Transformative Social Innovation and Multisystemic Resilience

Three Case Studies

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Introduction

When an early (and hypothetical) 17th-century chambermaid working in Amsterdam used her life savings to purchase a share in a sea-going venture, she likely did not think about the wider system shifts that had to happen for this opportunity to emerge, or how her actions (and those of her fellow Dutch [wom]en) would trigger their own cascade of system shifts. Whatever her hopes for her investment (which was likely huge to her but was very small compared with others), she was probably not thinking about economic experimentation in England, governance and taxation crises in Spain, and theological debates across Europe—as well as the long-standing and limiting parameters of the tightly coupled Dutch agricultural economy and sociopolitical system—all of which made her investment possible. It was per-haps slightly more likely that she gave thought to a future world—one where her investment paid dividends—and where people like her had access to markets, allowing them to improve their social, economic, and even political condition. This would be a world transformed from medieval communalism and the divine rights of kings to individual capitalist democracies: A completely different set of systems arrangements, relationships, myths/sense-making and outcomes (McGowan, 2017a).

The case of the Dutch East India Company's rapid scaling of the joint stock company model is not commonly discussed in the context of social innovation, but it illustrates the importance of systems thinking and multisystem resilience in understanding how the world

has changed, and how we can continue to experiment with social innovation to address social, economic, and environmental changes as they occur. This ongoing dynamic of experimentation and reflection is a critical dynamic of social innovation as we understand it. For us, social innovation encapsulates new programs, policies, processes, products, and designs that fundamentally shift authority and resource flows, which over time make systems more resilient and inclusive (Westley et al., 2011). To engage in social innovation is therefore to work toward greater systems resilience.

This chapter is a reflection on two decades of work on social innovation and resilience, focused on the output of the Waterloo Institute for Social Innovation and Resilience. However, unlike many such survey chapters, we are overlapping two generations of scholarship to consider how one generation (Westley) can define the key questions that the other (McGowan) explores. Rather than summative, this chapter is a snapshot of interwoven and interrelated research agendas, brought together by a common space and shared interest in what social innovation *is*, *has been*, and *can be*, and how social innovation contributes to (and even undermines) resilience.

This chapter will discuss some of the key conclusions we have reached related to multisystem resilience, with particular focus on how studying the drivers, processes, agency, and outcomes of social innovation have informed how we understand resilience as both a goal and an analytical framework. In this discussion we rely on several cases we have observed in real time, as well as several historical examples. We will focus here on the cases of the internet, the national parks in the United States, and the intelligence test.

Social Innovation and Resilience: A Linked Approach

To contextualize our approach to both social innovation and multisystem resilience, it is necessary to frame our specific use of both concepts and to link that frame to their respective intellectual traditions. Social innovation has been framed as broadly as innovations that are social "in both their ends and means" (European Commission, 2013, p. 9) to the significantly more organizationally and operationally specific: "Social innovation refers to innovative activities and services that are motivated by the goal of meeting a social need and that are predominantly diffused through organizations whose primary purposes are social" (Mulgan, 2006, p. 146). This breadth has inspired a small but interesting strain of scholarship that explores the origin of social innovation as an analytical term and its relatively persistent fuzziness. Ayob, Teasdale, and Fagan (2016) and Edwards-Schachter and Wallace (2017) found that the concept had a robust history in scholarship through at least the latter half of the 20th century, with a relatively high level of mutual comprehensibility if not explicitly shared definitions, and Godin (2012) argues convincingly that it can be traced to the late 19th century and the interest in social processes and social change.

