ELEVEN

A Short Story of Transmediary Platforms

Bright Simons

Winston Soko[1] rose from his desk, gently closed his laptop, and paced around his modest but elegantly decorated office thinking about the mini-crisis brewing in Kasungu.

NASFAM, the Malawi smallholders' cooperative, had called him that morning, lamenting delays in a long-awaited digital seed certification program, which they blamed for a severe crop failure in the farmlands adjoining the central regional town.

Winston's organization, Praxis, had pitched a vision to many Malawian agricultural stakeholders more than two years ago, at the Seeds Traders Association of Malawi (STAMM) annual congress. It was a powerful vision. An integrated solution that would connect all the key actors in the Malawian agricultural ecosystem and bring unprecedented transparency, efficiency, and, ultimately, productivity into the cluster of industries defining the agricultural sector and its public sector support system in the Southern African country.

In the first incarnation of the strategy, Praxis was to be a central hub for data exchange, standards development, quality assurance, capacity building, and trade facilitation. Indeed, a veritable one-stop shop backed by a unified technology platform for the sector as a whole.

But being the hub also meant being the intermediary. In a world of digital platforms, such a model seemed fairly ordinary, but it also meant that everyone stayed where they were while the "hub" had to run around trying to bridge the

1. Names of individuals and organizations have been changed for prudential reasons, except for "Agrotrack," which is the real name of the platform initiative.

gaps. This was not a very hubby thing; hubs are expected to sit in the center while minions orbit. Delays, given the expectations, would inevitably be perceived as the hub's fault.

The jewel in the central hub's crown would be the seed certification protocol. This had many ingredients: streamlined quality testing, "agricultural extension support" to both commercial seed growers and the farmers who bought their seed, an independent phytosanitary inspection regime, export promotion capacity building, horticultural skills development, agroforestry and environmental safeguarding measures, and a host of other elements. These elements were perceived to be intertwined by local development specialists, with whose help Praxis had conceived the concept as crucial to truly solving the conjoined problems of food security, rural poverty, malnutrition, deforestation, and land degradation. The functions were to be streamlined and enriched by digitization atop the common tech platform.

With the Sustainable Development Goals (SDGs) serving as the backdrop for all these activities, isolated interventions had no place in the strategy. The cardinal principle of the Rio+20 framework, the animating philosophy of many SDG implementing mechanisms, is simple: "None of the goals are standalone."

If bad seeds lead to bad harvests, inevitably it will drive farmers to use too much pesticide, which will poison groundwater. More exposure to toxic chemicals would certainly mean sicker farmers and thus lower productivity, but its lingering and residual impacts, including congenital and developmental problems in the unborn, infants, and toddlers, would have severe adverse impacts on education and, obviously, community health. Solutions to social problems must exhibit *connectedness*.

In the first year of trying to roll out Zambiri—the name given to the "connected hub" initiative (based on a word from the Nyanja language popular in Malawi and loosely translated as "abundance")—Praxis had frequently found itself paddling against the current. Occasionally, the tide would turn, and momentum seemed imminent, only for something to pop out from the woodwork and derail carefully laid plans. Typically, this would be some "stakeholder" claiming that some other initiative already covered some aspect of what Zambiri was meant to do. The said initiative would have been missed during Zambiri's mapping of the ecosystem because it would more likely exist in the covers of deskbound files in some departmental backwater in Lilongwe or Blantyre than concretely on the ground in the provinces. Yet someone would keep resurrecting it as a reason why Zambiri had to steer clear of some crucial area.

As Winston had learned very quickly when he first got into this line of business, development practice "problems" were rarely fallow fields, sitting idly, waiting to be tilled by solutions into success stories. They were very often prized

farmland "owned" by "stakeholders" who rarely gave them up without collecting serious rent or the promise of rent. The notion of problems as assets rather than liabilities was a mind-warping and completely transformative insight for Winston in his professional intellectual development.

All that said, nine months earlier, the seed certification problem had almost been solved. It was a seeming low-hanging fruit that could prove the overall Zambiri concept and thus build credibility to be expended in driving through other, more complex initiatives. It was, as Winston's ever-enthusiastic program director had called it, the *golden wedge* to get Zambiri through the door. Best of all, in Malawi, the utility of seed certification was far from esoteric.

Fake Seeds as a Major Food Security Factor

Initial estimates suggested 25 percent of seed packets sold in Malawi were either outrightly fake (with falsified packaging and/or content) or of very poor quality. Poor quality seeds were, in turn, blamed for yield loss of at least 30 percent. This translated to a million farmers suffering a 40 percent loss of income through

Box 11-1. Glossary

The following definitions of key concepts and terms are used frequently in this chapter.

Ecosystem: The largest unit of a market or productive social network bound by a discernible set of relationship rules guiding the collective generation of socioeconomic value.

Intermediation: An opportunity-seeking or problem-solving model based on the entrepreneur/intervener creating value for a critical mass of actors in a network by bridging nodes in the network at a lower transaction cost than the next readily available alternative. The entrepreneur/intervener is known as an intermediary.

Nodes: The smallest unit in an ecosystem capable of making a discernible contribution to the aggregate value creation. In a supply chain, for instance, the nodes are often companies involved in the production, distribution, and logistics management needed to move a product from one point to another in an economically viable way.

Systems Entrepreneurship: A concept of entrepreneurial action based on the idea that ecosystems have nexus points for directed intervention with the potential to maximize the social benefit content of value generated at multiple levels, thereby helping address interconnected social problems.

