for the simplicity on the other side of complexity. (Oliver Wendell Holmes, Jr.)

Positive and Growing Focus on Innovation

There is an unprecedented level of commitment and investment in innovation. A recent study by PriceWaterhouseCoopers found that 61% of CEOs said that innovation was a priority or primary focus of their business.[i] This focus on growth and future relevance through new ideas and transformation has dominated business thinking in both the commercial and not for profit space for much of this century and has reached a crescendo over the last few years.

In the Humanitarian industry, there is good reason for optimism on this account. There have been high profile wins transforming our approach to relief and development, such as the use cash transfers to replace physical aid deliveries.

Another trend that highlights the desire to innovate within the industry is the number of positions and teams focused on innovation that organisations have developed over the past few years. This shows that organisations are putting resources behind their innovation rhetoric.

In a departure from the traditional logframe based approach to funding that dominated the industry over the previous decades, the donor community has attempted to provide new funding models to stimulate innovation. Funds such as the HIF are evidence of a focus that is driving the development of numerous pilot products and programs.

The industry appears to be building on its strengths of solution finding and driving, often field led, innovation at a small scale.

Reports of Real World Concerns with Scaling

However, there is growing sense that a systemic problem exists with our ability to scale these successful inventions. Even as the number of pilot programs continues to multiply, and skill at managing a portfolio of new ideas matures, there are few examples of great ideas that have been deployed at scale, impacting large populations and serving needs in varying environments.

When carrying out the research for this paper, leaders in the Humanitarian Innovation space struggled to identify more than 2 or 3 innovations that they felt had truly gone to scale. In semi-structured interviews the innovation leaders repeatedly cited the same small set of success stories. Community Managed Acute

Malnutrition and Cash Transfers were consistently cited as examples of innovation that has been taken to scale. There were one or two individual respondents who cited other examples, but a consistent theme emerged; pilot programs were proliferating, but there was little evidence of them going to scale.

It is as if the humanitarian community, having become adept as small scale idea testing, has become addicted to a kind of "pilot-itis". This word came up again and again in our interviews. Small programs seem to be breeding like rabbits, producing myriads of baby bunnies, but multiplying without an effective way to grow up and deliver broad based value.

There were varied perspectives on the main reasons for this, ranging from a systemic "brokenness of the humanitarian system and many humanitarian organisations," to it "just" being an issue of where the industry is in the innovation cycle. Looking across the interviews, the following issues emerged as underlying challenges to the scaling new ideas.

1. **Preference for New Over Scale:** A seeming obsession with new, "shiny" and bespoke solutions. When good solutions that needed longer-term investment in order to scale were already in existence, the backing of new pilots as a dominant innovation strategy was seen as wasting money.

2. **Legacies Supported by Misaligned Incentives:** This was a key concern from a number of interviewees. It was felt that outdated legacy organisations, departments, and systems were sustained due to misaligned incentives in the industry. Despite progress being made by some agencies in accountability and measuring effectiveness, the lack of consumer and citizen power of many disaster affected communities over post disaster products and service provision, meant that entrenched legacies continue to exist, blocking the adoption and scaling of new ways of doing things.

3. **Investment Size and Time:** A lack of understanding by funders and decision makers regarding the real costs of taking an innovation to scale and ensuring that it is maintained and updated. A number of interviewees pointed to the fact that achieving scale takes significant time and financial investment, both in the private and not-for-profit sector. In some ways this is confirmed by the fact that the two prime examples of innovations at scale were actually pilot programmes from over a decade ago.

4. **Risk Aversion**: Embracing small pilot programs has been an important step for a Humanitarian sector that can be deeply risk averse. The risks of pilot programs are now widely seen as acceptable since they are relatively cheap and limited in scope. However, taking an idea to scale is far more expensive and drawn out over time. At this level of investment, the risk of picking the wrong pilot to scale can be paralyzing to decision-making.

5. **Measures of Success**: The prior element of risk aversion is made worse when there is a lack of understanding as to what constitutes success. There were discussions as to what scaling innovation actually means. It was felt that there was a reluctance to back scaling investments because there weren't clear measures to say whether they were successful. For example, do 40-50,000 deployments of Ushahidi across 159 countries, or Frontline SMS being downloaded 200,000 times across 130 countries constitute scale? Does the widespread adoption of an innovation within large INGOs who can afford it like Oxfam and Save the Children amount to scaling?

6. **Building/Finding New Skills:** Many traditional humanitarian organisations are innovating outside of their core competencies. This requires developing new competencies to enter the complex world of scaling. This often requires looking outside of their own organisations to build partnerships with organisations that have diverse new skills.

Exploring the "How" of Scaling

What was most interesting to the authors is that there was very little discussion of the actual process of scaling, about how capable humanitarian organisations were at doing this, whether or not they had the technical capacity and tools required. This question did not seem to be being asked in a fundamental way. Yet, this is surely key to scaling innovations. The authors believe this is an area for deeper exploration. The rest of this paper will do just that.

Unpacking the Innovation Life Cycle

Why don't successful Pilots consistently go to scale? We believe a large part of the problem is rooted in a failure to recognize the deep differences that exist between the stages of the innovation life cycle.