However, and important in the conversation about definitions, Pol and Ville (2009) charge that social innovation may be dismissed as a normative buzz term in both the popular and academic literature. Ergo it is important to explicitly define what we mean by social

innovation, as a product, process, program, policy, or design that seeks to fundamentally shift resource and authority flows and tip a system into greater resilience, inclusion and sustainability (Westley, Zimmerman, & Patton, 2006; Westley et al., 2011). This definition allows us to be relatively agnostic (the previous list is quite broad and covers many possible forms), while acknowledging both the aspirations, processes, and outcomes in which social innovators may engage over time—and time emerges as a key dynamic if the analyst seeks to measure disruption. Similarly, the use of the term allows for the inclusion of social innovations that fail—fail to scale, fail to disrupt, or fail to contribute to greater resilience, inclusion, or sustainability.

Our definition of social innovation explicitly references resilience, which is based for us on the social-ecological systems approach of the adaptive cycle, a concept that first arose in ecology (Holling, 1973) to model the dynamic resilience of an ecosystem. Holling and Gunderson (2002) elaborated the resilience dynamic by the introduction of the concept of panarchy. Adaptive cycles build resilience at all scales in an ecological system, but the transformation or continuity of the whole is linked to cross-scale dynamics. These dynamics can result in "revolt," where small fast changes cascade up to change higher scales or change at lower scales may be repressed by "snap back" or remembrance, originating at higher scales. The adaptive cycle as a model stood in sharp contrast to previous conceptualizations of static equilibrium and identified four general phases: release, reorganization, exploitation, and conservation (Holling & Gunderson, 2002). Classically mapped over a forest fire, when the forest burns, resources are released and biodiversity is low (release); as new life grows, these newly freed resources are widely distributed (reorganization); competition shrinks some of this biodiversity as some organisms beat out others and accumulate biomass (reorganization); and eventually, matures as a new forest (conservation).

The adapted cycle can be illustrative in both mapping the social innovation process and the systems in which they emerge and seek to disrupt: in release comes "the collapse of rigid, powerful rule and institutions . . . [which] may also involve new interactions and is the most likely site for create (re)combinations of ideas" (Moore, Westley, Tjornbo, & Holroyd, 2011, pp. 92–93). This is followed by reorganization which is about sense-making and coalition-building around key ideas that are forming into innovations, and in exploitation groups that leverage resources to scale, which when successful represents the conservation phase (Antadze & Westley, 2010; Moore et al., 2011). Within this heuristic is the interplay between innovation and system—social, social-political, and economic systems need to be "adaptable, flexible, and able to learn" to be resilient, or risk rigidity and vulnerability to external shock (Moore et al., 2011, pp. 91).

While the internet for instance is not a social-ecological system in a traditional sense, and we do not simply map it across the adaptive cycle; we map it across scales, using the panarchy heuristic to focus on the process of transformative innovation. Rather than treating innovation as a novel idea alone, we have studied the dynamics and process of transformation, including the importance of combination and recombination. We have used the panarchy cycle, specifically its focus on constants and change within a system, mixtures of old and new elements, and risks of rigidity and traps (Holling & Gunderson, 2002) to structure our

analysis of how social innovation can disrupt a set of arrangements and possibly transform a system or multiple systems (Westley et al., 2006).

This process of bricolage (Westley, McGowan, Antadze, Blacklock, & Tjornbo, 2017)—both of the old and the new and of different systems—is critical if we wish to build "innovative solutions that take into account the complexity of the problems and then foster solutions that permit our systems to learn, adapt, and occasionally transform without collapsing" and "build the capacity to find such solutions over and over again" (Westley, 2013, p. 29). To understand the relationship between social innovation and resilience is to understand how transformative social innovation, through a necessary process of engaging across scales, includes social, economic, political, and ecological systems. The divide between these systems, from a resilience perspective, is and will continue to be artificial (Berkes & Folke, 1998; Biggs, Schlüter, & Schoon, 2015). Indeed, attempts at segmentation may be self-defeating, as "focusing primarily on wealth and inequality or social resilience while remaining ignorant about and disconnected from the biosphere and its stewardship is not a recipe for long-term sustainability for people on Earth" (Folke, Biggs, Norström, Reyers, & Rockström, 2016, p. 41).