Transmediation: A method of intervening in an ecosystem to solve interconnected problems by reducing the risk for various nodes in reconfiguring their identities to optimize their contribution to overall value creation while maintaining structural integrity of the ecosystem.

diminished productivity as a result of poor harvests.[2] Fix this, and Praxis would prove that Zambiri was not just the usual "workshop talk."

Six months earlier, as he stopped pacing to relax in his office chair, Winston thought wistfully that a massive breakthrough seemed to be on the horizon. The Seed Services Unit (SSU), the nation's premier agricultural regulatory agency, had agreed to partner on the Seed Certification Program (SCP), Zambiri's initial flagship. Discussions commenced on how to embed the Zambiri-SCP into the SSU's inspectorate and validation processes while maintaining a link to the other elements of the initiative, some of which had required—or, more accurately, would require—other sponsoring stakeholders.

As conversations proceeded, the design of the Zambiri SCP technology platform (Zamstep) became a bit of a sticking point. Certain SSU roles seemed natural, given the organization's statutory powers and legal mandate, but upon closer inspection, the SSU's operational setup revealed serious incompatibility.

One fascinating example was the logistical role envisaged for the SSU. It was, according to the blueprint, to become the central repository of unique identifiers for seed packets sold by the seed marketers. Zamstep's ledger mechanism made SSU an inventory manager for the unique serial identifiers affixed as physical tags to each seed packet.

Farmers were expected to use these identifiers to confirm the certification status of a packet of seeds they buy at an agrovet—the shops selling agricultural and veterinary inputs. They would do so via the simple but powerful instantaneous messaging tool known as USSD, available on virtually all phones in the world today.

The idea was extremely straightforward: seeds that undergo the proper certification process got the tags; those that did not must do without and forgo the brand advantage. Farmers, with just a basic feature phone, could validate the tags prior to purchase, preventing fraudsters from attaching false tags on uncertified seed. Now that farmers could easily verify, right there in the shop, which seed packet had gone through the rigorous certification process and thus had the endorsement of the government and the mainstream industry, brands would have even more of an incentive to maintain their compliance with the certification system. It was that simple.

This technology would equip even the poorest farmers who had even the most elementary phones to partake in a degree of transparency across the seed sector that was previously unimaginable. If only SSU could also become a large-scale inventory manager for the physical tags and dedicate bandwidth to distributing them to seed packing companies. This would be in addition, of course, to its

2. The data in this section draws on unpublished research conducted through surveys, interviews, and sampling activities carried out by various Agrotrack partners between 2019 and 2020.

ongoing work of inspecting nurseries of seed growers, testing sample batches of seeds at packing units, and providing training to various actors in the seed supply chain.

Furthermore, SSU would also have to invest in a range of security enhancements to its operations to prevent undeserving seed companies from getting access to the Zamstep tags. Suffice it to say, the devil was in the details. New twists and turns kept popping up. Simple things quickly unfurled into complex subroutines and multiplying project task lists. Synchronization across the different Zambiri subcomponents within the SCP and allied programs began to look next to impossible.

Praxis's SCP project committee was on the verge of despair until six weeks ago, when another breakthrough suddenly erupted into view. Through a chance encounter, Winston's colleague Doreen Banda had been introduced to the organization through a program called AgroTrack, which was already active in East and Southern Africa and which, to all intents and purposes, had solved very similar problems in other countries in fairly similar contexts. Due diligence had ensued at breakneck pace. The insights garnered from a slew of intense engagements had led to major revisions of the original Zamstep strategy. A trial run of the new model had been quickly designed, and early indications were that it could take off in just two months' time.

Winston stared from his office chair at the purring blades of a cream-and--gold-bladed fan. He then made for the small refrigerator in his executive unit in the Praxis head office. He grabbed a can of Grapetiser, pulled the stopper, gingerly set it to his lips while taking in the sprawling abstract shapes of the faux Dali painting on the wall. A faint smile formed around the edges of his lips. The pieces in the collage were beginning to finally take shape. Previous failures were cast in clear context like Florentine arches against a Tuscan landscape, giving depth to the subject matter. This time, he said to himself, things would be different.

Creating Ecosystemic Change through Technology

The story of Zamstep's ups and downs mirrors that of many technology systems introduced as a wedge to pry open possibilities for building ecosystemic[3] change. Because social problems are always interconnected, naïve solutions to one problem often exacerbate another.

3. While we offer alternative perspectives on the notion of "ecosystems" to press further points down the script, the simple definition given by Guerrero and others suffices at this stage of the discussion: "The interconnectedness of organizations working together in innovative ways to act entrepreneurially through collaborative efforts . . . often termed ecosystems."

Box 11-2. Some Key Concepts

At the conceptual heart of this chapter is the literature on "systems entrepreneurship" and business and technology "ecosystems," often referenced as the "Dartmouth School." The "leverage points" framework popularized by Donella Meadows is central to this. Its starting point is a claim that many discrete social problems, from SME financial inclusion to lack of trust in agro-supply chains, can increasingly only be tackled by interconnected *systems-shifting technology platforms*, an idea advanced by Dartmouth University's Ron Adner. These platforms are developed through a type of systems entrepreneurship called *transmediation.* We refer to these platforms as *transmediation platforms*, and profile an exemplar.