A Failed Strategy – Making Pilots Bigger

There is natural tendency to see scaling as simply the last stage of a successful Pilot program. In this model, the Pilot program "baby bunnies" scale up into big bunnies simply by making them larger or by deploying them in more locations.

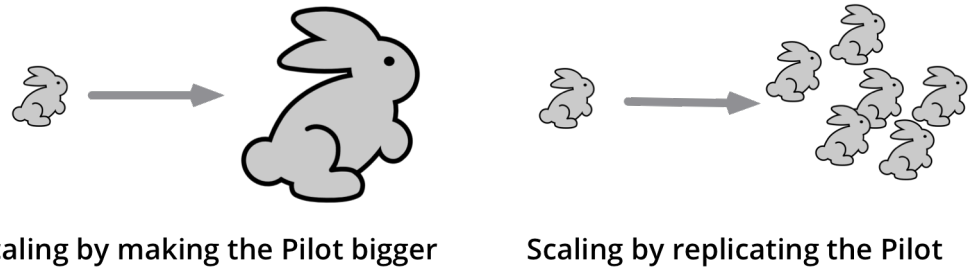

Figure A – Two Troubled Strategies for Scaling "Successful" Pilots

The intuition here is that with a successful Pilot, an innovator's key responsibilities have been checked off. Ideas have been tested and validated on a small scale, so it is now appropriate to apply proven techniques of large-scale outcome based program management.

The apparent failure of this strategy needs a systemic explanation that accounts for persistent challenges across many fields and programs. We believe the heart of this problem is a failure to recognize four substantially distinct stages of most modern innovation lifecycles. Even more troubling is a failure to account for how different each of the stages are.

Stage 1: INVENT – Exploring Ideas

"Invent" is the first stage of the innovation lifecycle. This is where Pilot programs are widely used. The great challenge here is that problems are often poorly understood, and there are potentially many ideas for addressing them. The problem space is dominated by uncertainty and questions. Which ideas are valid and how should they be constructed to produce the greatest value?

Eric Ries' Lean Startup[ii] popularized the build-test-learn idea testing model, where small investments validate new ideas by actually doing work in the field. While the phrase "fail fast" is often associated with the approach, "learn quickly" is a more appropriate description of the process. As new information arises during the Pilot, the best response is to remain flexible, pivoting the direction of the Pilot quickly and often.

This is a lightweight system that tests ideas cheaply both in terms of key human resources and financial investment. To promote speed, retain flexibility, and enable as many different responses as possible, most rules and dependencies are suspended.

Small teams of poly-skilled specialists fill many roles, working to limit the scope of the program to elements essential for learning. They are encouraged to operate outside the constraints, regulations, and integration requirements that weigh down traditional program operations.

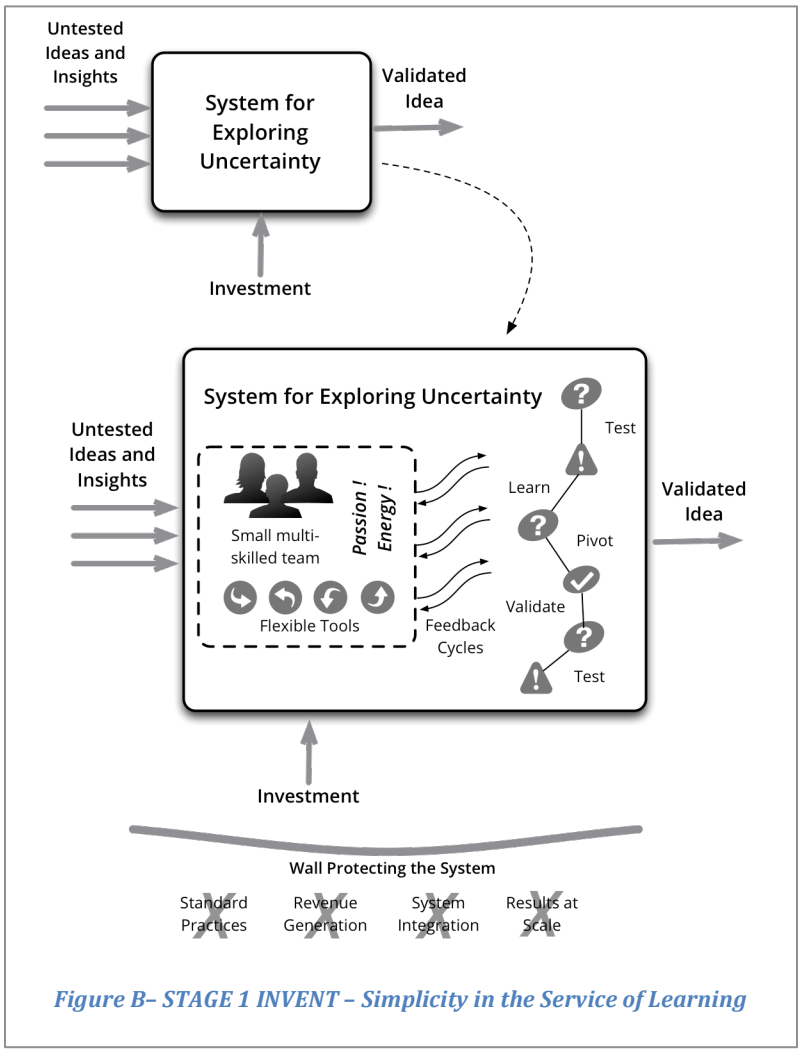

Figure B– STAGE 1 INVENT – Simplicity in the Service of Learning

Their tool sets are often improvisational and ad hoc, a creative use of duct tape. Nothing needs to be sustainable or robust.