As such, the basis of our work has been to bring together social innovation and resilience approaches, as observers have framed Waterloo Institute for Social Innovation and Resilience's approach as "focused squarely on the role of social innovation in transforming intractable problem domains and on institutional or systems change" (Olsson, Moore, Westley, & McCarthy, 2017, p. 31). While we are not alone in connecting social innovation to resilience theory (see also Howaldt & Schwartz, 2010), and we build upon a line of argument that dates to at least the 1970s, which emphasizes the importance of addressing "unmet social needs encompassing the long history of narratives about our survival (the current 'grand challenges') and the construction of a more sustainable world" (Edwards-Schachter & Wallace, 2017, p. 73). Our focus has expanded beyond unmet social needs to include a wider range of explorations of the adjacent possible, including the discovery/description of new social facts (Arthur, 2009).

The development of the internet is an example of a disruptive technology that has led to the discovery of these new social facts. The initial technical idea that gave birth to the internet, packet-switching, was devised by Paul Baran when he sought to create a survivable network. While important for the resilience of the information network more generally, this design also challenged wider telecommunications regimes' centralized architectures and monopolies (as in the United Kingdom). While the Royal Mail chose to maintain its centralized system, the U.S. Advanced Research Projects Agency (ARPA) created its own packet-switching–based network, ARPANET, in 1967. It is through ARPANET that the U.S. military worked directly with university researchers committed to open architecture in their designs over several decades (Tjornbo, 2017).

This focus on openness appeared multiple times during the development of early networks like ARPANET and throughout the creation of the modern internet. It was often the deciding factor in any given skirmish over access and design. For example, in 1984 the American Telephone and Telegraph Company began charging for the use of its programming language Unix, inciting a popular revolt among the hundreds of thousands who used it and the eventual release of software like the General Public License. Similarly, Tim

Berners-Lee made his World Wide Web system available for free and encouraged existing hypertext communities to use it. Lastly, since browsers compatible with World Wide Web were user-friendly compared to the alternatives, they became ubiquitous, creating a latticework for a massive public platform that has supported a cascade of experimentation and disruptive innovations across multiple domains, scales, and, ultimately, whole systems (Tjornbo, 2017).

The internet's disruptions are still ongoing and unfolding, from its challenge to traditional media, to new distributed sources of economic activity, to the serious and growing challenges to democratic institutions and healthy social interaction; these disruptions are collectively products of those initial starting questions: How do we design a network that does not rely on one node, and how can we support the creation of a free, uninhibited flow of information? From the point of view of the internet's creators, both of these concerns were focused on building resilience in specific conditions and from certain perspectives. Yet the end result may or may not have increased resilience from a wider multisystemic perspective (general resilience). A globally linked social system and increasingly tightly coupled economic and governance systems could potentially make these adjacent systems brittle and vulnerable to collapse, even while the communication system itself remains resilient to shocks (Walker & Westley, 2011).

Resilience and Transformation

Taking a systems perspective and acknowledging the complexity of any question or problem is critical to the process of social innovation and transformation. This is both an analytical observation and a deeply held belief we share with many researchers studying resilience in the Anthropocene—our era of human influence (Stone-Jovicich, Goldstein, Brown, Plummer, & Olsson, 2018), To fail to appreciate the complexities of the social systems involved in any wider multisystemic analysis is a risk done at the peril of the analyst and actor alike (Fabinyi, Evans, & Foals, 2014).

Important in our perspective is the shift from a focus on social entrepreneurs to systems entrepreneurs (Antadze & McGowan, 2017; Westley, 2013), specifically the role of brokers who can link ideas to resources, build or enhance networks, and identify when windows of opportunity will open and how to navigate through them. Consider the case of John Muir, Sierra Club founder and passionate advocate for conservation and the American National Parks at the end of the 19th and beginning of the 20th centuries. Muir did not create the idea of a park, nor was he their first advocate, but he correctly identified the importance of building popular support for conservation, reducing the barriers for new legislation, as well as courting key actors who could create new parks through federal legislation (Antadze, 2017). He connected those with key capacities to act with the spaces and places he sought to protect. Beyond building this elite network, Muir wrote prolifically in the popular press to build the case for parks. Muir made a deliberate effort to reorient the American mindset away from expansion and cultivation/economic development toward conservation.

