Adjusting to Innovation and Entrepreneurship:
Institutional Entrepreneurship in Rhode Island's Knowledge Economy

by

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Chapter I
Introduction

Contemporary economic development, before all else, is the practice of supporting entrepreneurial activity. This does not mean only supporting the creation of new firms, but more generally forming environments favorable to conceiving and pursuing new economic opportunities. Entrepreneurship is a role traditionally played by the private sector, but increasingly entrepreneurship is required in the public sector as well. The rapid pace of economic change caused by globalization and the emergence of the knowledge economy requires a fundamental retooling of the capacity to support economic growth. For regional economies the retooling process involves experimenting with new patterns of economic activity. Experiments that attempt to change patterns of economic activity will aim at changing the institutions through which economic patterns are established. These economic institutions overlap between the public and private sectors and represent the social agreements needed to facilitate economic activity. Institutional entrepreneurship is the process of creating or recreating these economic institutions.

Institutional entrepreneurship in adjusting regional economies often involves policy experiments contrived by both the public and private sectors. In order to create supportive economic environments state and municipal governments are expected to form working relationships with the private sector to design and implement plans for growth. Together the public and private sectors form alliances that have been described as public-private partnerships or cooperative networks.

While the policy experiments created by cooperative networks often result in new organizations or programs that intend to support economic adjustment, the social system that defines and administers these experiments is what matters most for creating new institutional capacities (Sabel 1993). The influence of public-private alliances in the economic adjustment process seems to increase the probability that institutional entrepreneurship will occur from within the social system that defines and administers policy experiments.

Deciding which types of economic activity will be supported by policy experiments is a normative question. The responses to these normative questions are supplied by the actors that define and administer plans for economic adjustment. Certain characteristics of economic alliances, such as the balance of power among stakeholders, the alliance's receptiveness to participation, and the values agreed upon by alliance members, will influence whose interests are represented.

In the current environment of economic change creating new patterns of economic activity implies forming new relationships in existing production relations as well as supporting the emergence of new industries. New industries must be allowed to prosper with the assistance of an adaptable institutional environment. However, the adaptation of the institutional environment should not alienate existing industries. There is a fine line between conflict and synergy in the course of institutional change. Recycling capital, talent, and knowledge are critical competitiveness issues in the knowledge economy, and so traditional industries must be encouraged to commit their resources to cooperative economic efforts. As McGrath (2003) puts it, "until we understand how old combinations of factors of production are dis-assembled, we cannot understand the process of creating and implementing new combinations of factors of production" (2003, pg. 251).

While recycling assets plays an important role in economic adjustment, the nature of underlying social structures determines how quickly a region can learn to become and remain competitive. The balance and use of power, the ability to participate, and the ability to influence shared values have an even greater impact on the effectiveness of institutional entrepreneurship than any particular assemblage of assets.

Depending on the mix of these social factors, institutional entrepreneurship can take two polarized forms. The first form emphasizes the importance of power, influence, and identity through a process of social mobilization, whereby cooperative networks form around the assets which are expected to lay the foundation of a knowledge economy. The rationale that permits such mobilizations often dictates that the environment of economic change favors these interests and in the long-run the economy benefits overall. The second form of institutional entrepreneurship relies upon access to participation and open negotiation over shared values, promoting agency throughout a region's cooperative social system. This is done by minimizing organizational barriers thereby maximizing opportunities for social learning. On the one hand this agency approach is built upon democratic principles, but on the other hand it requires the capacity to resolve internal conflicts equitably and efficiently.

The question being asked is: how is the effectiveness of institutional entrepreneurship - as a means of enacting economic adjustment - influenced by the social structure of regional economic alliances? Economic outcomes and assets created are inferior barometers of change than the effectiveness of the process through which they are generated. The paper maintains that effective institutional entrepreneurship must provide balance to the use of power, open avenues of participation, and reflect the values within an integrated regional economy. With these objectives in mind the institutional entrepreneur creates social environments that maximize regional benefits through turbulent periods of economic change. However, economic alliances can fragment institutions by attempting to develop isolated assets or activities. When the processes of social mobilization, through which these alliances form, are constructed upon outcome objectives rather than process objectives, then fragmentation may lead to conflict, inhibiting regional economic stability and growth.

