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Traveling Imaginaries

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TRAVELING IMAGINARIES
The “practice turn” in innovation policy and the
global circulation of innovation models

Sebastian Pfotenhauer and Sheila Jasanoff

Introduction
In December 2011, the then-mayor of New York City, Michael Bloomberg, announced that Cornell University and Israel’s Technion had jointly won a bid to build a new Institute of Technology on Manhattan’s Roosevelt Island. The announcement and the preceding bidding process drew a lot of attention from media, politics, and academia alike: Bloomberg was heralded for his “bold vision” that promised to finally dissolve the city’s longstanding stigma of offering an anemic, second-rate innovation environment. Cornell Tech was seen as a “game changer” that could “help dreamers and entrepreneurs from around the world come to New York and help us become the world’s leading city for technological innovation” (Cornell Chronicle, 2011) and “positioning New York for 21st-century global supremacy” in the wake of the financial crisis (Bellafante, 2011). Seemingly overnight, the project attracted private donations on the order of half a billion dollars, adding to the precious land grant of prime New York real estate and a pledged total investment of $2 billion by the city and the state.

As with any flagship development initiative, Cornell Tech stirred controversy. Public reactions included insinuations of legacy-building by the mayor, concern about the implications for New York’s other premier institutions such as NYU and Columbia, the socially questionable repurposing of what up to this point was a hospital island, and protests against Technion’s involvement by pro-Palestine advocacy groups. Yet, overall, the level of public contestation was relatively modest for an initiative that involved a major land grant to a private university with an endowment of more than five billion dollars and shutting down hospitals in an era of public fiscal scarcity and Occupy Wall Street. In particular, no one seemed to question the two most basic premises of the initiative: first, that New York City needed to step up its innovation game, and, second, that importing an Institute of Technology to the heart of the city with the help of outside expert partners was a sound strategy. While the competition aroused much speculation, virtually no public debate ensued as to whether New York’s competitive strengths really required a new university or an innovation hub; whether New York stood a chance competing with established innovation regions such as Silicon Valley or the Boston area; or whether innovation capacity could indeed be obtained from a plug-in institution serviced by two universities whose principal activities and interests lay elsewhere.¹

The creation of Cornell Tech speaks to a curious two-fold shift towards regionalism in the imagination of innovation. On the one hand, innovation has become a key concern of policy-
Traveling imaginaries

making at the regional and city level, guiding investments and shaping communal self-
imagination in ever more pervasive ways (Pfotenhauer et al., forthcoming). Hardly a week
passes without a regional or city government announcing an “innovation strategy” or an
institution (re-)branding itself as a driver of innovation. Likewise, innovation research is
increasingly focusing on regions and cities (Cooke et al., 2009; Braczyk et al., 2004; Marceau,
2008). On the other hand, our imagination of innovation today is fundamentally linked to
certain regions and institutions that seem to have transcended their own particularity, such as
the doublets of Route 128/MIT, Silicon Valley/Stanford, or Israel/Technion. Being an
innovative region or institution, it seems, is equivalent to being like one of these places, and
competitiveness concerns and ambitions for development are increasingly articulated vis-à-vis
them. As a result, it has become common practice for policy-makers and institutional leaders to
look to these supposed innovation leaders for “best practices” to be distilled and emulated at
home. What, in the case of New York City, might twenty years ago have been dismissed as a
futile, indeed hubristic, attempt at “catching-up” in the style of an ambitious Middle Eastern
nation today counts as plausible policy strategy for even highly developed regions. It is against
this background that Mayor Bloomberg’s initiative suggested to New Yorkers: we know that
innovation is the key to the future of our city. We also know what innovation success looks
like. With Cornell and Technion as trusted partners at our side, we will give New York its
“Silicon Island” (The New Yorker, 2012).

In this chapter, we aim to interrogate this two-fold re-localization of the global political
economy of science and innovation – the almost automatic re-imagination of regions as future
innovation hubs on the one hand, and the re-imagination of innovation around the practices of
a few select places on the other. We argue that the creation of Cornell Tech and the like speaks
to a broader “practice turn” in innovation policy that requires a different kind of theorization
than currently available in mainstream innovation theory. This mainstream theory continues to
explain and enact innovation in terms of universal models, thus failing to account for how
much our notion of what constitutes an innovation model has become interwoven with notions
of place and practice (as observed in the circulation of “best-practice models” such as the “MIT
model,” the “Silicon Valley model,” or “Responsible Innovation”).