This is a difficult and unpredictable journey. Top down control is seldom effective, so daily collaborative problem solving replaces formal reporting. Because passion, personal energy and individual commitment drive the effort, members of the team cannot be viewed as interchangeable cogs

These practices now form a widely adopted system for exploring uncertainty. Simplicity and flexibility are embraced in the service of learning.

Stage 4: OPTIMIZE – Continuous Improvement

At the other end of the innovation lifecycle, ideas are mature and already widely adopted. A very different system is at work. Ironically it also embraces simplicity as an organizing principal, but for entirely different purposes and with a much different execution strategy.

In the mid Twentieth Century, the manufacturing industry entered a period of crisis. After years of rapid growth and associate factory building, there was suddenly more than enough capacity to meet demand. Now customers, with many choices available to them, were no longer satisfied with simply having more products. They wanted better products. A race began to master the art of quality.

W. Edwards Demming entered this fray, defining one of the earliest sets of codified innovation practices. He aspired to create a factory operation that always delivered consistent quality and yet was open to continuous improvement.

The innovation system he pioneered was a process for making complex things better. It captured intricate factory operations in detailed processes and standards. With this done, it became possible to routinely measure performance against expected standards. ISO 9000, TQM, CMM and a host of other methodologies were developed to implement this approach.

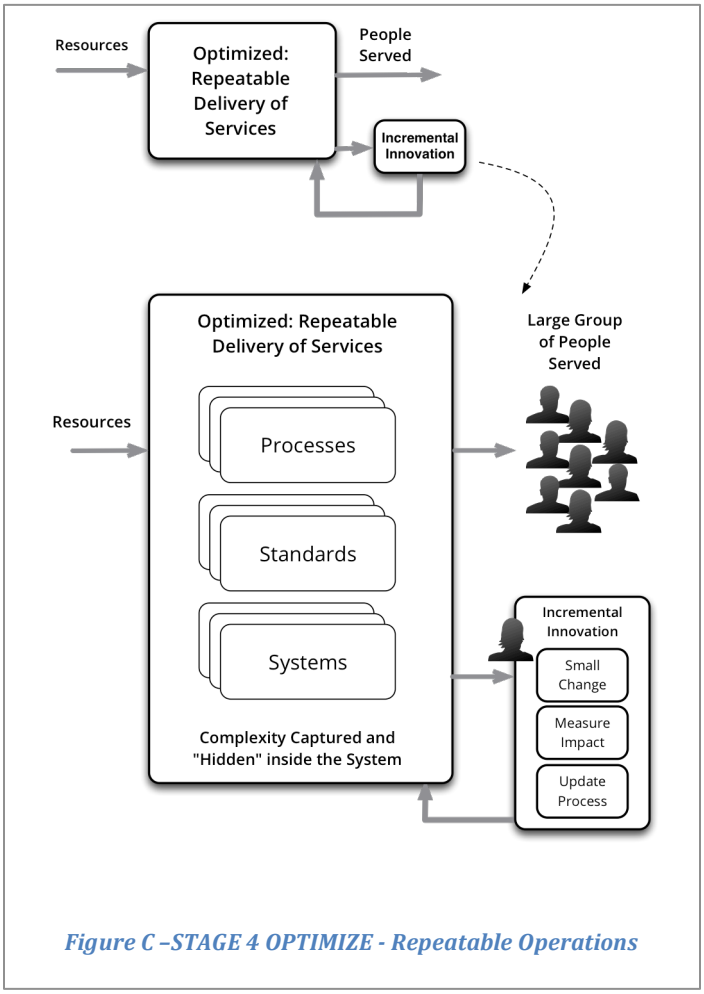

Figure C –STAGE 4 OPTIMIZE - Repeatable Operations

In this approach, a front line practitioner can engage a very large system without a full appreciation or concern for the underlying complexity. There are still many moving parts, but a worker on the factory line doesn't need to worry about this messiness when proposing an innovative adjustment, as the change can be contained.

This surface simplicity fosters a culture of incremental improvement, but comes with a tradeoff. Whereas simplicity was used in the Invent stage to promote flexibility, in the Optimization stage's encapsulated complexity acts as an anchor to deeper change and radical innovation.

The Missing Middle

It should be no surprise that two systems with such radically approaches should have difficulty transitioning from one to the other. They are fundamentally different systems for creating value, with little alignment in their approaches or goals.

A deep system transformation must occur between the initial Invent stage and the ultimate Optimize stage of the innovation lifecycle. This "Missing Middle" has received much less attention and lacks the established practices and framing models that have benefited innovators working to Invent and Optimize.

Figure D – The ill-defined Missing Middle

Many ideas have emerged to deal with the perceived scaling challenges. Compared to the seeming orderliness of the well codified Invent and Optimize practices, many of the emerging approaches seem widely divergent, sometimes seeming to solve entirely different problems.