In order to examine the role of institutional entrepreneurship in the economic adjustment process the Providence, Rhode Island region is used as a case study. This region is selected because of its historical circumstances, where the economy is building on recent momentum in a long process of economic adjustment, and because of unique efforts there at creating new institutions to support growth in the knowledge economy. This paper will investigate how stakeholders participate in reshaping the boundaries of established economic patterns while supporting the emergence of new industries. The contention is that while the aggressive pursuit of economic change in Rhode Island is necessary, there is also a need for greater participation among traditional industries and low income communities in the social system that is directing the process of economic adjustment.

As will be described, the nature of conflict between divided economic interests in Rhode Island suggests that institutional entrepreneurship is being led by a densely connected cooperative network that is, perhaps, inaccessible and unattractive for some incumbent interests. The underlying tensions among divided interests in Rhode Island can be framed in two ways, according to the social mobilization and agency approaches to institutional entrepreneurship.

In the case of social mobilization, conflict is described as being clearly demarcated among groups driving change versus entrenched interests resisting change. The groups driving change often mobilize around the assets that are expected to be most useful in the transition to a knowledge economy. Alliances serve as distributed learning networks focused on how to leverage regional assets, and include both the public and private sectors.

In the agency approach conflict is described as a lack of communication and agreement among groups whose interests are unevenly represented by policy experiments and the direction of institutional change. Agency is a universal human quality, but its expression is limited or freed by the structure of institutional relationships. Institutional entrepreneurs are those who can direct the process of institutional change, and they may also come from both the public and private sectors.

The difference between these two perspectives is that in the first case conflict is expected and tolerated as an inevitable consequence of change. In the second case conflict can be remedied through communication, recognition of mutual interests, and a process of social learning. The way in which conflicts are framed will influence where and how institutional entrepreneurship attempts to create new patterns of economic activity.

The case study will focus on two state government-led initiatives. The first initiative aims at promoting innovation in the regional economy by increasing research and development (R&D), business collaboration, and commercialization of new products and processes. The institutional environment that supports innovation is often referred to as a regional innovation system, which typically includes universities, high technology companies, and public regulatory agencies among other organizations. In Rhode Island the goal is to strengthen the regional innovation system, while also extending its benefits beyond these traditional organizations in unique ways.

The second initiative aims at enhancing the level of entrepreneurial activity in Rhode Island. The organizations that traditionally support entrepreneurship include a host of public and private service and resource providers that collectively may be referred to as an enterprise development system. In Rhode Island's enterprise development system there is a push to increase the availability of services and resources for high-growth ventures, while there remains a host of organizations that target small business development. Rhode Island's enterprise development system is faced with a dual challenge of enhancing entrepreneurial activity in the region and determining how to internally organize for this purpose.

The efforts of Rhode Island's regional innovation and enterprise development systems represent the thrust of institutional entrepreneurship toward economic adjustment in the state. The organizations that participate in these systems reflect and influence the institutional capacities which the state has at its disposal to meet the changing requirements of the knowledge economy. The regional innovation system and the enterprise development system play complementary roles in adapting to the knowledge economy. Entrepreneurs are required to create new markets and to infuse innovation into existing markets. Conversely, innovation is required to stimulate entrepreneurial opportunities.

However, building overlaps in these systems has been challenging, proving to be a central area of conflict. Each system involves different organizational actors as well as differences in the balance of power and the openness of communication. In order to overcome these challenges the state will need to address entrepreneurship and innovation as two sides to the same coin, bringing stakeholders from each system to the same table. At the same time both of these initiatives must be integrated into the wider Rhode Island economy more effectively. By dong this, the gaps that have turned into "silos" of institutional activity can be mended and the benefits of new economic activity can become net social benefits within the region.