"Systems entrepreneurship" itself is not very familiar to the general public. But at the elite practitioner level, it is gaining rapid prominence. Since 2019, for example, the World Economic Forum has heralded a transition of focus from "social entrepreneurship" to "systems entrepreneurship," suggesting a degree of mainstreaming.

Emphasis has evolved beyond the measurement of social returns in business models to determine if a particular entrepreneurial mission is driven primarily by "purpose" rather than "profit." The "social enterprise" world must confront the reality of "single enterprise models" lacking the leverage to deal with the multifaceted nature of virtually all social problems. Solutions that ignore this reality generate negative externalities that create new problems at a systems level.

The far-reaching work of Julie Battilana adds the crucial dimension of "power" to any process of systems-shifting, which, as a social phenomenon, is best viewed through an ecosystemic lens, too.

[1]The works cited in this box are listed in the references section at the end of the chapter.

Yet most problem-solving tools are best presented as targeting a discrete problem at a discrete site to have any chance of adoption. Unless the tool can evolve well to address the gaps and externalities caused by the connections between the site of intervention and other systems in the neighborhood, failure is inevitable. Choosing the right site to embed the wedge creates, in the language of this growing area of "systems entrepreneurship,"[4] the essence of *leverage*.

Many entrepreneurs approach such systems through intermediation. Usually, the idea is to bridge some gap that will, in turn, close a loop to maximize some synergy across disparate actors whose resources, capabilities, interests, focuses, and directions are seen as likely to achieve a resonating amplitude *if only they could all be connected* via some hub.

4. As highlighted in the sidebar, the ideas and arguments flowing through this chapter are steeped in current debates and commentaries on the concept of "systems entrepreneurship." The World Economic Forum's recent decision to signal a transition of focus from "social entrepreneurship" to this newish approach implies a growing mainstreaming of system entrepreneurship's core ideas.

For example, the vast majority of financial inclusion innovations rest on this principle of "connecting nodes" in a well-defined system as a means of reducing transaction inefficiencies.[5] Most mHealth solutions seek to connect underserved communities with a surplus of capability elsewhere in the communal ecosystem. And many agritech solutions base their value proposition on connecting farmers directly with higher-margin buyers.

While intermediation is indeed a very potent way of amassing the capacity to induce positive change, the new SDG-driven emphasis on solving connected problems in a connected manner has shed light on many limitations of the intermediation model.[6]

Intermediation tends to be highly potent where the nodes that must be connected are stable, self-motivated, specialized, clearly incentivized, and the medium of exchange very clearly encapsulates the value created as a result of the exchange. Those who build the hubs and make them acceptable to multiple nodes can often amass vast power to enforce the norms needed to preserve the essential stability of pricing and divisions of labor. And norm-setting power is a critical success factor in all ecosystemic solutions.

Unfortunately, in many ecosystems these stable preconfigurations do not exist to be exploited by technology solutions. A taxi industry with defined roles such as riders and drivers and fee rates based on seasonality, distance, and time provides a good enough blueprint for an Uber-style ride-sharing culture to emerge in many diverse national contexts. Becoming a hub for trust-forming practices in the agricultural supply chain is, sadly, not as precedent-bound.[7] The specialisms on which stable hub-and-spoke development models thrive often look good on paper but are poorly manifested in practice. "Connecting the nodes" in many interconnected development contexts thus involves considerable "role discovery."

5. See, for instance: *Nicholls*, *Paton*, and Emerson (2017). To date, the assumption has been that this will be best achieved by finding new ways for social enterprises to align with conventional capital markets. This normative view of social investment requires, first, that any potential investees adapt their organizational strategy to approximate a conventional for-profit business and, second, that new intermediary institutions be developed that can "dock" such social businesses with mainstream sources of capital. This approach has achieved some notable successes to date, but is constrained by the pool of potential social or environmental projects that can generate conventional financial returns.

6. For an interesting discussion on social entrepreneurial intermediation limitations, see *Nicholls*, *Paton*, and Emerson (2017).

7. Some of these issues are amply raised in Guerrero and others, especially where they attempt a theorizing of "the role of intermediaries in the configuration of the entrepreneurial identities of Mexican SPOs and BMIs, as well as several externalities generated during the process of capturing the social and economic value, especially when social innovations are focused on solving societal, economic, and ecological social problems."

Enter the Transmediaries

Winston sat down over a nice *chambo*, the fabulous local fish barbecue, with the chaps from the Agrotrack initiative, the group that had solved problems similar to Zambiri's and Zamstep's in a couple of other countries. His first question was about the two phrases that has stood out in the initial flurry of e-mails: "shifting the nodes" and "priming identities." They sounded a bit too exotic for the context at hand: reinfusing life into Zamstep and, by extension, Zambiri.

The leader of the Agrotrack delegation, which had flown in from Zambia, had a clear view of what had to be done. Agrotrack was deeply embedded in COMESA's strategy for getting regional agro value chains to blend seamlessly into each other. Its representatives displayed a missionary zeal about the approach to technology needed to make this daunting task feasible. The two visitors called themselves "transmediaries" and spent a good twenty minutes diagnosing the flaws of any hypothetical "non-transmediary" approach to solving the problem of agricultural supply chain optimization using technology as the principal catalyst.

What stuck with Winston were their testimonials and mini–case studies. The twists in technology innovation used in making Agrotrack viable in Kenya and Tanzania as an enabler of a digital approach to certification resonated with Winston's own experience in Malawi.