We believe much of this messiness can be attributed to a general failure to appropriately unpack the challenges and journeys that occur in the Missing Middle. Dividing the scaling process into two distinct stages helps unpack these differences.

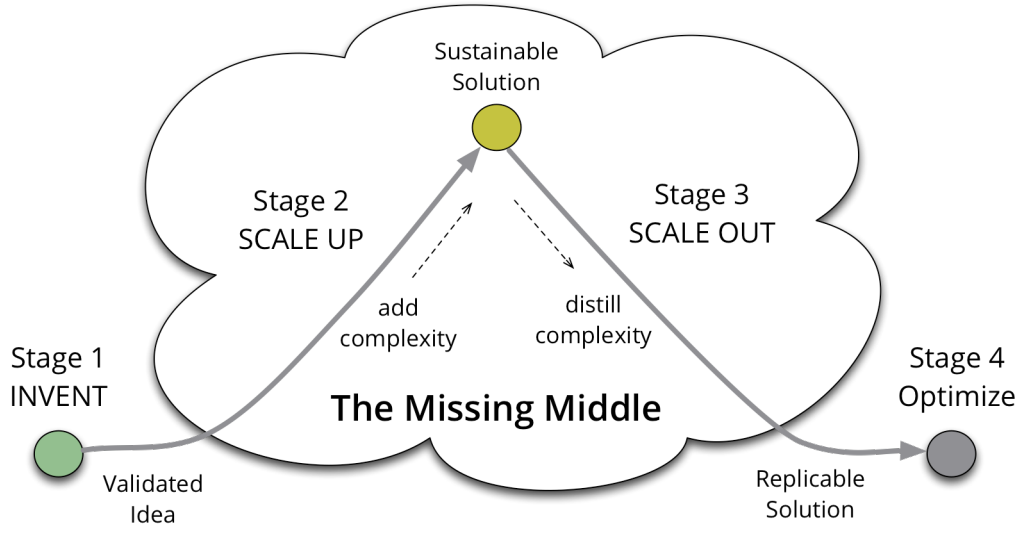

Figure E – Unpacking the innovation lifecycle

The goal of Step 2 in the Innovation lifecycle is to Scale Up, serving many people in the existing context with a solution that is sustainable over time. This begins with a successful Pilot, an idea that has been validated, but is hardly ready for prime time.

During the Invent stage many compromises will have been made in the Pilot. In almost every case, the project will be too simple to expand and serve a large number of beneficiaries in their current context. Supply chains, legal compliance, ongoing staffing, and business models are just a few of the areas likely to have been given little consideration as the Invent team explored a new idea. A Sustainable Solution cannot be based upon duct tape and heroic efforts to keep it working. It must deliver value over time to many people within a single context, using sustainably available resources.

Stage 3 looks to Scale Out the innovation by deploying it in additional locations. It is seldom an investor's goal to develop innovations that works only in one instance, so to justify the heavy initial investment in a new idea, the solution must be made to deliver satisfactory performance in multiple situations. Further, these varied deployments and operations must be done at price that can be sustained at scale.

Here, the need is to remove or hide complexity that permeates the earlier Sustainable Solution. This cannot be done by simply discarding difficulties, the way that fast moving insurgents do during in a Pilot program. Rather, in the Scale Out stage, the innovator must make hard choices between outcomes, cost, and flexibility.

The journey through the Missing Middle connects Invent and Optimize along a path that is rather like climbing a mountain of complexity. Complexity is added into the Pilot program to create a Sustainable Solution, and then is selectively distilled out again to produce a system that can be Replicable Solution at scale and ultimately optimized in many contexts.

Stage 2: SCALE UP - Climbing the Mountain

The initial Invent stage of innovation is designed to rapidly explore and learn. As described earlier, any number of short cuts, compromises and half implemented tactics are acceptable, even desirable, because of the speed and flexibility they foster. However, once an idea has been validated it is necessary to shift the innovator's strategy and develop a system for value creation that works in the real world without the Pilot's special attention and allowances.

The shortcomings of the Invent model that need to be transformed will obviously vary based on the specifics of the Pilot and the target goals for the scaled up model. Invent stage best practices encourages four pragmatic types of simplification that need to be addressed. To achieve a sustainable solution the innovation must ensure:

- Completeness
- Compromise
- Connection

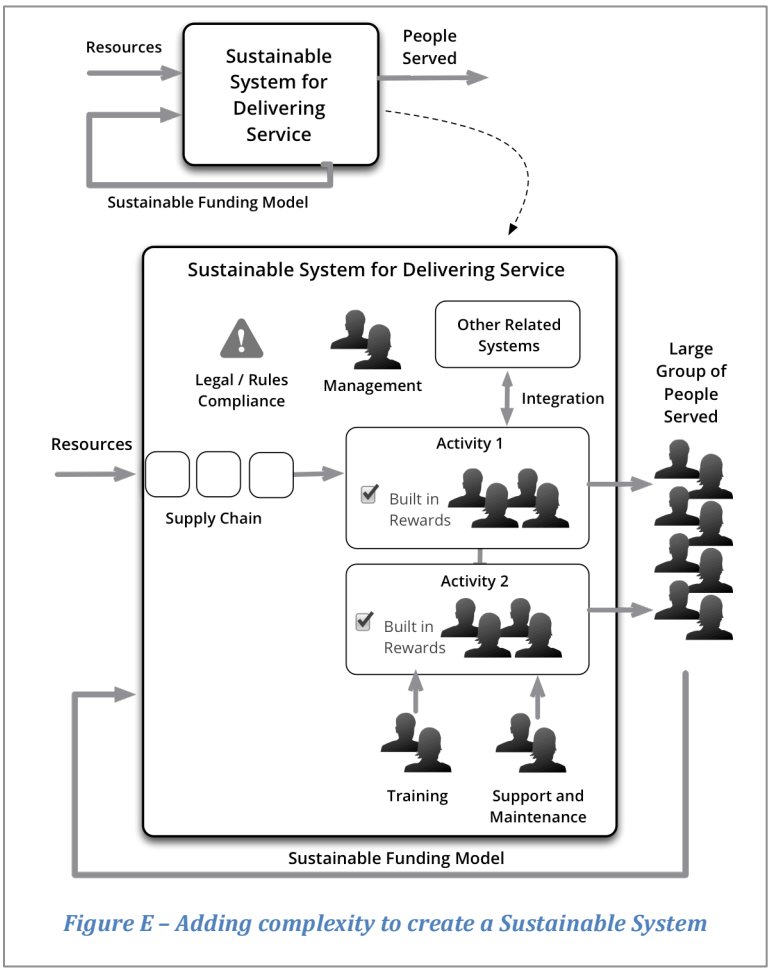

Figure E – Adding complexity to create a Sustainable System

Completeness

An obvious way to simplify a complex problem is to simply leave things out. Best practices in Lean Product Innovation specifically encourage the creation of a Minimum Viable Product (MVP), and intuitively this is what people naturally do with complex problems. They pick key bits to ignore or simplify.

For example, in the humanitarian sector, most innovation funds have been released in the form of a grant or within a program budget. Questions about sustainable business models need not be addressed in detail.

Another common simplification by omission occurs with long term maintenance and support services. If the pilot is short enough, there's no need to worry about who will repair the equipment a year or two down the road, the costs of large-scale deployment, or the provision of ongoing maintenance. The complexities of training, administrative processes, quality control, and security are all tempting candidates for simplification when they don't contribute the fast paced learning of the Invent stage.

Proud insurgent change agents often point to their ability to cut through red tape, claiming that a key part of the innovation is this paring away of deadwood. It is true that in some cases traditional complexity can be jettisoned, but a far more common situation is that omitted elements must be added back into the pilot to create a sustainable solution.

The founders of virtual currencies such as BitCoin aspire to create a parallel economic system without the mind numbing complexity of existing monetary systems, and at first the lightweight freedom of the simplified environment empowers rapid exploration and invention. However, when currency is stolen it becomes clear that some additional safeguards are needed. These spawn the need for dispute resolution processes, which in turn highlight the needs for other missing elements of a genuinely complex system.

Compromise

A second form of simplification doesn't go as far as omitting a key function, but still cuts corners by making compromises in the approach. Excess expertise is often leveraged by pilot programs to help speed programs forward, learn from experiments, and respond to unexpected problems. Having a smart and resourceful person on the spot makes this all easier.

Really smart people don't scale well. So this compromise needs to be replaced with a more complex and admittedly more difficult approach that draws on the pool of actually available resources.

Passion is often in great supply during a pilot program, with highly motivated and driven individuals intensely focused on making things work. There can be more than a bit of surprise when they discover that their successors are more conventionally motivated. A real model of rewards aligned with individuals goals and needs eventually must replace the evangelical energy of the inventor.

Fixing a compromise can be frustrating because, unlike with the challenge of completeness, there is something that works already. The aspect of the solution simply can't be taken to scale.

Connection

The final gap that needs to be filled with added complexity is connection. Most pilots are developed in something of a bubble. In contrast to this, a web of systems makes up the real life context of any meaningful innovation.

There may be integrated technology systems for accounting, multiple party supply chains, or processes flows that knit together different people's actions into a whole. If we want to have the innovation function within the other parts of a complex world, we need to determine how to plug in.

While this is essential for any meaningful impact in complex environments, there is seldom a serious effort to do much of this integration during the early stages of invention. There are two reasons for this. First, connections make it more difficult for the pilot to pursue its learning goals. Each point of integration establishes a set of constraints on the solution, takes time to setup, and limits the ability to pivot. It can be quite like a sticky and binding spiders web.

Just as importantly, the owners of the surrounding systems are rightfully skeptical about demands on their time from a tiny initiative that can't even make up its mind about what its ultimately doing. There is typically fierce competition for attention and resources for existing operating systems. Getting on calendars and getting work done is slow, difficult, and can produce conflict along with delay. So, integration is often justly deferred during the Pilot, but the solution cannot remain in a bubble once it moves to scale up.