Summary and Chapter Layout

This introduction has outlined the issues surrounding institutional entrepreneurship in adjusting regional economies by suggesting that the process of developing new tools for the knowledge economy is essentially a social process. An argument has been presented, which submits that by studying the social structures which accelerate or slow down the institutional learning process, the effectiveness of institutional entrepreneurship can be strengthened. This argument has been placed in a perspective that distinguishes between agency based economic development and a social mobilization approach that focuses on leveraging regional assets. Additionally, the Providence region has been introduced as a case study, which will provide examples of institutional entrepreneurship during economic adjustment. The primary investigation of institutional change in Rhode Island will fall upon the regional innovation system and the enterprise development system.

The method of analysis used for this paper includes research on economic development initiatives in the Providence region based on reports as well as a series of interviews conducted with economic development professionals there over a year long period. The information gathered on the Providence region from reports and interviews will be combined with a literature review which extends across several academic fields, including entrepreneurship, economic development planning, institutionalism, enterprise development, and innovation systems. Moving forward the paper will detail the ongoing process of economic adjustment in the Providence region, while providing a theoretical background which will assist in analyzing the effectiveness of the region's cooperative social networks along with the institutional capacities that it creates.

Chapter II reviews economic development planning theory and strategy as roots of institutional change in contemporary urban markets. Two theoretical perspectives, agency-based and asset-based economic development, are compared to decipher their implications for institutional change. The philosophies behind these approaches will also be weighed against various strategies for regional investment in entrepreneurship and innovation. Together these arguments inform a series of alternative approaches to institutional entrepreneurship.

Chapter III presents the history of economic decline and adjustment in Providence. The Providence Renaissance has been heralded as a model of urban rustbelt revitalization. However, the aim of the chapter is to demonstrate the challenges and opportunities that lay ahead for an emerging phase of economic development in the region. In order to understand why the region's cooperative economic social system has developed the way it has, it is necessary to describe the previous forms social systems have taken in the region. The social organization of the Providence economy is tied to the evolution of the region's institutional environment, which during decline lost several large employers and non-traded economic activity came to dominate. A main goal of this chapter is to demonstrate the ebbs and flows of an entrepreneurship culture during a long period of growth, decline, and revitalization.

Chapter IV continues the story of economic adjustment in the Providence region by describing present day efforts at implementing an innovative and entrepreneurial economy. This story can not be told without highlighting the role of two economic initiatives involving the regional innovation system and the enterprise development system. The main goals of Chapter IV are to highlight the process of social mobilization through economic initiatives and the tensions that have arisen in reaction to these initiatives. The nature of conflicts varies widely in an increasingly fragmented institutional environment. However, attempts are made to map out what seem to be the major fault lines.

Chapter V presents an analysis of social organization in the knowledge economy. This chapter underscores the importance of communication as a productive element of the knowledge economy, and describes the patterns of social behavior which make for a rich and effective institutional environment. Trust, identity, social mobilization, and institutional change are concepts used to identify various patterns of social behavior, as well as their ramifications upon the process of economic adjustment.

Chapter VI examines in depth the current institutional environment in Rhode Island. The major players in the social structures that lead the practice of institutional entrepreneurship within the region's innovation system and enterprise development system are detailed. Particular organizations are selected to convey the strategies and plans utilized for institutional change. The successes of these organizations will be compared to any conflict or opposition that has arisen in defiance of the direction that institutional entrepreneurship is taking. Additionally, the efforts of these organizations will be weighed against criteria developed in earlier chapters. These criteria include the use of power, the exclusivity of clients or membership, and the role the organizations play in forming the broader dialogue of institutional change.