A more productive way of understanding models in contemporary innovation discourse is
to see them as Traveling Imaginaries of Innovation. With this term, we elaborate on the concept of
sociotechnical imaginaries by adding a dimension of global circulation to capture how
innovation policy simultaneously mobilizes local understandings of what constitutes a desirable
sociotechnical future and a set of transnational practices that legitimize innovation as a global
policy imperative. What bridges this seemingly self-contradictory duality is the interpretive
flexibility of traveling imaginaries. Using a brief comparative analysis of three implementations
of the “MIT model” in the United Kingdom (UK), Portugal, and Singapore, we demonstrate
that societies envision fundamentally different things under the label innovation even when
making reference to, and implementing, the supposedly same model. At the same time, actors
draw upon a globally certified vocabulary and forms of expertise to articulate local visions,
mobilize local resources, and justify local policy changes. Identifying these multiple layers of
practice allows us to explain how the same innovation model – and the notion of “innovation”
it encodes – are locally co-produced along with a specific diagnosis of a societal need and a
complementary vision of the required remedy, leading to utterly different configurations of the
imported model (Pfotenhauer and Jasanoff, forthcoming). In contrast, the prevalent “universalist”
approach to innovation, which presupposes a single underlying model, identical systems
components, and shared rationales about development, leaves key variations in the rationalization,
design, implementation, and performance of regional innovation policy unexplained.
The “practice turn” in innovation policy

Innovation has become an imperative for pulling societies out of perceived economic and social doldrums around the globe. As a policy objective, innovation has attained the status of a go-to answer – a panacea, so to speak – that carries the promise of solving socioeconomic woes regardless of their nature or history (Pfotenhauer and Jasanoff, forthcoming). It has become virtually impossible to talk about economic development or social progress in terms that do not invoke, explicitly or implicitly, the necessity of innovation. In fact, it seems as if all governmental functions must increasingly turn to innovation in order to appear legitimate, economically defensible, and modern: from education and research to immigration, labor market regulation, and taxation, all the way to environmental regulation and risk governance.

Alongside this rise to prominence, something has shifted in the way we think about innovation. For a long time, the phenomenon of innovation was the sole prerogative of academics trying to explain technological change, economic growth, and social progress. Standard innovation theory held that innovation could be captured through abstract models that reflect general understandings of what innovation is, what it is for, and how it ought to be implemented. The literature on innovation is replete with such theoretical models – from the linear (pipeline) model, to push–pull or chain-link models, to today’s innovation systems and triple helix models (Godin, 2006; Godin and Lane, 2013). These models share a belief that the universal mechanics of innovation can be distilled, packaged, and transferred to different settings. In this view, what differs across settings (and often prevents a specific innovation model from working) is the “context” of innovation – not innovation itself – which explains why some regions lag behind others. As a result, innovation scholarship tends to evaluate innovative regions against an implicit presumption of organizational “completeness,” consisting of an ideal set of components, actors, conditions, and functions that need to be arranged in slightly different yet ultimately parallel ways to stimulate innovation (Pfotenhauer and Jasanoff, forthcoming).

In contrast to these analytic roots and their commitment to universal theory, innovation discourse today is increasingly dominated by a plurality of practitioners – policy-makers, institutional leaders, tech transfer managers, and a whole new profession of consultants – all of whom are tasked with doing innovation across a multitude of settings, rather than simply explaining or theorizing it. This “doing innovation” may include activities as diverse as managing university incubators in Lisbon, re-envisioning urban mobility in Ulaanbaatar, funneling oil revenues through a sovereign wealth fund in Alberta, merging a headphone company and a computer manufacturer in the United States, or undertaking biodiversity sampling in the Amazon.