Stage 3: SCALE OUT – Descending the Mountain

When the Stage 2 Sustainable Solution is complete, there is a complex system that is well integrated into the immediate context. It can scale up and deliver value to a large audience who fall within this unique set of circumstances. This is a meritorious one-off success, but it does not directly enable the kind replicable improvement that so many investors in innovation hope to create. It scales up, but it has not scaled out.

Engineering the Sustainable Solution added missing complexity into the Pilot until it had all the elements necessary to produce value for a particular implementation of this idea. To make the idea replicable, much of this complexity must now be hidden. In effect, another transformation is needed, going down the mountain of complexity.

Why Replication is Hard

From the standpoint of replication, the ideal result would provide a single packaged solution that could be successfully applied in any circumstance with minimal effort and training by a wide range of practitioners. Such a model would allow the team driving an innovation toward maturity to claim that their job is done, and for the those responsible for replication to focus on factory style optimization of execution.

It's an ideal that hardly ever happens. Let's explore why.

At the heart of the problem is Context. Situations which superficially resemble each other are seldom actually the same in all their important attributes. These differences manifest themselves in multiple ways, but all can contribute to the failure of a "proven" solution.

Key assumptions that have been "baked in" to a program's design may not be true in a different situation. Often perfectly valid design criteria in the original context are altered or even false in the new context. For example the original program may have been developed with a community leader who values change and opportunity. Strategies will need to change if subsequent implementations must deal with leaders whose fundamental values are conservative and wedded to the status quo.

Note that this is a different problem than the Innovator faced during earlier stages of innovations, when fundamental ideas were being validated. At this point, an answer can be right in one context and wrong in another, and no amount of good work in the original design will seamlessly account for potential variations in context.

Context changes with time too. Assumption that operated perfectly well at one point in time can become useless as conditions on the ground change. New innovations and changing needs often serve to raise the bar on expectations. Initially, when deprived of options, people may be quite willing to accept less than optimal results, but as choices expand they become increasingly intolerant of compromise.

At every point of integration with the local environment there are potential difficulties. The classic problem of trying to plug an electrical appliance into the wall in different countries without an adaptor is a metaphor for a broad class of problems around establishing standards and driving conformance with them.

Even if there is agreement on standards, these standards come with their own context dependencies. Everyone may agree to use a particular standard for a particular purpose, but that doesn't mean that the standard supports the needs of others further out in the ecology. Everyone may agree that something should be shipped in packages of a given size, only to discover that the boxes don't fit on the back of a bicycle used for delivery in a given area.

Making Tradeoffs

The bad news is that there is seldom a single elegant solution to this challenge of replication in diverse and changing environments. There are multiple dimensions to be considered. How much can be invested in each deployment? How consistent must the results be? What level of resources are going to be required? The Innovator must choose which of these factors is the most important and which one's can be compromised.

Of course, it would be ideal to avoid compromises between these factors. It is possible to imagine an approach where brilliant practitioners with years of experience draw on infinite budgets, tailoring deployments to the unique elements of each new context.

This ideal, but luxurious, system of value creation is seldom a real option for replicating a working innovation. Replicable systems have to take some portion of the complexity from the Sustainable Solution and package it in a way that it can be adopted by different stakeholders in a world that refuses to remain static.

The practical reality is that the Innovator must make tradeoffs among the multiple dimensions are at play:

1. **Complexity** – How many moving parts and exposed elements can we accept? What is the difficultly of understanding and working with the solution?

2. **Customization** – How much tailoring of the solution are we willing to do to meet unique local conditions and needs?

3. **Change** – How much change over time do we expect to have to support?

4. **Conformance** – How much agreement with our approach and standards do we expect from others?

5. **Capacity** – What kind of resources do we expect to be available? What skills? What funding?

6. **Consistency** – What level of performance must we achieve? How uniform do results need to be?

Ideally these tradeoffs are made intentionally. For example, trading off an ability to customize solutions against the reality of limited resource capacity may be entirely justified in some situations, but a foolish choice in others.

Systems for Distilling Complexity

A closer look at commonly used deployment strategies reveals that they differ in which priorities they implement. In one form or another, they all hide complexity from the initial Sustainable Solution, but they manage the distillation of complexity differently. Each makes tradeoffs in a different way. An Innovator working to Scale Out their solution can choose the approach that makes the best compromises for their goal.

- **Custom Deployment:** As mentioned earlier, it is possible to move into a new context by doing the same thing the Scale Up team did in the original environment, tailoring functionality and connections to the local conditions. This approach keeps all the complexity from the original solution, a strategy that requires unique high value people, substantial time, and large budgets to replicate in each new environment. Ironically the process of custom creation can encounter unexpected pitfalls, so despite the investment the consistency of the outcome is uncertain.

- **Packaged Solution:** At the other end of the spectrum, we could distill the basics of the solution into a set of rote instructions and replicate the approach in production line fashion. Here the Innovator hides complexity and limits customization. This can be affordable and easy to adopt in environments with limited resource capacity. It is the classic model for engineering replicable solutions where variations in context are limited, such as a franchised restaurant environment. However, in messy environments where full control of conditions doesn't exist, the forced consistency often fails when confronted with local differences that really do matter.