Chapter VII provides a conclusion by summarizing the findings about the role of cooperative social structures for institutional entrepreneurship in the region. The advances represented by institutional change in the region are recalled, while the challenges are also summarized. Finally, suggestions are presented which might assist in addressing the conflicts within the region, while continuing in the direction of success.

Chapter II
Institutional Change in
Support of Innovation and Entrepreneurship

Adjusting to the demands of the knowledge economy means that regions must re-assess the competitiveness of local economic activity. The purpose of this assessment is to determine which local industries and activities will drive economic growth in the near future. The instability caused by globalization and the rapid diffusion of codified knowledge has placed competitive emphasis on the ability to generate and commercialize innovations. Innovation and entrepreneurship increase the competitiveness of regions, while driving market values that sustain company profits, regional employment, and a high quality of living.

Firms and regions may have very different views and objectives in this pursuit. While regions are intent on creating jobs and raising wages, firms are interested in capturing market share and/or climbing their industry's value chain. However, the interests of firms and regions overlap when it comes to the supply of a talented workforce, the growth of the local business environment, and the vitality of ideas and relationships through which opportunities are created. It is in these overlapping interests that assessments of regional competitiveness often focus attention.

Technology-based economic development is concerned with building local R&D capacity, a skilled workforce, as well as a supportive environment for commercialization. The techniques employed by this field include a host of analytical frameworks and tools that map local economic activity according to measures of growth, industry concentration, and productivity. Assessments yield a plan of action for strengthening the areas of activity that hold the most promise for the region's economic future, and it is upon these plans that economic development initiative are frequently implemented. In fact, the assessment process often directs the implementation process by identifying the regional assets that can be leveraged for growth in the knowledge economy. These assets inevitably include local universities, high-growth industry clusters, and the government agencies that may assist these interests.

Regional plans for economic competitiveness serve to mobilize the actors and resources needed to strengthen the local system of innovation. By mobilizing these actors and resources, plans for competitiveness form the groundwork of institutional change in regional economies. Universities, concentrated and emergent industries, along with government agencies collaborate to reorganize entire components of the economic system, including education, R&D, industry supply chains, finance, as well as government subsidies, taxation, and regulation. By adapting these institutions to the demands of the knowledge economy, the integrated network of stakeholders carves out an environment that is suitable for innovation, or at least the type of innovation agreed upon by these interests.

All too often the actors within systems of innovation are predefined by the assets they control. Furthermore, the economic development plans pursued by them are foreign to the industries and government agencies that are not identified as assets for innovation. The institutional changes that are enacted by innovation asset/actor networks are likely to represent only this narrow, but demonstrably competitive, set of interests.

While it seems true that the knowledge economy favors regions that can strengthen local innovation capabilities, what is less clear is how innovation assets, which seem to be relatively standardized across regions, can actually produce an innovative economy. If the process of implementing an innovation economy can be reproduced time and again, is it still innovation that is being sold? Surely, the capacity to innovate requires more than a standard list of assets. Perhaps, the real innovation lies in addressing competitiveness through a cooperative network that breaks insulated boundaries of economic activity.

An alternative approach to competitiveness targets institutional capabilities to learn, adapt, and promote a sense of agency throughout a regional economy. Rather than simply reinforcing assets that are labeled “competitive”, the agency approach empowers a wider range of actors to generate and act upon ideas that through experimentation may prove to be competitive in the uncertain environment of the knowledge economy. Some have called this approach “learning by learning” (Cooke, 1997- cited in Wolfe and Gertler, 2002), though a compatible moniker may be “learning by experimenting”. This is in opposition to what seems to be an “experimenting by standardizing” approach promoted by mainstream tech-based economic development.

In all fairness asset-base economic development and agency-based economic development both have their merits and drawbacks, which will be discussed below. Some may characterized the agency-based approach as philosophical versus the functional asset-based approach, but it seems that such a characterization hides behind an assumption of consequences that are too often left un-compared. Ultimately, these approaches stem from compatible roots. But, the manner in which innovation initiatives are implemented in regional economies often forgoes the option of compatibility and economic integration, while bureaucracy in enterprise development inhibits collaboration in the first place.