While the notion of innovation seems effortlessly to encompass this cacophony of activities, traditional theories and models are less accommodating. Those charged with implementing innovation increasingly find it hard to make sense of the terms and components of the supposedly universal models in the contexts in which they are envisioned to be useful. Moreover, accuracy in emulating certain models has proven a poor predictor of success. Yet, policy-makers and institutional managers try to orient themselves by looking to the practices of presumed innovation leaders, whether determined by explicit measurement or mere reputation. Indeed, the aura of the “MIT” and “Silicon Valley” models has grown brighter as policy desiderata throughout the world, giving rise, respectively, to such emulations as the “Karlsruhe Institute of Technology” (Germany), “Masdar Institute of Science and Technology” (Abu Dhabi), and “Skolkovo Institute of Technology” (Russia), or the “Silicon Fen” (UK), “Silicon Wadi” (Israel), and “Silicon Plateau” (India). Both “Cornell Tech” and “Silicon Island” fall squarely within this pattern. Here, “innovation models” are no longer understood as an analytic
abstraction, simplification, or metaphor – such as “linear model,” “innovation systems,” or “triple helix” – but as “modeled after the successful practice of a real-world institution or region” – a role model rather than a theoretical model. In contrast, abstract theoretical models have remained largely within specialist discourses and have not entered public and broader policy imagination in similarly pervasive ways.

This turn to “models of practice” marks a fundamental reconceptualization of innovation’s real and imagined landscape. Defined by the practice of a real place rather than by theory, it links the notion of an “ideal model” to a process of comparative benchmarking, thus reframing the purpose and mechanics of innovation around an aspirational goal of similitude. Indeed, much of the recent innovation literature has been concerned with pinning down “best practice models” – including Silicon Valley and MIT – and turning them into standardized toolkits and how-to guides. In this new paradigm, knowledge of the inner workings of Silicon Valley or MIT has become a desirable form of innovation expertise in and of itself, with resulting pressures to codify tacit knowledge in ways that lend themselves to circulation. This authorization of MIT and Silicon Valley as models is reminiscent of Thomas Gieryn’s “truth-spots” as spaces that derive their authority from being both field-sites for the empirical observation of local reality (in this case: the inner workings of innovation) and sites of controlled experimentation that can lead to the extension of the local into universal scientific truth (Gieryn 2006). In contrast, best practice models of innovation derive their authority, and their ability to circulate, from the efforts of translocal communities of practice to instrumentalize perceived success stories and to apply them to other contexts.

We call this three-fold shift in our understanding of innovation (1) as the go-to answer for policy challenges and a touchstone for governmental legitimacy; (2) subject to standardization in response to increasing pluralism; and (3) conceived in terms of competitive benchmarking and implemented through “best practice transfer” – the practice turn in innovation policy. It is indicative of, and reinforced by, a broader trend in innovation policy towards comparative benchmarking, where policy-makers habitually look to experts for pre-packaged plug-in solutions that promise a quick fix for complex policy problems. As an analytic lens, it is consistent with repeated efforts in STS toward theorizing practice (Schatzki et al., 2001). In particular, it is consistent with practice theorists’ call for qualitatively different kinds of analysis at the meso-scale, taking into account collective phenomena such as shared goals or mutual monitoring, while not resorting to explaining them as residuals of macro-structures at the individual scale.

### Three best practice models

Best practice models of innovation, the bread and butter of innovation policy after the “practice turn”, are plentiful. However, several stand out in terms of promise and prominence (Table 31.1).

First, the MIT model is an institutional best practice model. In common usage, it is taken to mean that excellent technical universities in conjunction with supportive ecosystems are a master key to technology commercialization and regional development. MIT is a product of the American land grant college tradition that introduced an economic mission to the academic ivory tower. Famed for its achievements in basic and applied science as well as its economic impact, MIT’s success is often traced back to its key role in the development of innovative Second World War military technology, which set the stage for a long and successful history of capturing government contract research, establishing close ties to industry, and producing entrepreneurs in an assembly-line fashion. MIT’s “impact of innovation” has been documented in regular publications by the Kauffman Foundation, BankBoston, and MIT itself, which find,
Table 31.1 Three widely circulated “best-practice” models of innovation