First, Agrotrack had been built in agile fashion within seed certification agencies' internal operations in a kind of inside-out process. This was described as "seductive insurgency." A whole host of functions within these agencies had been turned upside down by internal insurgents simply displacing a bunch of hallowed cultural practices from within.

Second, Agrotrack actors had embedded deep into the seed association's rather lean coordination function until their mission had become indistinguishable from the search for deeper relevance of the association, especially in relation to its bigger members.

Lastly, rather than focusing exclusively on a hypothetically universal problem for the actors in the ecosystem, it prioritized the "problem formation" process itself by not taking for granted the ecosystem's need to justify its existence. The choice of how to approach this existential justification eventually gets settled in favor of eliminating problems through the alignment of internal expectations, unresolved differences, and incomplete understandings of the roles and functions of the different actors. "Problem formation" means unpacking the elements of an observed malfunctioning at a system level and reinterpreting it as failures in the configuration of current relationships.

The inevitable direction of such a "solution discovery from system redesign" approach is the rebalancing of certain taken-for-granted identities and positions

within the ecosystem. And all these discoveries and findings had been encoded into Agrotrack's design, culminating in what its proponents called a "Social Systems Transmediation Platform."

From a practical point of view, it was clear to Winston that rather than technology being some commoditized slave in the service of meeting SDGs 1 and 2 (poverty reduction and zero hunger) and elements of the other connected goals in Malawi, he had to understand in a much deeper way how to alter the way the principal actors saw their roles using the technology as a conductor.

The deal to wrap Agrotrack's methods around Zamsteps' objectives of modernizing the seed certification system in Malawi was sealed at that lunch. As the gingery zest of the sizzling fish dulled between the gritty bites of *nsima* and *ndiwo,* Winston and the two Agrotrack emissaries plotted the roadmap and accompanying narrative for Agrotrack's entry into Malawi.

Agrotrack: A Transmediary Solution

Three chief functions were expected of Agrotrack, at least in phase one:

- regulatory procedures transformation (reg-tech)
- supply chain business process automation (ex-ERP)
- citizen engagement, outreach, education, and behavior change (civic-tech)

The first domain was for government, the second for industry, and the third for general public or consumer base. Reg-tech, extended enterprise technology, and consumer-facing technology for these three domains have not traditionally been fused in this manner.

The notions of "digital transformation" of enterprise and government brought in their wake a whole raft of "glue-ware" that served to interlink technology domains.

In the past, industry software for managing things like inventory, quality control in manufacturing, financial audit trails, and the like rarely had reason to talk to government solutions for social security processing, tax administration, or environmental permits assessment. Much less to social media graph apps, ride-sharing services, daily calendar schedulers, or the other apps beloved by the modern consumer. Each domain of technology related to the other as nonoverlapping magisteria.

But the mantra of "digital transformation" has impelled institutions to "think different" in the world of bits and bytes. The internet, and the cloud computing logic it has imposed, means that interfaces can be highly personalized, to a point where strict demarcations of whatever system in the backend is powering the ultimate functionality become redundant.

To illustrate, if an individual wants a quick deal on a flight, she does not mind seeing the ad for the ticket shown to her while browsing a virtual Milanese hotel catalog. If she clicks on that alluring "get the deal now" banner ad, she should not get the slightest hint that there is some API calling some giant airline distribution system. Increasingly, that distribution system is also sending some notifications to some government anti-terrorism scanner, whether it knows it or not. As the problems that technology aims to solve weave more and more into each other, so do the technology solutions themselves. This is the brave new world of hyper-integration.[8]

Agrotrack respected these trends, even if being social innovation–oriented meant that its ethos had to take into account the balance of interests and how it favors the underdog—in this case, the farmer. But the essence of highly customizable interfaces obscuring great backend complexity to accommodate the considerable divergence in use cases at industry, government, and business levels was par for the course. The concept of the "super-app" no longer means only that what were once considered standalone apps now appear as mere features in some app. It also refers to the interface agility that is dissolving the boundaries of technology use across government, industry, and the masses.

As an African hyper-integrated solution, however, Agrotrack causes a number of second-order complexities. Many industry players in Malawi and elsewhere in the region needed the solution to offer specific new procedures rather than accommodate existing procedures, since there were barely any coherent ones in many small- and medium-size operations. The government needed functions that streamlined longstanding administrative ambiguities. And consumers still needed a human touch even though "convenience" theory would suggest otherwise. Herein lay the great prospects for full-on transmediation.

The scenarios harked to various discussions in the "technology for social good" literature that Winston was familiar with. One group of scholars had summarized the new complexity as "digital ecodynamics."[9]

When Winston eventually saw how vividly agile technology interfaces could define the culture at government and corporate levels and thereby recast relationships long considered stagnant, he was stunned. A well-known schematic from the literature grouped sustainable supply chain platforms into three categories: alterationist, redistributor, and capability builder.[10] Agrotrack showed how easily these categories could weave into each other.

Winston watched in awe as hidebound bureaucratic structures melted, or at

8. Simons.
9. Ahuja.
10. Schroder, Prockl, and Constantiou.

least mellowed, in the face of clever technical routines that exposed many buried protocols, as people suddenly began asserting certain privileges or quickly discarded burdensome paper mandates, and as more and more functionaries started embracing realistic roles.