Asset-based Economic Development

The asset-based approach to economic development has roots beyond the field of technology and innovation. Asset building is an approach that has flourished in community economic development settings. Community economic developers have used asset building as a way of constructing the infrastructure needed for economic stability and growth.

However, asset building may not be an entirely effective model for the traditional issues of community development - "addressing inequalities of wealth and power, promoting democratic values and practices, improving the potential of individual residents, and building a sense of community" (Green and Haines, 2002, pg. 3). From the community perspective assets represent the various forms of capital a community has at its disposal for building toward economic stability and growth. These assets can be "mapped" as a way of accounting for and mobilizing resources. The very nature of mapping existing resources has the potential to undermine participatory practices. As asset mapping seeks out sources of wealth and power, it may overlook those whose assets are not accounted for by mapping exercises. Interests left unrepresented by mapping exercises have few options but to object to the process of social mobilization around other assets.

On the other hand, community assets can be framed in a way that accounts for equality, participation, and mutual interests. "Community capital" is the phrase used by Johnson (2002) to describe the state of assets within a community. Johnson outlines six types of capital that when aggregated constitute community capital. These are polity capital, physical capital, financial capital, human capital, cultural capital, and social capital[1]. Johnson states that these are, "assets… that U.S cities, particularly those left behind in the most recent economic boom, will have to develop to thrive and prosper in the twenty-first-century knowledge-based economy" (2002, pg. 763).

Each of these community assets has a direct influence on a region's entrepreneurial culture. However, it is easier to perceive how some forms of community capital support entrepreneurship than others. Johnson's list of community capital assets can be categorized according to the nature of the assets in question. Some community assets, such as physical capital, financial capital, and human capital, are more easily measured by objective means than the others, which focus on the strengths of dynamic social relations. It is this latter category of community assets that targets equality, participation, and mutual interests, but it is the former category which is easier to comprehend and easier for a diverse group of interests to agree upon.

Johnson suggests that a region's physical capital, or its "logistical infrastructure," serves both to attract entrepreneurs and to connect businesses to the global marketplace. While roads, airports, telecommunications, and commercial real estate are obvious infrastructure amenities sought by entrepreneurs, the growing focus on quality of place as a competitive factor demonstrates how parks, housing, and recreational facilities are also important physical assets for a region. These physical capital assets can be readily identified and measured by a variety of methods.

Financial capital is described by Johnson as investment in assets that generate "community wealth" via community development venture capital, non-profits, and corporate social purpose venturing. This list could also include for-profit forms of finance. Financial capital is often cited as the asset that is most critical for supporting entrepreneurship, though this can prove to be a limiting view. The availability of financial capital can be measured by the number and size of equity funds and commercial lenders. However, counting these does not describe how they might be attracted to a region in need of financial capital.

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[1] Green and Haines (2002) also list environmental capital, but do not include cultural capital or polity capital

Financial capital, particularly equity investment, is often viewed as a prerequisite for supporting entrepreneurship, but the argument put forth that the presence of innovative and entrepreneurial activity can be used to attract equity funds only references a select group of industries, which might attract equity capital. McGrath (2003) suggests that "standard formulations in finance suggest that capital should be allocated on the basis of systemic, not unsystemic (firm specific) risk profiles" (pg. 517). For regional economies this means that high-growth emerging industries, not firms across a diverse set of industries, must be seeded in order to attract additional private investors.

Though financial capital does react to geography and systemic profiles, innovations in the field of commercial investment, such as angel investor networks and double bottom line investing, are filling the gaps. These innovative financing arrangements serve to shift the focus to firm specific risk profiles, allowing greater diversity of investment in innovation and entrepreneurial ventures. It seems that regions should not wait for large equity investors to set up shop in town before supports for entrepreneurship and innovation are strengthened.