<table>
<thead>
<tr>
<th>Model of Practice</th>
<th>MIT model</th>
<th>Silicon Valley model</th>
<th>Responsible Innovation model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit of analysis</td>
<td>Institutional</td>
<td>Regional</td>
<td>Community (innovators + recipients/users)</td>
</tr>
<tr>
<td>Imagined key to innovation</td>
<td>Excellent technical universities in supportive ecosystems</td>
<td>Mix of excellent academic institutions, high-tech industries, venture capital, close networks of highly skilled individuals with entrepreneurial mindset, self-organized in decentralized cluster</td>
<td>Consulting with citizens on major questions of sociotechnical change to achieve acceptance and improve innovation</td>
</tr>
<tr>
<td>Origin</td>
<td>Cambridge, MA</td>
<td>Northern California</td>
<td>European Union</td>
</tr>
<tr>
<td>Uptake</td>
<td>E.g., ‘KIT’ (Germany), ‘Masdar Institute of Science and Technology’ (Abu Dhabi), ‘SkolTech’ (Russia), ‘Cornell Tech’ (USA)</td>
<td>E.g., ‘Silicon Fen’ (UK), ‘Silicon Wadi’ (Israel), ‘Silicon Plateau’ (India), ‘Silicon Island’ (USA)</td>
<td>E.g., Horizon 2020 ‘Science with and for Society’ (EC), standardized RRI tools, proliferating public engagement and open innovation practices</td>
</tr>
</tbody>
</table>

For example, that there are “over 30,000 active companies founded by living MIT alumni, employing 4.6 million people and generating annual world revenues of nearly $2 trillion. This group of companies, if its own nation, would be the 10th-largest economy in the world” (Roberts et al., 2015). In the innovation policy literature, MIT is frequently cited as living proof of the central role of universities in innovation and their emergence as heavyweight economic actors that increasingly engage in the creation of proprietary knowledge and research commercialization through spin-offs or licensing. The “MIT model” has repeatedly been the target of scholarly attempts to abstract MIT’s institutional practice into a theoretical model, most notably in the “entrepreneurial university” (Etzkowitz, 2002) and “triple helix” models, in which innovation occurs at the intersection of universities, industry, and government (Etzkowitz and Leydesdorff, 2000).

A second, arguably even more prominent best practice is the Silicon Valley model. Silicon Valley signals that the key to innovation success is located at the regional level, which is usually understood to include a mix of excellent academic institutions, technology industries, venture capital, close networks of highly skilled individuals, and a risk-taking mentality that together drive an abundance of start-ups and multinational companies. The success of the Silicon Valley region has been tied to its capacity to repeatedly re-invent itself, from an economically lagging agricultural area to an eager government contractor in the post-Second World War era, a center of semi-conductor and electronics manufacturing in the 1970s and 1980s, to the dot-com boom and rise of Internet giants of today. The “valley” metaphor emphasizes physical proximity between mutually synergistic actors and organizations – high “concentrations of skill and technology” paired with a nimble, “decentralized process of experimentation and learning,” in the words of Saxenian’s (1996) classic Regional Advantage. Academic scholarship on Silicon Valley has spawned a rich literature on regional innovation systems, clusters, and ecosystems, and has
been at the forefront of a relatively recent turn to the meso-scale of city-regions. Silicon Valley is often cited as evidence for a blatantly unequal, “spiky” geography of innovation, where a few highly innovative and economically prosperous regions dominate the global innovation landscape. Moreover, the Valley’s success is frequently associated with the stereotypical tech-entrepreneur and a particular set of social characteristics such as openness to change and failure, a welcoming attitude towards risk and disruption, and an outsized ambition to “change the world,” “improve the life of a billion people,” or bring about “singularity”-type game-changers – frequently paired with a certain disregard for established social orders, equality concerns, and government regulation. Silicon Valley, too, has been the target of scholarly attempts at codification and practice transfer (Bania et al., 1993; Bresnahan and Gambardella, 2004; Casper, 2007).

