Working Regions
Reconnecting innovation and production in the knowledge economy

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1 Working regions
Regeneration by design

This book focuses on an important and growing policy question: how to build sustainable regional economies. In order to address this question, the book puts forward examples of “working regions” and unpacks the individual policies and policy systems that make them work. For a region to be a “working region” research and design functions—regional innovation systems and production networks/industrial districts—must successfully co-locate and overlap. As a consequence, these regions reproduce specialized regional labor markets capable of innovating new products and processes, and retain the skilled labor required to implement and “uptake” that technology in manufacturing. These places provide a potential policy model for regional resilience.

In short, I argue that working regions are places where innovation and production co-exist in situ. This is an inherently geographic argument and depends on the proposition that the spatial distribution of economic activity matters. Further, the spatial organization of innovation and production follows a logic that can be unpacked, understood, and affected through policy choices at the regional, state, and national scales. My research shows that the state has a role in facilitating and investing in the intermediaries that build these innovation systems and firm networks.

The importance of spatial proximity to generating and sustaining innovative economic activity remains contested among leading economists with substantial national policy portfolios in the USA. In a recent editorial in *The New York Times*, Christina Romer, the former Chair of President Barack Obama's Council of Economic Advisors, expressed skepticism about the economic benefits of clustering in a critique of the Obama Administration's proposal for lower tax rates for manufacturers.  

However, there is an extensive literature on territorial innovation systems that documents the links between regional economies and embedded innovation capacities. This literature developed from a series of discussions—notably about industrial districts and learning regions—highlighting the roles of human and social capital as well as institutional infrastructure in producing and retaining territorially embedded capacities in enabling emerging technologies in a complex and competitive global economy. Although a series of policy frameworks followed from this
extensive literature, the vast majority of science and technology policymaking has been slow to recognize geography as a critical variable in innovation technology transfer.

More recently, there has been growing recognition that the dominant models of the last two decades privileged innovation and competition at the expense of providing a framework capable of strategically engaging real-world demand. As a result, models that dominated discourse before the global recession—regional innovation systems, industrial clusters, university technology transfer as economic development—are being renewed scrutiny. A major criticism of these policy models is that they provided evidence for their efficacy were cherry-picked narratives of exceptional regions and new and emerging technologies rather than the typical cases of places proceeding along a complex and cumulative innovation path. In other words, policymakers modeled policy after the exceptions rather than the rule.

As a consequence of prioritizing innovation over production, much of the empirical work of recent decades suffered from a tendency to “look to the lamp light” resulting in myriad studies of Silicon Valley and biotechnology clusters and a small (although significant) body of work on older industrial regions and “traditional” industries. The now obvious cracks in the foundation of these regional development policies and national strategies created a new urgency around understanding why some industries innovate and produce in place—creating jobs and manufacturing capacities and institutional infrastructure—while others do not. This urgency spurred a renewed interest in alternative models of regional development and in empirical studies that described the related policies in practice. Policy teams in the US, Canada, the UK, and the European Union (EU) have undertaken significant projects to understand better the connections between innovation production and how to build and sustain economic capacities.

This emerging emphasis on sustainable regions rather than economic growth alone extends research on learning regions and the “innovative milieu” to a broader conceptualization of embedded institutional adaptive capacity. As a consequence, policy discussions of regional development are shifting from a focus on growth and competitiveness to analyses of the resilience of regional economies in response to rapid transitions in technologies, markets, and exogenous economic shocks (such as recessions and energy crises).