As someone familiar with the academic canon on ecosystems and platforms, he could track the making of interesting new theory here. A Dartmouth scholar called Ron Adner, for instance, had once defined ecosystem as an "Alignment structure of the multilateral set of partners that need to interact in order for a focal value proposition to materialize."[11]

Adner's key insight was that disparate actors must recognize a common value proposition (which he calls the "productive level of analysis for ecosystems in [business] strategy") but strictly on the back of shared acceptances of each other's identities (encompassing roles, specializations, positioning). Stability of identities was crucial to alignment, and thus trust and a key prerequisite for ecosystem bonding and success.[12] Winston's Agrotrack experience suggested, however, that identities could be highly malleable in the presence of mimetic technologies that expanded the range and scope of an actor's capabilities through a meta-agent's constant mediation and remediation of the process of defining value propositions.

Praxis finally concluded that they needed to second the staff to manage the once intimidating inventory function at the regulatory agency. But the design of the process flow, blending as it did consumer-tech and enterprise, only needed a few young graduates from the University of Malawi. Winston's rejection of hallowed academic dogma was complete. He finally understood what "shifting the nodes" and "priming identities" meant.

The implicit goalpost for Zamstep—or any seed certification modernization program in Africa, for that matter—had been the attainment of "tamper--proofing." When a checklist has been developed for assuring the quality of production processes and thus ultimately of the seeds themselves, how does one confirm if the regulatory regime, as staffed by agents of the regulatory system, steeped in a particular bureaucratic tradition, actually enforces that checklist? How does one prevent circumvention *within* the system?

Even if the checklist is properly enforced, and the seeds the system delivers to the farmer is properly quality-assured, one must further ensure that the higher level of quality does not come at a higher price, thereby distorting the incentives for poorer farmers to use certified seed in the first place. How is the farmer supposed to know this method of verification anyway? And what role does the

11. Adner.

12. See also Skalen and others on "the failure of co-creation."

retailer have in ensuring last-mile availability of certified seed and awareness of the farmer?

A connected solution in a hyper-integrated context is one that elegantly makes one goal in a subsystem the input or motivation for another, and the emergence of whole subsystems the output of some incentive.

Agrotrack's target was to make system circumvention self-defeating by reordering certain assumptions embedded in the legacy ecosystem. For instance, the regulatory seed inspector's role as signatory to compliance formalities had long been one with no consequence beyond the specific, time-bound, relationship with the seed grower. They performed an audit and wielded their signature in momentary power. But both their significance and their privilege were transient, and thus incapable of inspiring durable compliant behavior.

In the new Agrotrack model, the inspector's records were indelibly linked to a batch, traceable to the level of the seed packet, and were callable whenever a complaint came from a farmer. Farmers' ability to give instant feedback through automated surveys and self-initiated engagements constituted a kind of democratizing co-creation power in the system design process.[13]

The complaints unit now had a direct basis and scope of engagement with specific inspectors. The result was a triangle of accountability involving a champion of farmer interests, an extension officer whose job was to bring the seed grower's capacity up to the mark, and an inspector whose duty was to confirm that a particular batch of seed was fit for the market.

The farmers' cooperatives would now have a basis and scope of engagement with the seed growers' association that could be informed by aggregate data as opposed to scattered word-of-mouth claims from disgruntled farmers strewn across rural Malawi.

It was apparent to Winston, as he waltzed through the different Agrotrack training sessions and live demonstrations ahead of the new system's phase one deployment, that several permutations of behavioral algorithms at institutional and human levels were possible. And this was what was powerful about this model of societal technology design. The transparency and accountability enabled by the technology was modular. Its design, according to the node-shifting philosophy shared with him more than a month ago, had ensured this result rather vividly.

By generating new sources of agency, almost on the fly, Agrotrack as a transmediary platform was playing the role of meta-agency and creating a canvas for co-creation of the value proposition—quality, genuine seed—practically and not just on paper.[14]

13. Hein, Weking, Schreieck, and others

14. Similar dynamics are described in van den Berg and Verster.

The Burden of Transmediation

When the most penetrating insight came, though, Winston was not fully braced for it. His epiphany was that the right role for an organization like Praxis, facilitating the introduction of such an innovation into virgin context, was not just to shift the nodes in the ecosystem. More fundamentally, it was to *juggle the nodes* and to reconfigure the relationships into more agile patterns that can evolve with the changing conditions.

Winston hesitated, because the revelation also seemed to scream: BURNOUT! Agrotrack's improvement over the original Zambiri SCP was not really about doing less work and becoming less central, it was about doing more work turning all these nodes into nano-hubs in their own right. The thought almost made him shiver in its implications for workloads. But there was, underneath it, an exhilaration as well. Winston found the challenge stimulating. Doreen must have guessed what he was thinking, because she chose precisely that moment to bring up the issue of how to onboard the seed traders' association.

One thing obvious from the start was how the same ubiquity that such a multipronged technology strategy would give its promoters could also generate serious resentment. It is easy for ubiquity to be misinterpreted as a power grab. Addressing that risk required what Doreen would start calling "refractory attribution." This was a fancy way of saying that, at any given moment, perceptions of who exactly was promoting Agrotrack needed to become more diffuse. Farmers needed to see more of the hand of government. But retailers should "feel" the seed associations more. While the seed growers experienced more of Praxis's intense engagement, the system could no longer be seen as "that Praxis project." Credit had to be almost deflected from Praxis and other core partners to supernodes at strategic points and the formation of node clusters with some degree of autonomy strongly encouraged. Those supernodes could be religious welfare associations, NGOs, civil society groups (CSOs), and aid agencies.