A third and relatively recent best-practice model of innovation is that of Responsible Innovation. Responsible Innovation is aimed at the community of innovators and innovation recipients such as affected publics and users, who are in turn envisioned as part of the creation and dissemination processes of emerging technologies. The model thus shares some common ground with open innovation approaches, although it is usually less firm-centered. It is commonly interpreted to imply that researchers, governments and firms should consult with citizens on major questions of sociotechnical change for reasons of both social acceptance and efficient development. Responsible Innovation owes some of its prominence to the political presumption holding that modern publics, if properly consulted and managed through a suite of “technologies of democracy,” will not challenge policy elites’ judgments concerning the benefits of innovation. It ties into recurring patterns of perceived crises regarding the risks and failures of new technologies around the world – including the BSE crisis to the GMO debacle in Europe. Responsible Innovation builds on earlier and related concepts such as the public understanding of science, public engagement, anticipatory governance, and open innovation. Hence, it is not tied to one specific region of origin. Yet, it has emerged and been circulated most prominently as a governance framework for research and innovation in the European Union (as witnessed for example by the Horizon 2020 funding programs), with increasing spillovers into North America and Asia. Responsible Innovation is arguably the least formalized model, yet the desire for standardized toolkits and practices is growing, contributing to a flourishing body of literature (RRI Tools, 2015; Stilgoe et al., 2013). In the following section, we analyze the circulation of one of the three models – the “MIT model” – to three different sites. Additional detail can be found in more comprehensive descriptions of the cases (Pfotenhauer et al., 2016; Pfotenhauer and Jasanoff, forthcoming).

The circulation of the MIT model to three countries

United Kingdom

In November 1999, the Cambridge–MIT Institute (CMI) was launched to create “an anglicized version of the ‘MIT approach’ and all that has delivered in terms of economic dynamism to Boston and the regional economy of New England” (CMI, 2008). CMI was conceived by Gordon Brown as a much-needed rejuvenation for an ailing economy and university system, implemented through a targeted injection of innovation practices directly into the very heart of the British university system. An innovative Cambridge would reassert the UK in the world against the background of ever-rising fears about the decline in British economic leadership and vitality in the wake of de-industrialization, which Brown linked to the “historically weak commercial awareness” of universities, despite the “high quality of academic science in the UK” (DTI, 2001).
CMI was framed as a symmetric “joint venture” between universities of equal standing – an “Institute” rather than a program or partnership, capable of “bringing together two of the world’s great universities to build on the complementary strengths of each” (CMI, 2005). Yet, CMI was met with utter skepticism (and at times outright indignation) at Cambridge. According to one MIT faculty member, MIT’s first emissaries to Cambridge (“non-Brits with an engineering background [who] could not be less Cambridgey”) prompted comments such as: “Who does MIT think it is, parachuting in and telling the University of Cambridge [what to do]?” For many, the working assumption was that Cambridge already excelled in everything it did. Excelling in innovation, however, was generally not perceived as a matter of necessity for the standing of the university and rather encountered concern about the impurity of commercialization-driven research.

Consequently, efforts to transplant concrete MIT practices proved challenging. For example, Cambridge refused to touch its doctoral programs to implement an industrially linked PhD, and struggled institutionally to accommodate interdisciplinary master’s programs bridging science, management, and policy. Research at CMI was mainly based on what already existed at Cambridge. At a time when higher education and research funding underwent dramatic cuts, many Cambridge faculty viewed CMI as a “sort of a golden pot of money […] with no commitment. They didn’t care about whether CMI did well or poorly, whether the government was right or wrong, … [or] the importance of a 6-year relationship with MIT,” one Cambridge faculty remembers. In the end, the “MIT model” was viewed as a kind of institutional add-on that would neither substantially interfere with already existing activities nor fundamentally alter the way in which the university operated, thus arguably under-delivering on its promise in the eyes of many. Hence, Gordon Brown’s vision of transforming the UK by injecting MIT practices into one of Britain’s most iconic universities collided with the political necessity of a co-equal partnership and the self-images of two institutions with different understandings of their academic mission.

**Portugal**

While Portugal’s dignified university system stands up to historical comparison with the UK, its modern university landscape was shaped by a half-century of dictatorship until 1974, when a leftist revolution ushered in a fledgling democracy, a wave of nationalization, the loss of the colonies, and a massive brain drain by former elites. This experience of disruption continues to shape the country to the present day. Universities after 1974 primarily underwent a push for social and institutional equality, effectively inhibiting the emergence of strong national research universities and an entrepreneurial orientation (Heitor and Horta, 2011). The post-revolutionary years contributed to a Portuguese image and self-imagining as a “peripheral,” “catching-up” country (Aiginger, 2004; Lains, 2003), which was closely tied to narratives of loss, self-inflicted backwardness (Pfotenhauer and Jasanoff, forthcoming).