This discussion—prominent in public policy, urban planning, and regional studies—mirrors previous discussions in economic geography. This development integrates several streams of theory and empirical work on firm-level, region and network (industry) dynamics. In particular, work on evolutionary economic geography attempts to synthesize a set of complex and partial empirical projects including: 1) the embedded and localized nature of innovation (technological change); 2) life-cycle issues of regions, industries, and firms (path dependencies and lock-in); and 3) the role of “socioeconomic
culture" or institutional infrastructure in regional development (organizational "routines" of coordination and control). These academic and disciplinary discussions about rethinking the framework of regional development analysis and practice reflect real-time policy concerns about managing industrial restructuring and economic recovery while promoting the critical priorities of simultaneous green innovation and broad-based job creation. Such challenges have highlighted a shift in the landscape on which previous regional development models were based.

**Locating production**

Fostering the co-location of design and production is exceedingly complicated in a post-vertical-disintegration world full of outsourcing, subcontracting, and elongated supply chains. In many cases, design and production functions are not located within the same firm or the same region. Our understanding of what this means in terms of outsourcing is fairly well developed. Large firms carve out production functions as they become routinized and subcontract those activities to other firms. The purpose of this strategy is to reduce costs and redistribute risks (economic uncertainty and liability) to another party. What is less well understood is how and why this firm strategy has spatial implications that affect regional economies.

With vertical disintegration, places increasingly become specialized in aspects of a production process rather than the production process as a whole. In other words, places are not specializing in an entire industry from research to design to development to commercialization to distribution. Instead, regions are becoming specialists in functions rather than industries. Some of these functions are industry- or technology-specific. For example, Silicon Valley is often described as a "high-tech hub." The claim is not made that consumer electronics are manufactured there, just that they are designed and invented there.

Another familiar example that illustrates this point is the film industry in Los Angeles, which has steadily lost intermediate production ("shooting" films) over time but retained the pre- and post-production functions required to put a film project together and subsequently package and market it after the shooting work is completed. The film industry example has animated an array of academic and policy researchers to study where production has gone (Vancouver, India, New York, New Mexico), and why (cheaper labor, tax incentives, firm strategies). This research has informed many policymakers eager to stimulate film production in their own jurisdictions. These tax incentives have been effective in the recruitment of film production projects. However, most studies show that the pre- and post-production work remains in established centers like Hollywood and New York City. In other words, producers and editors remain in Los Angeles while actors and directors travel temporarily to a growing assortment of production sites where caterers and crews are hired locally. The film industry did not leave Los Angeles.
However, some types of activities some of the time have sought alternative locations.

The film industry story is somewhat more complex than the description above. All industries are, and that is precisely the point. In an economy in which project-based work is increasingly the norm rather than the exception, the spatial organization of design, production, and distribution is increasingly complicated. Where a production activity occurs is an integral part of how production processes are organized. It is for this reason that Susan Christopherson and I argued in our 2007 book, *Remaking Regional Economies*, that, as firms strategically break down and reshape production processes, regions—places—shape the structure of those organizational choices. Whether it is cheaper component manufacturing in Mexico or China or final assembly located near major East Coast markets, geography is a key factor structuring the organization of production processes—and the costs and benefits that geography represents. The film industry example of the shifting character and composition of established regional specialization can be extended to other industries, including those traditionally based on manufacturing.

The auto industry is another example. In the USA, auto manufacturing is associated in popular culture with the City of Detroit and the state of Michigan. The “big three” US-based automakers—Ford, General Motors, and Chrysler—retain production and headquarters functions in that region. However, the network of auto component suppliers that serve the industry extends well beyond Detroit. The geography of auto production in the USA has become so diverse and interesting that *The New York Times* maintains an interactive map of the locations of the autos assembled in the USA by maker and model. The map illustrates how the auto industry (US and non-US manufacturers) clusters in a set of Midwest and Southeast states (from Texas to South Carolina across the South and Minnesota to Ohio running across the Rustbelt). Each of these assembly plants pulls on a network of suppliers.11

Again, the point is that regional industrial specializations are no disconnected from the national economy but rather are engines that drive distinct nodes in an organizationally complex and geographically distributed supply chain. Agglomeration economies—geographically embedded technology industry specializations generating scale economies—do not exist independently from national and global production systems. Instead, these regional economies constitute an integrated system of specialized design and production nodes in a distributed network of interlocking supplier and customer firm relationships. This argument and the empirical evidence behind it are ultimately at the heart of economic geography. Increasingly, policymakers are recognizing that the geographic distribution and organization of innovation and production matters. It matters a lot.