Muir acted as a system entrepreneur, linking ideas with those capable of realizing them, and helping open/keep open a window of opportunity to create those parks by building

popular support around conservation. This learning from system structure can be categorized as systems reflectivity, which has been described as including looking for windows of opportunity to introduce and scale ideas (Moore et al., 2018). Muir, for instance, correctly identified the emergence of a key systems ally in Theodore Roosevelt, who became president of the United States after the assassination of his predecessor, William McKinley. Roosevelt was both a passionate outdoorsman (who sought psychological refuge in ranch work after the death of his first wife) and a reformer (who introduced the Square Deal and sought to break up the Gilded Age's business monopolies).

Roosevelt was energetic and entrepreneurial; Muir saw Roosevelt's personal attributes and outlooks as a potential window of opportunity and took the president on a camping trip in Yosemite National Park in 1903 to demonstrate the potential beauty of the many new parks he wanted to create. Roosevelt used his powers through the newly passed (1906) National Monuments Act to create five such parks in the last two years of his administration (and nine total from 1903 to 1916), compared with the one-time creation of Yosemite and Yellowstone parks decades earlier. Importantly, the creation of a Parks Service, with the bureaucratic structure and permanence of government legislation, required significant bottom–up and top–down work by Muir and others. While Congress created Yosemite in 1864 and Yellowstone in 1871, the idea was stuck in a relative poverty trap with too few social, political, and economic resources and social networks to move the idea out of these niches. It wasn't until the end of the 19th and beginning of the 20th century that key systems shifted their focus and created the substantial transformative momentum needed to dramatically increase the number of national parks.

Before and after he met with Roosevelt in 1903, Muir wrote hundreds of articles aimed at a popular audience. His proposal was that rather than viewing the wilderness as an untapped economic good to be exploited, it should be viewed as a critical social, patriotic, and moral good and as such should be left undisturbed (Antadze & McGowan, 2017). His viewpoint had appeal and as the growing railroads made travel easier and the genocidal violence of the American state against American Indian tribal nations in the West ended (resulting in the forced isolation and impoverishment of these peoples), tourism began in earnest. As more people came to nature, they created formal organizations such as the Appalachian Mountain Club and Sierra Club, who then in turn engaged in both sense-making around the value of conservation and advocated for more parks and conservation generally.

Similar to Muir, businessman-turned-conservationist Stephen Mather sought to build networks among the powerful to advocate for more parks: in Mather's case businessmen and politicians. In 1915, he paid for a carefully selected group, whom he felt were open to his ideas (specifically a new park at Giant Forest and broadly a more structured and robust park system) and capable of acting to achieve his aims, to travel on a lavish train trip to the northern Sierra Nevada. He even convinced *National Geographic* magazine to devote their April 1916 issue to the national parks. Ultimately, he succeeded on both counts. Congress purchased the land for Giant Forest and created the National Parks Service in 1916, with Mather as the first director. As this case makes clear, transformative social innovation requires agency that is multiphase and multirole (Westley et al., 2013).