- **Platform:** A platform approach takes a position midway between these extremes. With a platform, a suite of elements is packaged together with very tightly defined interfaces and standards. Within the platform itself, complexity is hidden and conformance is enforced with the outside world. However, the platform is not the whole solution. It is designed as the foundation for independent innovation, with creative additions being built on top of the core "black box". ODK based survey tools or micro cash transfers using mobile phones are examples of using platforms for innovation. The innovator does not need to re-invent a mobile phone network, so they can quickly add their own custom innovations on top of the established standards.

- **Tool Kit:** Tool kits are similar to a Platform in the sense that they have components that are tested and include well-defined interfaces to connect with other tools. In this case, the elements are relatively autonomous and can be assembled in different ways to meet local conditions. If a Platform acts as a foundation for innovation, then a tool kit is more like a Lego set. Diverse innovations are built from a set of standardized parts.

- **Standards:** Another form of replication is to create standards and constraints that bind all the players in a space. In effect this aligns other innovators to a validated approach and enables multiple solutions to work together. Standards are quite powerful in that they can impact a broad range of investment, but they are notoriously difficult to create, adopt and enforce. They are also particularly vulnerable to change, becoming more and more brittle over time.

Managing Scale Up and Scale Out

Innovation management models must align with the underlying value creation model used in each stage. As a result, there is no one right way to manage an innovation across the entire lifecycle.

Over the last few years there has been a period of cultural adjustment within the Humanitarian community. "Fail friendly" innovation management models have been increasing accepted as a practice in support of the Invent stage of innovation. The change was a necessary shift because the traditional tightly controlled and measured models for optimizing well established capabilities were simply inappropriate for new idea exploration.

A similar shift in management strategies needs to occur as innovations moves from Invent to Scaling. These are two very different kinds of activity. The Invent stage is driven by a need to experiment, design and validate ideas. Management practices encourage quick and effective learning in an uncertain environment.

In contrast, innovations Scaling Up must focus on complex program architecture and engineering. Demands outside the original talents of the Invent Teams are piled onto the initiative. A technology innovation can easily grow to require skills in change management, supply chain design, business model development, and human resource planning in order to become a Sustainable Solution.

The nature of risk shifts too. As challenges move from Invent to Scale Up the leadership priorities shift from managing uncertainty and risk of unexpected failure to dealing with organizational engineering problems that are complex and hard.

There are many Wicked Problems, issues without clearly defined answers that often come with messy complex social dynamics. These types of problem cannot be planned out in advance, so as with other stages of innovation, iterative learning plays a key role. However, as programs Scale Up, the learning is not simply about idea validation. The goal is to progressively reach a complete end state solution.

A number of management changes come out of this shift:

- **Measuring Progress to End State**: The Scale Up process may well reduce the actual efficacy of the program as real world realities are integrated into the solution. Outcome based measures, which track program effectiveness, need to be replaced with other measures that reflect the progress the program has made to becoming a Sustainable Solution.

- **Passionate Owners:** The path to engineering a complex system requires a "big picture" vision of the end state. This holistic view is used to knit together the various elements and to make sure that key gaps don't exist. Program Owners are responsible for developing and maintaining this vision. In our experience this cannot be delegated to a committee or captured in a pre-planned report. An active and passionate architect, who has a holistic view of the initiative, is needed to guide the creation of the Sustainable Solution and eventually distill complexity for a Replicable Solution.

- **Time and Investment:** This creation of complex Sustainable Systems is a long journey that can easily require more time and money than the original pilot. Investment to simply to achieve a complete Sustainable Solution that is distilled and deployed as a Replicable Solution can be substantial. Time frames may well extend beyond the short-term attention span of most grant funded efforts.

As with the earlier effort to create an Invent capability within the Humanitarian sector, these changes will run into established policies and practices. Significant changes across funding agencies, NGO's and collaborating organizations will be needed. Many of these are called out in the table at the conclusion of the report.

To some extent this is happening, particularly around financing. Over the past few years for instance DFID has identified two valleys of "financial" death for new innovations. The first initial idea funding valley, and the second scaling valley. In some senses the pilot USAID DIV Humanitarian funding mechanism of last year was aimed at this second valley of death. However, a decision making process that took the best part of 10 months from concept to final decision, coupled with a seemingly poor success rate of applications, shows that even when there is funding available, there are deeper problems in the scaling stage for innovation in the industry.

Key Program Management Differences in the Missing Middle (Table)

The following table highlights the differences that exist under each of the innovation models.

Comparing Innovation Models

Stage 1 Invention	Missing Middle Taking to Scale		Stage 4.0 Optimize
	Stage 2 **Climbing the Mountain of Complexity – Sustainability**	**Stage 3** **Descending the Mountain of Complexity - Replication**	
Key Purpose			
Explore uncertainty. Discover what works. Create original value	Create a complete solution that works in the "real world"	Simplify the deployment of the solution to enable replication	Create value by enhancing existing solutions through incremental improvements.
Principal Leader			
Entrepreneur	Architect	Product Owner	Operational Manager
Dominant Business Mindset			
Nimbleness and ability to pivot	Architectural/systems thinking	Simplification/marketing/product thinking	Economies of scale and efficiency
Investment Criteria			
Potential for opportunity	Successful pilot (good idea) Clear stage gates for delivery	Proven market fit Clear deployment/replication	ROI Clarity of known costs and