There is an empirical basis for this assertion. Several decades of research in industrial geography have led to a substantial body of work on the dynamic
nature of the spatial distribution of economic activities. These studies, many of them by industrial geographers, have tracked the spatial implications of shifts in the organization of production processes. However, they have had little in the way of impact on US industrial policy. It is worth noting a recent attempt to rectify this situation. In May 2012, a Brookings Institution report entitled Locating Manufacturing brought together a body of empirical research on the geographic distribution of manufacturing in the USA and made an argument for policies that take spatial organization into account—not just to influence and inform politicians or interest groups but also in the design and implementation of manufacturing policies.

This is a key point. Although consideration of the nuances of industrial geography is not unheard of in US policy circles, it is generally used to leverage the arguments of political interests rather than as the basis for policies and programs. Given the political context of the USA—a representative democracy based on geographically bounded districts—this is not surprising. However, it does distract from the more empirical economic realities surrounding how and why the spatial organization of economic activities is arranged—and rearranged in “the new economy.” Again, close analysis of the locational dynamics in a specific industry underscores these points while the politics often obscures them. However, the literature’s traditional focus on single industries has the disadvantage of restricting policy interest to stakeholders in that specific industry. Bread policy interest tends to follow studies, like the Locating Manufacturing study, which take a broad, national perspective.

Recent debates in the USA about the viability and sustainability of the American auto industry illustrate these points. In the USA, auto manufacturing is associated with a single city: Detroit. The auto industry is also associated with a single set of end products: cars and trucks. In fact, the auto industry is far broader in terms of geographic distribution and product diversity. The “auto industry,” and particularly its supplier networks, is interwoven across a range of civilian and military manufacturing applications. In fact, the auto industry is far more geographically distributed and diverse in scope than the popular discourse would indicate. Further, policies that support the auto industry tend to support manufacturing across the economy because the industry is so woven into the national industrial ecosystem. In other words, the criticism that in targeting the auto industry for aid the government is picking winners and losers does not match the empirical reality.

In a 2011 analysis of the supply chain in the US auto industry, Susan Helper and colleagues studied the supplier network supporting the auto industry. Unlike many other studies, this one analyzed the dynamics of the supply chain down to third-tier suppliers. The authors describe the policy challenge as a result of shifts in production processes as follows:

Before 1980, the Detroit Three automakers (Ford, GM, and Chrysler)—who at the time accounted for 90% of the nation’s auto sales—produced
and designed many of their own parts in-house. Since that time, the
shifted much of this work to supply chains of financially indep-
firms that now design and produce about 70% of the industry’s pur-
major automakers share these supply chains, creating a “free-
situation in which automakers lack the incentives to invest adequate-
their supply bases. That is, if an automaker helps its supplier dev-
new technology, the supplier’s other customers—typically the first-
maker’s rivals—will enjoy the same improvements without
contributed. As a result, automakers and large suppliers don’t h
incentive to make such investments. Rather, they shift costs to
supply chain to weaker suppliers. These practices improve the
firms’ financial performance in the short run, but in the longer r
the entire supply chain of incentives to invest. Automakers in
countries such as Japan and Germany have avoided this col
problem by developing institutions that govern supply chains.14

The point here is that firms in the supply chain bear the brunt of the s
risks and costs that come with vertical disintegration. As a consequ-
assumption that supplier firms have the resources and capacities to r
technology and labor market upgrading just as the end producer firms
a vertically integrated era is inaccurate. Further, this false expectation
places specialized in supply chain production functions with less inve
than before. A recent analysis in The New York Times of college attai
rates by city found that, while college attainment rates are higher over
the past 40 years, the disparity between rates of college attainment
in cities has grown dramatically. In other words, the difference in human
attainment from city to city is growing.15 This increasing variation in h
capital attainment again points out that co-location of high-wage, h
activities and production activities makes a difference in any strategic ef
build sustainable regional economies.