The more diffuse the promotional effort, the more transmediary Praxis could become in driving far bigger institutions toward the desired outcomes without butting against the backlash of power dynamics. But that meant the technology platform, Agrotrack itself, had to allow user communities to customize modules in ways that heightened ownership.

After a rich and at times rowdy debate between Winston and Doreen over some *mawewu*, the refreshing local maize drink, supplemented later on with a Philly-style cheeseburger at a joint in the newly refurbished Chirichiri mall, the two schemers felt knowledgeable enough to start creating a matrix to distinguish the role Praxis had tried to play in the rollout of the original Zambiri digital seed platform versus their new situation as strategists of Agrotrack's instillment into Malawian agriculture. They were treating the platform as a "sensemaking

device," in the words of one group of scholars, for better definition of available partnership models.[15]

Table 11-1 below provides the highlights of the distinctions they mapped out at the end of the exercise.

Some Sustainability and Scalability Issues with Transmediary Technologies

Much as the technology design innovations at the core of Agrotrack were helping drive implementation in weeks rather than years, there were lingering issues of scalability and sustainability. A significant proportion of the smooth deployment could also be traced to the experience of the Agrotrack team across a number of different contexts.

Unlike the original Zambiri strategy, Agrotrack deemphasized subscriptions and tied its revenue model to event-driven transactions. The enterprise attracted some fees by giving seed growers specific identifiers for embossing seed packets, and also through the secure retail channel for commercial seed growers.

Winston pondered the justification that had been provided by the Agrotrack regional lead, who sits in Nairobi, when he called her earlier in the day to discuss the issue of tying revenue to transactions rather than subscriptions. He was persuaded by the transparency-driven rationale that people should pay directly for the value created by new efficiencies and cost-cutting activities. But he kept wondering if there were also some cultural constraints to address. Agrotrack's continuing survival and growth provided assurance that they were on a good path, but one could always ask if they should have been expanding faster. One of Agrotrack's strategic priorities had always been to achieve regional harmonization of seed quality assurance standards across the COMESA area. This was a major issue in a region where food security is a longstanding major risk factor. As COMESA specialists have consistently emphasized, "The population in the COMESA countries is increasing at 2.3 percent while food production is growing at 2 percent, a situation that has brought about food insecurity to 130 million of the 600 million people in the region."[16]The urgency of the food security situation has often prompted COMESA to seek radically innovative approaches. COMESA's subregional SDG framework was typical in recognizing that the goals of famine prevention, improved nutrition, and the reduction of the alarmingly high poverty rates among farmers are all heavily intertwined, requiring multifaceted solutions.

15. Selsky and Parker.
16. COMESA (2018).

Table 11-1. Comparing Intermediation and Transmediation Platforms

	Intermediation Platforms	**Transmediation Platforms**
Nature of networks	Connect established value nodes in ways that increase the bargaining power of their owners and controllers. A classic example of this example would be a price discovery app for rural farmers to connect directly with urban produce buyers like restaurants. Solutions like these, by connecting multisided markets of producers and consumers or by connecting formal civic institutions to the informal desires of citizens, try to remove transaction costs. But they rarely shift roles and identities of key actors.	Create relationships, which then define the nodes and create value by configuring relationships–which, in turn, enable new nodes to emerge. A classic example of this process is seen in "ethical label" platforms, which allow new nodes of value to emerge constantly as consumer feedback shapes the relationships among certifiers, supermarkets, labor, and producers.
Core value proposition	Exploit gaps for arbitrage.	Increase points of synergy.
Approach to information	Strengthen position in knowledge networks by taking advantage of uncertainty	Invent new forms of transparency to redesign the underlying trust models.
Allocation of credit	Platforms are relatively inflexible about the allocation of credentials and try to consolidate "credit for attainment" as another zero-sum resource. "Credit" in this sense refers to the social capital that accrues from being the hub that everyone recognizes as indispensable. Because power is maintained by everyone knowing about the indispensability of the intermediary, sharing credit for progress with other stakeholders tend to be much harder.	Platforms are designed to distribute credit for outcomes as flexibly as possible, in order to sustain buy-in. They facilitate secondary and tertiary branding sub-narratives (beyond the usual emphasis on "founders" and "visionaries" who birthed the solution) and may, in fact, support a plethora of branding or sub-branding initiatives around narratives beyond the "founding myths" so common with conventional solution bringers.
Approach to growth	Growth aims to expand global reach by being deployed in a pretty much identical fashion everywhere.	Growth aims to be compatible across jurisdictions, in a way that can adapt the process considerably from place to place without compromising the essence.

However, COMESA's core challenge was to create a "regional infrastructure for food security" that facilitates trade, the sharing of best practices, and the pooling of investment resources to address large-scale problems that afflict the region as a whole, such as climate change.

A lucid example of thinking along such lines can be found in the context of "post-harvest losses." By one estimate, 60 percent of the region's food kept in traditional granary storage was lost or spoiled within ninety days of harvest.[17] While the construction of modern granaries, particularly through the integration of metal silos across farming zones, would no doubt considerably reduce food losses, a simple opening of trade corridors would achieve similar success at less than 15 percent of the comparative investment. Richer COMESA countries could serve as both off-takers and consolidated storage sites for the entire region in the immediate post-harvest period.