In early 2006, the Portuguese government launched the MIT Portugal Program (MPP) to “leverage MIT’s experience in [science, technology, and higher education] to strengthen the country’s knowledge base through an investment in human capital and institution building” (Pfotenhauer et al., 2013). The main figure behind the initiative, Secretary of State Manuel Heitor, was a prolific innovation policy scholar who argued for the key role of universities in the knowledge economy and the imperative for Portugal to participate in international knowledge networks and risk bold institutional change (Conceição et al., 2003; Conceição and Heitor, 2005). The “MIT model” was thus not framed as a minimally invasive intervention as in the UK; rather, it was a conscious break with inherited structures and constraints in the
name of “catching up,” as Portugal turned to external assistance to make up for the self-inflicted fractures of the past. In contrast to Cambridge, Portugal embraced incomparably more drastic interventions: for example, MPP introduced seven American-style graduate programs – four PhDs with integrated master’s and three professional master’s programs – all taught in English and with an unprecedented curricular focus on innovation. Portuguese junior faculty were encouraged to visit MIT and audit MIT classes on innovation to adapt them for a Portuguese context (for example, more than twenty Portuguese faculty audited MIT’s popular “innovation teams” course, in which students develop business plans for emerging biotech research in cooperation with company partners). At the same time, MPP was leveraged to jump-start entire new research fields drawing on expertise at MIT, including stem cell research.

Portugal’s history also explains why the MIT model was envisaged in a less elitist fashion than in the UK. In line with the enduring post-revolution tradition of egalitarianism, rather than affirming the leadership of a single elite institution, MPP included a consortium of seven Portuguese universities. This structure was also intended to create “distributed critical mass” across several universities, recognizing that no single institution was on a par with MIT or Cambridge. Here, the MIT model acted as a kind of “glue,” as one Portuguese senior government official put it, to incentivize Portuguese universities to work together through the opportunity to jointly work with MIT.

Singapore

The history of the “MIT model” in Singapore is long and multi-layered. The first major agreement between Singapore and MIT, the Singapore–MIT Alliance (SMA), was launched in 1999, primarily as a long-distance educational collaboration to “develop talented human capital for Singapore’s industries, universities, and research establishments” and to “attract and retain the very best engineering and life sciences graduate students and researchers from across Asia” (SMA, 2005). Here, the key to the “MIT model” was understood to be research-intensive graduate programs with a strongly applied orientation and interdisciplinary curricula, which set SMA apart from traditional engineering approaches and departmental structures at Singapore’s public universities. With the 2003 renewal of the program, Singapore also seized the opportunity to move away from classical engineering areas such as computer science, micro- and nanosystems, and manufacturing, and turn to the life sciences, which were seen as the most promising innovative industry in the 21st century (Chuan Poh, 2010). This shift mirrored parallel trends at MIT and Route 128 at that time and was part of a broader transition in Singapore’s self-image from “intelligent island to biopolis” (Clancey, 2012).

In 2006, MIT and Singapore launched the Singapore MIT Alliance for Research and Technology (SMART) – which changed the focus of the “MIT model” from education to research. SMART aimed to attract MIT scientists to work in Singapore for extended periods on Singaporean research priorities. In the words of a senior administrator, Singapore could not afford “to wait until it’s grown [a domestic research talent pool] before we can do significant research.” At the same time, SMART adopted MIT’s institutional best practices of technology transfer by establishing an Innovation Centre modeled after MIT’s Deshpande Center.

In 2010, MIT and Singapore signed yet another agreement to jointly establish the new Singapore University of Technology and Design (SUTD), with ambitions “no less” than MIT itself to “create a new type of technologically grounded leader” that has the “passion to literally change the world” (SUTD, 2012). SUTD was born out of the fear that the key factor hampering innovation was a lack of creativity, not engineering capability (Remaking Singapore
Committee, 2003), and that Singapore needed to transition “from efficiency-driven growth to innovation-driven growth” (Tan and Phang, 2005). To achieve this, the government decided to break decisively with the established Singaporean research and education landscape and build “something different from the existing institutions,” according to Singapore’s Prime Minister Lee Hsien Loong – for which it curiously turned again to the “MIT model” (even though MIT had helped existing structures in the past). SUTD reflects many of the latest trends at MIT, including a focus on design, creativity, and other educational “best practices” developed by MIT-internal task forces (Pfotenhauer, forthcoming).