The parks system has been correctly criticized for erasing Indigenous peoples from the landscape and their voices from American history in favor of a romantic, unscientific, and ahistorical concept of pristine nature. Exporting this perspective of nature abroad has exacerbated racial and class conflicts in a modern enclosure movement. Yet this is a reminder of the importance of how innovations are conceived, how tensions are rarely resolved, and how yesterday's transformative innovations that may have increased the resilience of one system (natural environments in a quickly industrializing America) can create new problems. The systems reflexivity Muir and others displayed is remarkable. It helped to muscle a new regime that linked ecological conservation, American political systems and national identity with tourism and specific conceptions of history, shifting each system in turn. When filmmaker Ken Burns described the parks and parks system as "America's Best Idea" (as quoted in Antadze, 2017, p. 18), he highlighted these systems entrepreneurs' success in convincing future generations this was a shared project, something natural, normal, and preferable to an absence of parks. It cannot, however, be denied that this transformative social innovation, and the resilience of ecological systems that it contributed to, also had its shadow.

Social Innovation, Resilience, and the Shadow—Emerging Realizations

The need to think systemically in social innovation is not a minor caution; the very success that appears to build resilience in one system can lead to significant devastation across multiple interrelated systems. Tunnel vision or single-minded focus on our preferred solution can lead us to solutions that pose more and even greater problems (e.g., the commitment to replacing fossil fuels with biofuels has imperiled food security [Westley, 2013] and failed to address our economic reliance on greenhouse gas–producing energy consumption and dispersed urban development). Some of this may be attributable to the difference between specific and general resilience (Walker & Westley, 2011), so that projects and processes aimed at maintaining the forms, relationships and/or outcomes within one subsystem fail to take into account the impact of change in that subsystem on the resilience of co-occurring systems as a whole (Carpenter et al., 2015; Holling et al., 1998) and on the adjacent but linked subsystems.

This is the shadow side of social innovation, ideas that take hold and scale, but ultimately bring more harm to those systems they seek to help. Multisystemic resilience is not so much a moving target as an evolving one: as preferences change, information evolves, old asymmetries disappear, and new ones emerge. What was once a logical and generally acceptable response to a commonly conceived issue may later seem ill-formed, ill-conceived, or possibly a horrid example of social engineering either in the initial diagnosis of a problem, the solution, or some combination of both (McGowan & Westley, 2015). What previously seemed like a problem requiring a swift and surefooted response may fade in importance or, on second consideration, not qualify as a "problem" at all. This, in turn, triggers the need to respond to the initial intervention.

One case that encapsulates some of the risks embedded in social innovation conversations is that of the intelligence test. Beginning in the last quarter of the 19th century, with a

specific act of bricolage between the theory of evolution and a moral veil on socioeconomic hierarchy (that the Industrial Revolution–driven multitiered social hierarchy was morally right, representing not just economic circumstances but the moral value of those in the middle class especially, and the descending moral value of those who find themselves below the middle class), the concept of social Darwinism was born (McGowan, 2017b).

The urban poverty and social issues similarly associated with the Industrial Revolution combined with the perspectives of social Darwinism to create moral panic over feeblemindedness—that there were a large number of people at the bottom on the social and economic ladders not because of economic conditions or other social factors but because these people were cognitively and morally inferior—and because of this, they would both commit crimes and have many children, who would inherit this terrible genetic legacy that would doom them to repeating this same cycle.

Contemporaneously, the emerging field of psychology was exploring intellectual capacity: what is it, can it be measured, and is it a fixed trait of the individual? These were critical questions that experimental psychologist Charles Spearman felt were a necessary part of the greater effort to leverage experiments: "Most of [the results] are like hieroglyphics awaiting their deciphering Rosetta stone" (Spearman, 1904, p. 204). The emergence of the dominant term *intelligence quotient*, over other theories such as the much more elusive and suggestively named *g*, necessitated some form of measurement. Multiple models and methods were designed, including one by Alfred Binet who designed a test for school children to determine general categories of intelligence (Binet published his method with his student Theodore Simon in 1905).