Facilitating trade by removing technical barriers and harmonizing policies and regulations has thus emerged as one of the most critical priorities in the COMESA food security agenda. This was one of the many SDG contexts where national solutions are considerably suboptimal in comparison with multilateral arrangements. Regional harmonization of standards trade could dramatically bolster the capacity of the region as a whole to respond to seasonal food crises.

But "food security," hugely important as it is, remains only one of a number of vital opportunities presented by regulatory harmonization. As COMESA's anchor strategy in the standards uniformity agenda observes:

> [COMESA] recognized the importance of standardization and quality assurance in the promotion of health, the enhancement of the standard of living, the rationalization and reduction of unnecessary variety of products, the facilitation of interchangeability of products, the promotion of trade, consumer protection, the creation of savings in government purchasing, improved productivity, the facilitation of information exchange, as well as in the protection of life, property, and the environment."[18]

Agrotrack was therefore strongly positioned as a mere starting point in the journey to embed its logic more deeply into COMESA's intergovernmental agro-nervous system. The food security efforts could help Agrotrack understand what makes COMESA tick, and over time greatly enhance its responsiveness in a broad number of other SDG-related areas, using interconnected innovations that span technology, change management, and operational philosophy.

Transforming the COMESA Seed Harmonization Implementation Plan

17. Costa.
18. COMESA (2014).

(COMSHIP) from mere documents into a living, breathing, systems-changing organism capable of migrating into multiple national agricultural regulatory structures would amount to an enormous victory for Agrotrack. It would foster stronger trust with COMESA, thereby opening the door to collaboration in the health and governance sectors, in truly transmediary fashion. But it would also require considerable resources.

The capacity to support customized narratives was clearly critical in the context of cross-country adoption of technology. Traditional one-size-fits-all approaches to traditional digital platforms are not suited to complex multi-jurisdictional challenges.

Getting to such a stage with COMESA would obviously represent a major step-change for the Agrotrack expansion strategy. The initiative would then be able to ride on the back of intentional synergies as it scales across national borders, benefiting as it would from ready-made channels to transmit best practices without the need to build legitimacy from scratch at the institutional level.

Of equal criticality would be the ready-made frameworks for engaging with local regulatory authorities in each market, a barrier that no techno-innovative system had yet scaled within the region.

From what he had seen, Winston was convinced that only the Transmediation Platform approach and strategy was agile enough to break down the institutional inertia holding back regulators from pursuing technology-driven reform. The COMESA partnership would also bring "social proof" of the concepts in a manner that speeds up adoption of the underlying approaches.

It seemed quite clear to Winston that the massive barriers at the national level in creating connected solutions across complex ecosystems are only multiplied when a cross-border element is added.

If Transmediation Platform solutions are compelling at the national level, they should be even more critical when seeking to develop multilateral responses to problems that are not optimally addressable at the national level.

In the messy multilateralism of the anarchic interstate system, the old issue of power and its role in shaping norms, behavior, and expectations of technology attains a grander and more overbearing posture. But that was all the more reason why one needs transmediation, because national borders are even more difficult to bridge using traditional intermediation techniques.

Transmediation Platforms Are about "Power Representations"

That evening over some *mawewu*, as Winston caught up with Doreen, they decided to try their hand at crafting a general typology of power in technology ecosystems and how they intersect with the different modes of social change.

Doreen postulated that the different postures one could adopt as a technology

changemaker in any context broke down into two broad categories: traditional and radical. There was nothing revolutionary there. But she clustered into segments the different platforms such a changemaker might create. Within the traditional bucket, she included commercial apps, commercial platforms, and mass collaboration platforms. In the radical bucket, she included social purpose platforms, social systems intermediation platforms, and social systems transmediation platforms. Her approach made Winston pause to reflect.

As the world around those who care about sustainability, social transformation, and social good continues to change rapidly, the "social" element in changemaking has had to be projected more and more forcefully. The focus needs to shift from intermediary-driven attempts to induce connectedness in ecosystemic solutions to transmediation approaches such as Agrotrack, which emphasize flexibility in identities and continuous discovery of the value propositions binding the ecosystem together.

Conclusion: Reflections of a Transmediary Entrepreneur

After yet another helpful exchange with Doreen, Winston contemplated his situation for a long, drawn-out moment. Transmediation Platforms, he no longer had any doubts, represented a step-change in the progression of the much touted and loosely manifested "technology for social good" concept.

Figure 11-1. The Extent to Which an App Is Dedicated to Social Problems Whose Solutions Only Become Viable When Deployed at Scale

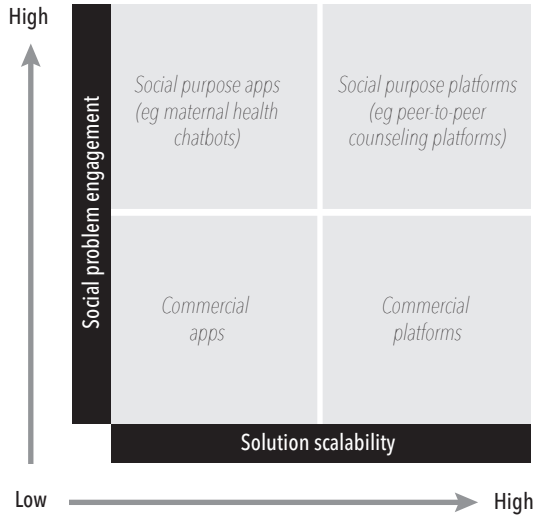


Figure 11-2. The Degree to Which a Platform Interconnects with Other Tools to Cover Interrelated Social Problems