Johnson's concept on human capital is a measure of skills present in the local workforce. He suggests that human capital benefits from strong educational institutions and cutting edge research. Often overlooked is the role of regional employers, which are also an important source of workforce training. Measuring human capital is often achieved by tabulating the level of education achieved across the population, though this does not account for important training received on the job.

Human capital also reflects the level of entrepreneurial capital in a region. Developing entrepreneurial capital presents interesting decisions for institutional change, since the nature of educational programs will produce a certain skills profile in the workforce. Many advocate strengthening math and science education programs to develop the highly skilled workforce that high-technology employers currently seek. But, by emphasizing technical training over a balanced education that promotes awareness of social problems and opportunities, this approach may actually dampen the level of entrepreneurial capital in a region.

It is clear that developing physical, financial, and human capital requires a qualitative view that the asset designation may gloss over. Despite the ability to quantify these assets, there are important underlying questions about the aim of developing such assets. However, developing social, cultural, and polity capital is an even more tenuous endeavor for the asset-based perspective.

Johnson suggests that social capital, or the sources of identity and personal support, can be strengthened in communities by “local institutions whose responsibility it is to boost community involvement” (2002, pg.773). Social capital is applied throughout the gamut of social relationships, but it is particularly important for entrepreneurs who need to leverage relationships to acquire resources and gain recognition for their businesses as legitimate ventures.

Cultural capital is particularly significant for entrepreneurship strategies. Johnson defines cultural capital as, “the policies and procedures that undergird its citizen’s values, attitudes, and beliefs about their current life chances and their future opportunity in the local community” (2002, pg. 772). Malizia and Feser (1999) provide further elaboration, suggesting that there are three necessary cultural preconditions for entrepreneurship strategies to be successful. The first is tolerance for new ideas. The second is supportive action for the democratic process. The third is, “ethical standards that promote individual initiative, responsibility and honesty” (pg. 202). Johnson adds two more components to cultural assets, a healthy attitude toward failure and economic inclusion of minorities, both of which are policies of, “enlightened self-interest in the global marketplace” (2002, pg. 772).

Johnson places polity capital at the apex of his conceptual model of regional competitiveness, revealing its primary role in developing the other types of community capital. Polity capital is defined by Johnson as, “the resources and tools that local governments and other institutions have at their disposal to improve or enhance the health, socio-economic well being, and overall competitiveness of their local community in the global marketplace” (2002, pg. 764). He suggests that there are two elements of polity capital, business climate and regulatory structure, which create appeal, or lack thereof, for stakeholders to pursue, “innovative strategic alliances…that can generate revenue… to resolve their seemingly intractable social and economic problems” (2004, pg. 764). Through the appropriate ordering of polity capital entrepreneurs and community stakeholders of all types are encouraged to create and utilize the institutions that support economic stability and growth.

Johnson describes this community alliance approach as a “network governance model” whereby stakeholders promote regions through “civic entrepreneurship” to develop, “cultural ties and profit-centered activities that generate revenues, create jobs, and enhance their overall image and attractiveness as places to live and do business” (2002, pg. 766). These unified alliances are seen as the drivers of economic development, where their aim is to grow the assets available in a community.

Though the socially oriented elements of Johnson’s community capital assets reference shared values, connectedness, and participation, there is little said about how civic entrepreneurs should behave to entice these qualities through networked governance. In fact, it seems that this point reveals a subtle, but fundamental, difference between the potential of civic entrepreneurship and institutional entrepreneurship. The subtlety in this distinction lies in the aims of the civic entrepreneur versus the aims of the institutional entrepreneur.