Those worried about the risks of the feebleminded could thus look to the emerging field of experimental psychology, as Binet and Simon sought to apply their test to facilitate the instruction of "defective children" (Binet & Simon, 1916). Similarly, those working with those deemed feebleminded enough to merit institutionalization desperately wanted a seemingly objective test for their patients (evidence strongly suggests that they sought to diagnose many different conditions with one test, hence their perpetual frustration). These individuals included Henry Herbert Goddard of the Vineland Research Laboratory, who discovered the Binet–Simon test in 1906 and became one of a series of psychologist advocates for the test in the United States. It also fell in the hands of those engaged in engineering other social phenomena, including immigration and race relations, always in the service of white supremacy (one anti-immigration crusader who administered the test *exclusively in English* to newly arrived immigrants at Ellis Island in 1913 declared them all feebleminded).

As with so many historical social innovations that came to prominence in the United States, a massive external shock across multiple scales—in this case, the United Sates joining the Allied Forces in the First World War—catalyzed the emerging innovation. The American government needed to build a large professional army to join a war already very much in progress and sought out new, hopefully more accurate (and certainly more rapid) means of identifying possible officers than relying on a small pool of already trained upper-class individuals. The relatively young (founded in 1892) American Psychological Association, which had a subgroup committed to the advancement of the intelligence test, saw this window of opportunity. In a matter of weeks they had a copy of the test and evidence from a nearby ally—Canada—of the need for effective officers on the U.S. Surgeon General's desk.

While ultimately there was little evidence the test actually helped identify potential officers more *effectively* than other methods, it definitely did so more *efficiently*. With relatively little training one officer could administer dozens of tests at a time (and 1.5 million over the course of America's war). In the aftermath, *The Lancet* declared the test's application had given "clear indications of their future value in the work of human selection and vocational training" ("Intelligence Test," 1919, p. 539*)*. The test was integrated into schools more rapidly than before the war. Unfortunately, but not unexpectedly, the test reinforced racist perceptions of children's capacity.

Even worse, the test provided a seemingly scientific basis for forced sterilization of those it deemed feebleminded. This was a legal-medical boon for the eugenics movement in the United States and Canada, veiling their views under the guise that this was for the best of the individual who wouldn't be burdened with children and who would receive the appropriate care and support. Meanwhile, society would be spared the curse of the feebleminded. The horrors of the Second World War began to push these same countries away from scientific racism and toward a more meritocratic approach to education and testing. This change, however, is far from complete, given the persistence of such views on the internet and, depressingly, by men like James D. Watson, co-describer of the double helix model of DNA and a proponent of scientific racism.

We should not wrap ourselves in the comfort of our own enlightenment and relegate the lessons of these failures to the dustbin of history: the psychologists of the previous centuries who advocated for the intelligence test and forced sterilization felt equally confident of the scientific foundation for their actions. In many ways, they believed their efforts would make their society more resilient, better able to cope with a rapidly changing world. Yet in this certainty they misunderstood the complexity of both poverty and cognition, and certainly imposed the far too simple solution of sterilization (McGowan & Westley, 2015). In addition, those who supported the idea of intelligence tests as enlightened and efficient processes to improve and customize training and education failed to explore the shadow side of these assumptions: that once separated from empathy, this orientation toward empiricism was used to justify inhuman cruelty and oppression. In a very real sense, efforts to make one or more systems resilient through social innovation can have disastrous, even genocidal, consequences for other systems.

Emerging Principles of Social Innovation and Multisystemic Resilience

Based on our historical case examples of the Internet, the U.S. Parks Services, and the intelligence test, five principles emerge that should guide the continued study of social innovation and resilience:

1. Social innovation and resilience are linked, but the relationship is contextual and complex. Social innovations can both trigger shifts toward greater resilience within one system or across systems, but they can also undermine the resilience of adjacent systems, making the whole more vulnerable and brittle.

2. Social innovation is a paradox of process and context. To bring an idea to fruition, it involves a process of constant imaging, exploring strange attractors and combining/bricolage as one seeks a path to the hypothesized adjacent possibles. However, rarely does an idea entirely escape its prophetic context, initial assumptions, or perceptions. This consistency not only makes the innovation itself more resilient but can also result in unanticipated consequences as the context in which the innovation is enacted evolves.