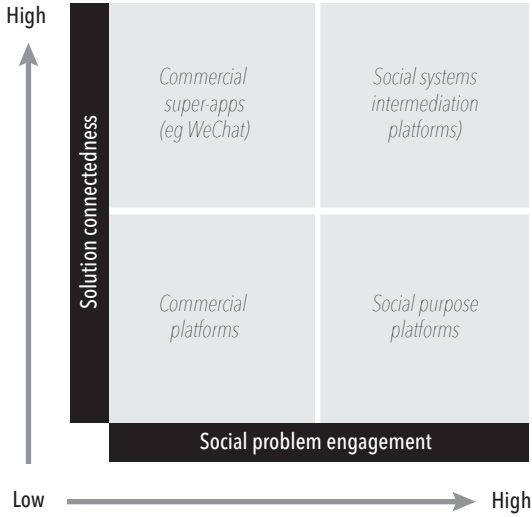
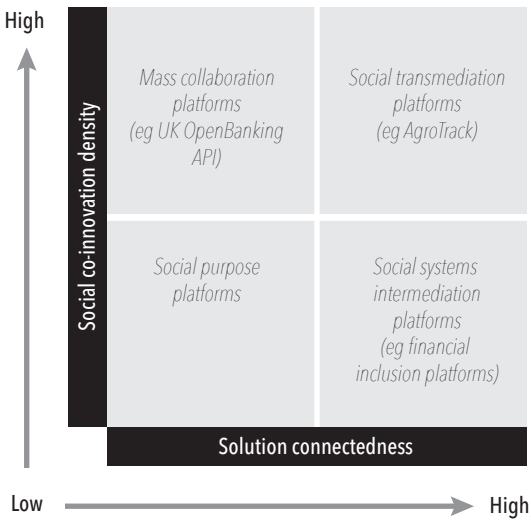


Figure 11-3. The Extent to Which a Platform Allows for Diverse Stakeholders to Collaborate on Solutions to Social Problems at Multiple Levels



Note: "Connectedness" refers to the ability of a technical solution to address related externalities, even as it targets a particular problem, often by interoperating with other solutions or generating submodules that tackle the externalities created by adjacent solutions with reasonable cost.

Over the years, he realized, a radical truth has been emerging about the world of digital platforms in general, but theorists and practitioners have yet to fully appreciate the starkness thereof: the days of seamless growth and colonization of domains by traditional mega-platforms like Facebook and Amazon are over. More and more, the "paths for growth and to dominance" of new digital platforms lie across highly regulated, fragmented, contested, politically sensitive, human rights–sensitive terrains such as health systems, educational reform, democracy rebirth, energy shifts, and, of course, SDGs attainment.

There is only so much innovation in financial wizardry, social conversation priming, and entertainment streaming that a mega-platform can knead and bake into giant monopoly towers in cyberspace. Hoarding data, consolidating algorithmic power, appropriating ecosystem value, and so on does not reward with scale as easily in the vast, still non-platformed terrains named above as it did in the financial, media, and commerce domains of yesteryear.

Growth and scale in this new world require a willingness to see stakeholders asserting power in their participation in the kind of connected solution-building described in this chapter. Technology design must thus be polycentric in character. Transmediation Platforms are congenitally polycentric for this very reason.

Winston reclined in his seat and allowed his mind to wonder a bit, surveying the intellectual journey that had brought him to the point of reassessing his entire philosophy of how to utilize the techno-innovation systems he had long decided were indispensable in the quest to address deep, long-festering, cankers in society.

The problem, as he saw it, was that the mainstream of development practice was yet to come to terms with this impending age of Transmediation Platforms and the critical place they occupied in the unfolding era of hyper-integrated technology systems. Too few people have recognized their need for such platforms in the quest to break down the interconnected barriers confronting SDG attainment in many parts of the developing world.

But as he drifted in and out of deep reflection, the prospects of Agrotrack in Malawi kept rising from the fog as belonging to the raft of showcase examples that could perhaps compel the development industry to take a good, hard look at this transmediary phenomenon whose power was becoming increasingly obvious to him. "Change is in the air," Winston thought, as he reclined in his office chair and drifted off to a dreamland of possibilities.

Epilogue

Alice Nyasulu unfurled her FlexScreen and activated the presentation on her smartwatch. "AgroTrack: a Decade of Change in COMESA" popped up like a

neon banner and shrunk discreetly as the rest of the 3D display unbundled. She scanned the main blocks of animations, which showed how secure and transparent digital seed certification evolved into an information market for new forms of insurance, invoice discounting, warehouse warranties, and, ultimately, a revolution in cooperative organic farming and communal agro-processing. The acceleration of a regional agro-exchange better positioned COMESA to harness the African continental free trade area opportunity more thoroughly than anyone could have imagined a decade ago.

On the eve of the big SDGs reckoning summit in Nairobi, Alice was filled with pride and passion, instead of apprehension, as she prepared to deliver the blockbuster curtain-raiser talk of the ceremony. Just two days earlier, the situational report had delivered the good news that the COMESA region had not only made the fastest progress in meeting several connected SDGs, but it had done so largely as a result of local rather than foreign aid-driven interventions.

Alice took a deep breath as she glanced over the last but one anime-slate in her turbo deck—the one announcing a slew of Transmediation Platforms to launch in the next decade.

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