SMA, SMART, and SUTD represent an even more elusive, constantly changing “MIT model” – yet one that at each point remains closely tied to the Singaporean imagination of what innovation is and which perceived deficits it ought to address. This repeated adaptation befits a young and decidedly modernist country that has narrated its inception as a “tabula rasa” (Lim, 2004) and defined its national identity and policies through extreme outward orientation, vigilance, and responsiveness (Choon, 2004). The repeated renewal of linkages to MIT further resonates with the decades-long concern for economic and geopolitical sovereignty and the pursuit of cohesive identity outside its own multi-ethnic and turbulent history through extreme outward orientation and constant adaptation. The “MIT model” arguably retains a particularly firm grip on Singapore’s imagination of progress due to a sizable group of MIT alumni among Singaporian leadership, including current Prime Minister Tony Tan, S.M. ‘64.

Imaginaries of innovation

The brief case studies above reveal how three innovation initiatives in three countries envisioned fundamentally different things – different challenges, different solutions, different organizational models – when trying to foster innovation with the help of the same model – the “MIT model.” Given this lack of a common definition, how should we make sense of the model’s manifest appeal to a common innovation identity and its thriving circulation around the globe? How can we reconcile the appeal to a universal “best practice” despite the evident divergences in perceived local needs?

One productive theoretical inroad emanates from Benedict Anderson’s (1983) work, which explains cohesion in identity within nation-states through the social and material construction of “imagined communities.” These communities are “imagined” because it is impossible for one member to meet, let alone meaningfully connect to, all other members; yet, a common identity develops because of shared reference points, symbols, experiences, and materially mediated patterns of collective life. As Anderson implied, technologies of communication play a key role in enabling this cohesion: in particular, the printing press and the power of print capitalism put everyone literally “on the same page” with regard to events that should concern a society and may affect its well-being, thus creating a sense of synchronized time and shared experience.

Accepting Anderson’s focus on shared imaginations as a point of departure, we accord technology a more plastic and creative role in the projection of collective societal futures. Modern societies, as Jasanoff and Kim (2015) have argued, steer and develop themselves in important part through “sociotechnical imaginaries,” defined as “collectively held, institutionally stabilized, and publicly performed visions of desirable futures” that are “attainable through, and supportive of, advances in science and technology”. Innovation after the practice turn mobilizes sociotechnical imaginaries in what we might call imaginaries of innovation, on two levels: first, the “MIT model” both sustains and is sustained by a transnational community of policy-makers for whom the model acts as a common reference point in places as geographically dispersed as the
Traveling imaginaries

UK, Portugal, and Singapore. This community is professionally committed to a range of social practices associated with the MIT model – from the imperative of identifying “best practices” to shared processes of appraisal, circulation of standard packages (Fujimura, 1992) and reorganization of institutional structures according to the model, communication with the same cadre of innovation experts, relative benchmarking vis-à-vis MIT, etc. In this logic, to become an innovative institution or region is to compete within frames of reference set by innovation leaders such as the United States, and, by extension, to accept MIT as a shared reference point. Those not able to recreate MITs and the like on their own soil are de facto not competing in innovation as collectively imagined.

Second, however, the far-ranging reorganization of society and its institutions in the name of innovation necessarily interacts with communal scales of socio-cultural cohesion and meaning-making – i.e., those underwritten by shared histories, political commitments, and practices of governance. As a result, globally traveling imaginaries such as the “MIT model” remain pegged to situated imaginations at the nation-state level, but also (as illustrated in Jasanoff and Kim, 2015) in regions, institutions or user communities. CMI, for instance, was informed by a felt need in the UK for successful translation of science into industry to retain global economic leadership. It was envisioned as a targeted, local injection of innovation capability, built upon an elitist sense that this national crisis could and should be addressed through one of the country’s preeminent academic institutions, which (perhaps understandably) did not feel the pressure to change. CMI tried to implement the “MIT model” by adding specific innovation activities to existing Cambridge structures, with minimal disruption to the overall system. MPP, by contrast, was born out of Portugal’s social and institutional heritage of decolonization, post-dictatorship shock, and subsequent self-image as a “delayed,” “catching-up” country, which in the national consciousness was ascribed to self-inflicted internal causes. Portugal’s historical experience called both for a less elitist, more societally consensual, multi-institutional approach, as well as a more decisive import of foreign practices to break with existing institutional traditions. The “MIT model” was envisioned as an external aid to overcome this self-inflicted lag and catch up with other countries whose development Portugal had once helped spark. Finally, Singapore’s SMA, SMART, and SUTD represent a sociotechnical imaginary of maintaining economic, geopolitical, and cultural sovereignty, and strong outward orientation in science and technology. Implemented through multiple generations of partnerships, the “MIT model” was envisioned in Singapore as a functionally distinct set of enhancement activities – graduate education in traditional engineering and later bio-engineering, research and tech-transfer, creativity and design in undergraduate education – implemented in a sequenced fashion that not only mirrored parallel shifts in governmental priorities but also reflected Singapore’s decades-long concern to remain relevant within global networks of circulation.