The “dual city” trap

This book traces several key themes underlying the core proposition that
region to work it has to link research and manufacturing activities—inno-
and production—in the same place. These functions do not necessarily
to be vertically integrated within the same firm. However, they do need
vertically integrated within the same region as a system of design, de-
ment, and production for places to benefit from sustainable job creati
well as the wealth generation that comes from consistent innovation.

The alternative to the co-location of design, development, and prodc
is a world in which regional economies are distinctive not by indust
technology but by function. Chapter 2 outlines this trend empirical
regional economy and subsequently its labor market and institutional
structure become specialized in a portion of the production process.
than the production process as a whole. Using the auto example, a region might specialize in second-tier supplier activities but never be a part of the higher-value design and development activities of the end producers and first-tier suppliers in the industry. These firms are captive suppliers in a network where the power is located elsewhere. By extension, the region becomes what has been called a “satellite platform.” This is effectively a branch plant site. The region may attract other branch plants but there is no specific capacity that differentiates the location from many, many others. The place (and its capacities) is substitutable from the standpoint of end producers.

The vulnerability inherent in this situation is two-fold. First, it generally leads to limited career and earning opportunities for people in the region. This then results in “working-class” or blue-collar communities where the wealth generation potential for the place and the people is overshadowed by those places where the industries are actually headquartered or where the technology is developed. The New York Times analysis of educational disparities by city, mentioned above, is consistent with this. Second, as this functional specialization takes hold, rather than a particular technology or industry specialization, it limits the ability of a region to leverage agglomeration economies resulting from its production concentration as compared to other regions. The region is not able to act as a proactive node in a national network. It is exclusively a site of production.

This should sound very familiar. From the company town to the satellite platform, variations of this model of functionally isolated production are not a new phenomenon. In fact, much of the deindustrialization in the USA could be characterized as the substitution of cheaper sites of production for branch plant places across the country in a wide variety of industries from furniture to steel.

There is a flip side of this equation which involves the place with the innovation but without the production. Taking again the example of autos, Detroit retains the headquarters of the largest US automakers. Detroit also has research and development operations of many first-tier suppliers and international auto manufacturers, and the US government decided to site its second Patent and Trademark Office (USPTO) in Detroit. In effect, Detroit has become specialized in the research and development as well as the marketing and management functions in the auto industry. As such, it remains an attractive site for innovation and retains a specialized labor market in these areas of the industry.

There is also some manufacturing in the region. One frequently finds some production capacity in the dominant headquarters and research regions in a given industry. Often this is a strategic choice on the part of the firm, not just residual capacity. Although Detroit is less vulnerable to losing its position as a regional engine of national economic activity as compared to the branch plant locations discussed above, it is exposed in other ways. Detroit has become, according to many observers, a “dual city.” This is shorthand to describe a place where high-wage occupations co-exist with a range of
low-end service occupations and very little connection between terms of career ladders or technical skills.

New York City is the epitome of this dual city paradigm. So, attribute this to the inevitable development of diverse metropolises that move away from specialized exports and more towards a service economy. As a consequence, there is a “hollowing out” of the middle class ramifications for political stability, poverty, and labor reproduction. In terms of sustainable regional development, the key problem sequence of this process is a bifurcated labor market. Those that have skills in a high-wage service industry, like financial services, out producing the rest of the community who have skills in lower-wage industries, like hospitality. Silicon Valley is a similar case and not just a regional development perspective. With a confluence of skilled professionals who earn high wages, the region has high prices for property (commercial and residential), resulting in affordable housing and other services needed by lower-wage workers.