3. Transformative social innovations are rarely pursued by those for whom the status quo satisfies their needs. The scholar in search of possible transformations needs to look beyond the shining hubs of excellence in the current order to see where disruption in social systems will emerge. It is often at the fringes, where deeper questions about alternatives and adjacent possibles take root. To have influence on mainstream institutions (an important and definitional stage of transformative social innovation) requires active and sustained agency on the part of all actors that are involved and the capacity to see the potential for new patterns of behavior to emerge when systems are linked.

4. Transformation takes time, but windows of opportunity can open and close quickly: transformative social innovation requires thinking about different systems at multiple speeds and with multiple skill sets over multiple time periods. The successful social innovator is always part of a team.

5. Transformative social innovations will cast their own shadow. In direct proportion to their impact on the linked systems that they influence, social innovations can undermine general resilience as often as it increases it. This shadow cannot be entirely avoided, but it can be ameliorated through early awareness of the fact that intervention is systemic. In the context of seeking to understand role of social innovation and its relationship to multisystemic resilience, the importance of treating all innovation as an experiment, one that reveals much about the complex system that the social innovators are seeking to transform, is vital. A constant evaluation of the path being forged, the fitness of the landscape with which that path is interacting, and the realization of the goals and values informing the innovation in each new social, economic, political, cultural, and ecological landscape will be pivotal to whether any social innovation increases or diminishes the resilience of systems as a whole.

Conclusion

Social innovation is a process, and rarely a smooth or linear one; it challenges our expectations and how decisions get made. It forces us to think about systems and can uncover critical barriers to change and opportunities for collaboration. While this is complex, and therefore often surprising, it is not wholly unpredictable. As the experiment continues, the systems that are affected will respond and react, offering critical information to parts of the system, and co-occurring systems, seeking change. Often these responses go unheeded, at the peril of both the innovation and the innovators.

In conclusion, then, let us return to our Dutch chambermaid as an illustration. Were this 1630, she may have made some money, lost some money, but ultimately only

participated peripherally in a human experiment involving an economic system that was quickly evolving. Yet a few years later, many of her co-nationals would lose everything in the first financial bubble, the tulip craze of 1636–1637. New houses for the newly wealthy in the rapidly growing city of Amsterdam had gardens that would have been largely impossible within the old Medieval walls. These new private green spaces drove a general passion for gardening and flowers, none so prized as the Turkish rarity, the tulip. Quickly bulb prices rose exponentially and rapidly traded hands between initial seller and eventually planter, sometimes a hundred times. Bulb sales were carefully choreographed, done in the open air and with promises to donate a portion of the price of the bulb would be given to charity—all reliant on the mutual agreement that that bulb or bulbs would bloom into a specific color or set of colors. Such early financial experiments were based on sharing risk and a mutual agreement to do so. Once a few people questioned if this risk was shared by doubting the value of a flower, things quickly fell apart. Yet the stock market survived and not only achieved normalcy but now calls out for new disruptive innovations to address inequality, brittleness, and a lack of sustainability; disruptive innovations are rarely smooth or evenly experienced across multiple systems.

Key Messages

1. Social innovation and resilience are linked, but the relationship is contextual. Social innovations can both trigger shifts toward greater resilience within one system or across systems, but they can also undermine the resilience of adjacent systems, making the whole more vulnerable and brittle.
2. Social innovation is a paradox of process and context.
3. Transformative social innovations are rarely pursued by those for whom the status quo satisfies their needs.
4. Transformation takes time, but windows of opportunity can open and close quickly: transformative social innovation requires thinking about different systems at multiple speeds and with multiple skill sets over multiple time periods.
5. Transformative social innovations will cast their own shadow; social innovations can undermine general resilience as often as it increases it. This shadow cannot be entirely avoided, but it can be ameliorated through early awareness of the fact that intervention is systemic.

Acknowledgments

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