The above case studies suggest that these two layers of imagination – the global community of innovation policy-makers and practitioners who imagine practices that travel, and the imagined local community of socio-political meaning-making in which practices stick – coexist at each location in their own locally specific configurations. They may endure side by side or even collide (as in Cambridge’s rejection of the “MIT model” as imagined by Gordon Brown); support one another (Portugal’s mobilization of the “MIT model” as part of a catching-up with modernization); or co-evolve with one other (Singapore’s repeated adoption of various “MIT models” over time). The juxtaposition of two layers of imagination explains why “best practice models” can be mobilized as epistemic and political resources for defining an institution or region as part of a local and a global community of innovation, thus blurring distinct semiotic frames of reference. Imaginaries of innovation thus also allow us to understand
heterogeneity in innovation practice against the presumed universality of innovation theory, by tracing how practices change when they travel while at the same time acknowledging innovation’s global reference points, circulations, and entanglements. The comparative cases show how traveling imaginaries are inflected by local understandings of the kinds of futures that seem worth aspiring to, the legitimate mechanisms for attaining them, and the arguments in favor of innovation that seem plausible.

Admittedly, this brief analysis raises more questions than it answers. For one, it challenges us to study in a more comprehensive fashion how and where different innovation imaginaries travel, how they are locally interpreted, and how innovation itself is co-produced with other imaginaries at various sites. It is conceivable that the three traveling imaginaries identified in this chapter (i.e., Silicon Valley, MIT, Responsible Innovation) could be actively “pitched” against one another in some places while converging in others, providing added clues as to why some models stick while others “fail.” It is also tempting to ask how the circulation of these models feeds back into the redefinition of each model at its site of origin. MIT’s close ties to Singapore, and educational and research experiences over decades of partnerships, have had considerable impact on MIT’s own self-imagining and strategic orientation. Finally, the rise of innovation to policy prominence prompts us to ask what social and political functions the concept of innovation, and its standardized forms of practice, are playing in broader discursive and political arenas (Pfotenhauer et al., forthcoming). Here, questions as to which societal deficits and solutions are articulated, or elided, through innovation discourse could provide a fruitful way forward.

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Notes

1 Cornell University’s main campus, including its engineering school and the bulk of basic research facilities, are located in the small university town of Ithaca, New York, but Weill Cornell Medicine, the university’s medical school, is located in midtown Manhattan.
2 Heitor was also an official external examiner of Cambridge–MIT.
3 Elsewhere (Pfotenhauer, forthcoming), Pfotenhauer has suggested that “best practices” can be understood as “boundary objects” that are, to use Star AND Griesemer’s (1989) definition, “both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites.” Yet, while the concept of boundary objects explains how diverse initiatives can effectively be perceived as part of the same model, emphasizing that “consensus is not necessary for cooperation nor for the successful conduct of work,” it is less suited to tackle questions of circulation, standardization of practice, or broader stabilizations as part of durable political culture and the institutional superstructures, which are the focus of this chapter.
4 This self-conscious and partly instrumental identity-building through innovation initiatives adopts a different approach to imaginaries than the unexpected, quasi-accidental synchronization of society through the printing press presented by Anderson. Our approach necessitates a more thorough weaving-together of social and technical aspects in explaining how the nation-state (or an innovative region) mobilizes, and is being reconfigured by, innovation as a political resource. As an analytic lens, sociotechnical imaginaries are particularly helpful in calling attention to large-scale national science and technology initiatives as key sites of contemporary state-making and societal reconfiguration, and vice versa.
5 More research is underway to detail these initial findings.
References