**Key themes in working regions**

The question, then, is what distinguishes working regions from the high-road trap of “ghosts without feet” innovation hubs or trap of satellite platform districts. I argue that there are four key themes that define working regions: 1) a deep, specialized labor market presence of institutional intermediaries in workforce and reskilling strategies and institutional awareness of what we will call manufacturing as relationships; and 4) a clear and adaptable role for the state in scales of governance. First among these themes is a familiar one: regional labor market is key to persistent innovation.

There is a strategic economic development interest in the repurposing of specialized labor markets and the integration—rather than the displacement—of design, development, and production occupations. That is a common across cases. Regional economies, like their national counterparts, include people of diverse skills. Leveraging those skills is an important development strategy for moving regional economies. Leveraging skills reinforces development approaches that address incoming workers system) as well as incumbent workers. It requires a consistent upgrading skills so that both new and existing workers can absorb to technological changes as they diffuse throughout the production system. Without a functional training system, firms delay the implementation of technologies or fail to implement them altogether. This leads to disadvantages over time as firms become antiquated and outmoded to adopt all the new materials and processes designed to make them faster, cheaper, greener, and better. The labor market must be working with those technologies reliably. This is a key factor in what is often overlooked.
A second point is that institutional intermediaries matter. They serve as facilitators and provide the glue that holds networks of disparate actors together, including small firms, transnational corporations, research universities, community colleges, economic development actors, schools, and a wide variety of other participants in the regional economic system. One consistently observes across regions with functioning innovation and production systems that institutional intermediaries are pulling actors together to make strategic choices that respond to opportunities and challenges. In some cases, those intermediaries are industry cluster groups formed around technologies or particular industries, as in the cases of the photonics industry in Quebec and New York. Other cases, those intermediaries are industrial district centers as in Marne (and other regions) in Italy. In still other cases, those intermediaries are centers of excellence or innovation centers designed as part of a national innovation system, as in Taiwan, South Korea or Germany. There is more about the institutional models in the research centers chapter (see Chapter 3).

The idea that goods are relationships, and the need for working regions to understand them this way is a more conceptual point that is deeply embedded in the design and innovation practices of the knowledge economy. Increasingly, goods are more than objects made and sold in a single discrete interaction. Goods are relationships between suppliers and end producers as well as relationships between producer and customer. In some sense, this is counter-intuitive point. Particularly as we emerge from decades of discount about a global economy in which it matters neither where a product was produced nor where it is ultimately consumed.

In short, after decades of discussions about a flat world, it becomes difficult to see how tied together products and services are today. This linkage means that, when we buy an object as consumers, we often begin a relationship. Whether it is a service contract (like a cell phone plan or a cable service) a maintenance agreement, a recycling service, a warranty, or actually a lease (as with a car), we often do not simply own an object (or even own it at all) but instead we enter into a set of service relationships as a consequence of the act of purchasing a manufactured object. Some significant portion of the commercial value of that product is not in the fee paid to acquire it but in the income stream generated by its servicing and maintenance. Although this may be true for an increasing number of consumer products, it is also true of firm-to-firm purchases. Whether it is Boeing buying an engine from Rolls-Royce or GE buying a consumer buying an iPhone, there is a new calculus that involves capturing demand, risk mitigation and liability assignment, and a rethinking of who creates manufacturing profitability—selling the product itself or selling services either to make the product function or finance its acquisition.

Finally, there is the question of “the role of the state” in all this. What role does public policy play and at what scale: local, regional, province, state, national, supra-national? There is a clear role for regional policy in three themes outlined above. There is broad agreement that labor markets operate at the regional scale and require a regional approach. Similarly, i
increasingly recognized that firm networks and the institutional infrastructure that facilitates innovation systems also operate at the regional scale. This is not to argue that labor markets or firm networks operate exclusively at the regional scale, but the regional scale matters. One might also argue that institutional intermediaries act as the pivots between regional and national innovation systems as they translate the specific to the general (and vice versa). In other words, it takes an intermediary institution to articulate localized programs and produce generalizable policies. At the same time, it is an intermediary institution to adapt general policy principles and goals in the local program and tailored action plan.