Stage 1 Invention	Missing Middle Taking to Scale		Stage 4.0 Optimize
Passionate entrepreneur	and financing Viable path to scaling Product Scaling capability Ability to sustain the journey	strategy Marketing plan	counterfactuals[1] Detailed business and project planning.
Complexity vs. Simplicity			
Simplified environment that removes complexity to enable flexibility	Embrace complexity to engineer whole integrated systems of value	Simplify the solution for usability by end users in different contexts	Codified systems enabling targeted improvements Simplified environment that hides complexity to enable replication and incremental change Conformity?
Biggest Risk			
Unknowns / Risk of failure (you're wrong)	Complexity / Difficulty of solution (its hard)	Not being able to simplify the solution in the format users want.	Bad Management / Risk of poor execution
Risk Management			
Short iterative learning. Fail fast. Learn quickly	Big picture vision. Progressive creation of complex ecology.	End state usability, market fit and demand for end product/service	Planning and tracking compliance with plan.

[1] i.e. we have the counterfactual of the current cost of doing/producing this already, so we have a comparator to run an ROI against for the new solution.

Stage 1 Invention	Missing Middle Taking to Scale		Stage 4.0 Optimize
Measures of Success			
Value Delivered at small scale	Progress toward big picture vision (more complete) Continued delivery of value (e.g. it still works) New Value (e.g. synergies)	Replicable solution deployed at scale	Value Delivered Project Progress
Timeframe / Investment			
Short / Small Projects (pilots), Small scale, limited exposure	Long sustained investment over uncertain time frame	Clearer timeframes due to need to get the product/service to market. Clarity of costs and revenues achieved to guide investment levels. Market stage gates - establish demand	Single go/no go decision made on setting up project/programme and financing it. Clearly defined scope and duration
Legacy Impact			
Change is isolated	Potential for deep structural and business model changes. Unproven change models.	Clearer understanding of the impact. Distillation of complexity path clearly outlines the impact on legacy environment.	Replicate: Known changes with known change management Optimize: Change within existing framework
Development approach			
Agile	Meta agile	Modularization	Waterfall / Blueprint

Recommendations – Fostering Scaling

So what does this mean for Humanitarian organisations? There is much good work being done to invent new ideas that can address pressing humanitarian needs.

But inventing and validating pilot innovations is not enough. The largely unmet mission remains, scaling them to deliver broad based value for affected populations. There are both internal and external challenges to be undertaken:

- **Portfolios Of Innovation** – As comfort grows with the Invent stage of innovation, there is a danger that funding will increasingly focus on new idea generation. Yet substantial investments in less glamorous long term projects for scaling will be needed to bring these new ideas to a broad based of beneficiaries.

- **Contracting: Longer Time Frames / Changing Measures:** Climbing and descending the mountain of complexity will engage teams for long periods of time on many different processes. Logframe thinking won't be applicable. Longer time frames must be anticipated and contracted for, although iterative steps along the way will continue to be useful. The measures of success must be also adjusted, so as to reflect progress towards a target end state of the system.

- **Sustained Funding:** Funding models in the Humanitarian sector are plagued by two problems that make scaling difficult. The first is the preference for short-term projects with clearly measured success factors. The second is an excessive dependency on money influxes that occur during the big emergency responses. Scaling requires sustained funding and continuity of effort, and funding models must be able to support this.

  People, Mentoring and Guidance – Scaling does not have well-established best practices or a deep pool of experienced resources. Expertise and insight into the complex issues that drive success may be the thing in shortest supply as Innovators seek to take their idea to scale. The positive deviants and innovators on the margins may not be the best-positioned agents to scale their invention. Identifying, engaging and mentoring architecturally focused big picture leaders, and guiding their new practices, will become a key requirement of success. This could be an area where funders and other program sponsors could step in and provide deeper levels of support to promising innovations.

  Expanded Collaboration: As mentioned earlier, scaling is a complex and messy challenge that demands many different skills. Humanitarian

organisations will increasingly need to go beyond their capabilities to drive complex innovation scaling. New partnerships, including with the private sector, offer a way to meet this need. These partnerships are not easy, and often require skilled facilitation, brokers who can understand the diverse language and world-views of the different partners.

An Accenture study found that only 38% of businesses have a well-defined innovation strategy and system.[iii] This is not be a luxury leading innovators in the Humanitarian sector can accept. Scaling up and scaling out innovations, climbing the mountain of complexity will require intentional leadership in new innovation management techniques and policies.

Thus far, the track record for scaling has been spotty at best. Putting this in a positive light, this means there is a great deal of untapped potential to create value. Given the number of promising "baby bunny" pilots that are being developed each year, becoming good at scaling offers a uniquely rich opportunity to increase the impact of the sector's innovation investments.

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[i] PWC innovation survey http://www.pwc.com/gx/en/innovationsurvey/ accessed 30th June 2014

[ii] Reiss, Eric (2011) *The Lean Start Up,* Random House, USA

[iii] Accenture (2013) Why low risk innovation is costly, http://www.accenture.com/SiteCollectionDocuments/PDF/Accenture-Why-Low-Risk-Innovation-Costly.pdf accessed 31st July 2014