There is often a normative debate about whether and to what extent the public sector should be involved in intermediary activities in the economy and to what extent the territory between established actors should be ceded to the private market to develop the appropriate structures. The rise of labor market intermediaries is one recent example of the retreat of the public sector from both a regulatory and an administrative role in services such as job training and job matching. Instead, for-profit labor market intermediaries, commonly known as “temp firms,” have taken over job-matching functions for a fee. Education, the purview of public-sector funding for community colleges, public universities has created space for a dramatic increase in for-profit private colleges and universities.

In both these cases, the retreat of the public sector as a facilitator in labor market reproduction has not produced efficiencies but simply shifted the rate and costs of labor reproduction to different actors. In particular, in the case of private for-profit colleges and technical schools, the public sector continues to bear the collective cost and risk of financing. It is not clear from the experiences with the labor market that private, for-profit firms are more efficient, effective, or reliable than public-sector intermediaries.

**Strategies in the field: national industrial policies vs. regional innovation policies**

In working regions we see three dominant policy models that address these four themes. The effectiveness of these models can, of course, be debated, and different models fit more easily at specific scales (regional vs. national) or within specific governance regimes (strong vs. weak federalism). Further, these models are not mutually exclusive. They can be layered simultaneously or modified and tweaked in succession. There are different levels of firm engagement (large and small firms), public-sector participation (national and regional), and engagement by other stakeholders (for example, universities and labor market intermediaries).

The first distinct model is a *Firm Networks Approach* organized as explicit regional policy and oriented toward an industry or technology cluster present in the region. This model is built on industrial districts and industry clusters frameworks. The rationale for this targeting is to support and sust
agglomeration economies. As such, the model is explicitly linked to the regional economy and the actors and firms present in the region. The Canadian model of regional development follows a variation of this model. The Italian industrial districts follow this structure as well. Although the firm networks approach was popularized and adapted to the regional context in the mid-1990s by Michael Porter's work on industry clusters, the model is significantly older. The industrial districts research in Italy in the 1970s led to the development of regional-scale industry approaches to providing resources and coordinating development and innovation efforts, particularly for small and medium-sized enterprises (SMEs)

The second distinct model is a Technology Infrastructure Approach that is a loosely organized innovation policy implemented through infrastructure investments or capacity-building investments in research universities and/or cooperative research centers. The selection of sites of investment is typically determined through a competitive proposal process that determines the location of investment. Although these selection processes are not immune from political considerations, merit criteria do play a central role. As a consequence, places with existing infrastructure and capacity tend to do better than those building it. Similarly, places with existing political power tend to do better than those developing it. The current US system of innovation investment looks very much like this model.

Although the technology infrastructure approach is necessarily competitive and thus reinforces a mode of inter-jurisdictional competition that has been sharply criticized in recent years, it can be constructed to mitigate negative effects of that competition. For example, the Fraunhofer Institutes model in Germany allows for many sites of investment, with varied and specific portfolios based upon the embedded capacities of firms and institutions in an existing region. The role for firms in the Fraunhofer model is significant both in terms of engagement and funding. In many ways, the Fraunhofer function as innovation intermediaries linking universities, government, and industry in an effort to move research into commercialization. The contrasts between these models are further discussed in Chapter 3.

The third model is an Industrial Policy Approach organized as a targeted national industrial policy that incorporates an innovation strategy. This model approximates a traditional industrial policy coordinated with a national science and technology strategy. In this model, priorities are defined at the national scale and the locations for investment are selected in the course of developing the industrial policy. One example of this model is the regional innovation systems approach developed in South Korea under the Roh Moo-hyun Administration.

Organizational structures that work in regional economies

These three approaches dominate the innovation policy landscape in industrialized countries. As mentioned above, these approaches vary within
national and regional contexts and, of course, are occasionally implemented in tandem. In terms of organizational structures, we can observe what effective organizational structures in working regions look like and what they are. First, they incorporate strategies aimed at fostering innovation in small and medium-sized firms and the development of those innovations. A focus on the role of SMEs in broader supply chains is essential. Chapters 5 and 6 elaborate on these strategies in practice but central elements include capital access through labor market policies targeting SMEs. In particular, policies that push innovation down the supply chain of established and emerging SMEs and add both technical innovations in production processes and the upskilling of labor to manage those processes are effective.

A second organizational structure found in working regions is a cluster network strategy that is self-designed and self-defined by local and regional actors, particularly SME participants. In other words, policy prescriptive about the definitional scope of targeted technologies and industries (e.g., markets) are limited. The research centers that partner with these self-defined clusters sit at the applied research intersections between regional technological specializations and existing production capacities. This should be thought of as more than just path dependency; it is an accurate scan of “facts on the ground.”

We can also observe that distributed networks of cooperative research centers, rather than single centers or technology pilots, are far more effective for organizational models. First, these networks mitigate the “winner takes all” approach of competitive science funding as opposed to cooperative development strategies. Interestingly, these distributed network models have the potential to reduce the role and importance of inter-jurisdictional competition. They also reduce the federal government’s role in subsidizing and magnifying inter-jurisdictional competition in science and technology investments (concurrent with the elimination of “earmarking” practices).

The distributed network organizational structure is also more effective when the research centers serve as institutional actors working as pivot points for integrating regional innovation systems and national innovation systems, when they include sustained (and iterative) engagement with regional institutional infrastructure, workforce development, and basic research programs. Further, they are more effective when they have adaptable and flexible technology and organizational models (neither the organizational structure nor the technology/industry definitions should remain fixed over time). Ultimately, the organizational value-added from the distributed network model comes from the ability of the system to amplify and extend regional specializations and institutional successes across the network. This ranges from policy innovations like QuickStart workforce models to advances in technology, product, or process innovations.

The following chapters elaborate on these points and document policy models for, and examples of, working regions that underpin the policy recommendations and conclusions. Chapter 2 provides the empiri
foundation for the assertion that there is a growing chasm between places of production specialization and innovation hubs within and across industries. Chapter 3 illustrates how the siting of scientific resources (research and development infrastructure) produces a clear and persistent role of the state in innovation and production systems. Chapter 4 discusses how the policy emphasis on pre-production processes in the 1990s has obscured the importance of the financialization of intellectual property (primarily patents) and the emergence of an invention marketplace. As a consequence, public policy has drifted away from an engaged approach to understanding firm production (and consequently locational) strategies and the implications for regional development. Chapter 5 uses the case of an integrated technology and industry specialization—photonics—to illustrate the different themes of working regions and the various institutional models operating in various countries and regions. Chapter 6 continues to build on the working regions theme with examples from the apparel and outdoor gear and medical devices industries. Finally, Chapter 7 argues for a design + build approach to innovation policy using the evidence from working regions across industries as evidence for a new approach to sustainable regional development.

Notes
4 Examples of these efforts include: in the USA, the Obama Administration’s Advanced Manufacturing Partnership and subsequent proposals for a National Network of Manufacturing Institutes; in the UK, the Technology Innovation Centres proposals; in Canada, the development of the National Centers of Excellence program; in the EU, the development of the technology platform initiatives.
9 See Susan Christopherson, “Behind the Scenes: How Transnational Firms are Constructing a New International Division of Labor in Media Work,” Geoforum 37,


24 John Bryson, University of Birmingham, UK has lectured extensively on this.


29 QuickStart is a program in the state of Georgia developed to tailor state-specific workforce development efforts to individual firms as part of economic development recruitment packages.