Whereas civic entrepreneurs are focused on creating innovative alliances that bolster a region’s assets, a case can be made that institutional entrepreneurs focus on creating the environment for these alliances to develop in the first place. In this way institutional entrepreneurs are the creators of polity capital, and their efforts can serve to define the boundaries of participation, shared values, and connectedness through the recognition of mutual interests. For institutional entrepreneurs developing assets is a byproduct of a superior process, and it is the process that is the main concern. This point only becomes relevant when an inferior process leads to conflict even in the face of successful efforts to develop assets. If the process of developing alliances is left to existing social networks and power relations among regional stakeholders, there is tremendous room for under-representation of some interests. In order to clarify this point we will return to the discussion of technology based economic development.

Technology-based economic development practices often begin with identifying a region’s innovation assets and mobilizing a network of stakeholders around those assets. The social networks that form to develop a region’s innovation assets are likely to involve a very different set of stakeholders than those who would unite to develop another asset such as a local arts scene, for example. In and of itself the fact that networks form around separate interests is not a dilemma. However, when innovation is intended to be the platform of regional economic change, the isolation of asset-based social networks can become troubling. If innovation initiatives are implemented by a select group of stakeholders, then it is likely that future innovation activity will be confined among these interests. For industries that are not involved with initiatives or are uncertain about how to include innovation in their practices this isolation could limit future business opportunities.

The manner in which innovation projects are seeded by technology-based economic development assessments may actually do a disservice in terms of integrating economic activity. The focus of technology-based economic development is focused on developing the infrastructure for the lifecycle of product innovation. Mobilizing the organizations involved in the innovation development lifecycle can have insular effects.

As with community economic development, innovation initiatives often begin with a mapping process that identifies which assets are most valuable for enhancing R&D, workforce development, and commercialization. The resulting regional innovation systems are typically comprised of university research and technology transfer centers, technology industries, business associations, and government agencies. Together these organizations form a pipeline of economic activity from knowledge creation to commercialization and eventually regulatory reform.

The process of creating an innovation system can be viewed according to stages in the pipeline of technology development. The first stage involves building research capacity, the fruits of which are then transferred to (or within) commercial interests for product development. The product development cycle can be broken down into four stages - design, launch, growth, and maturity. The full innovation cycle, from building research capacity to product maturity, involves a variety of organizations that provide technical product assistance, business development assistance, and funding.

The process of developing this innovation pipeline creates a community of interests around innovation as it has been defined and implemented. The industries as well as the technical and business support agencies that are not part of this community from inception face a challenge of interfacing with innovation initiatives that seek to change the nature of economic activity in a region. This interface challenge can be divided into issues of relevance and accessibility.

First, organizations must determine if becoming involved with the innovation pipeline is something that would be beneficial. Second, if organizations do not see it as beneficial, then perhaps it would not be, or perhaps it could be, but those benefits are not apparent. This latter case is a dilemma, which can only be addressed by a mutual reconsideration of how to make the innovation pipeline relevant to the wider economic community. Third, if organizations do see the innovation pipeline as holding benefits, then the organization may become involved, or it may try to become involved without success. Once again, the latter case is a dilemma which can only be addressed by a mutual reconsideration of how the innovation pipeline can be made accessible to the wider economic community.

Ultimately, the creation of an asset is only part of the challenge that is economic adjustment. The productivity of any asset relies heavily upon the manner in which social relations are structured to leverage that asset. This holds true for the integration of a regional economic activity around innovation assets. The relevance and accessibility of initiatives that aim at changing the very fabric of economic activity in a region are critical issues for organizations that hope to contribute and prosper in the knowledge economy.

With all the uncertainty that is inherent to the knowledge economy, managing an environment of rapidly changing social relations can be a source of conflict in regional economies. In an era that is increasingly defined by cooperative alliances, network governance, and civic entrepreneurship the task of managing these social relationships is of primary importance. Institutional entrepreneurship can be defined as the process of creating new organizational capacities for regional economies, but these capacities must be recognized as more than mere assets. They should be viewed as social relations through which economies grow. The concepts of social capital, cultural capital, and polity capital provide insights on what is desirable in these social relations, but managing these social relations requires an agency-based view of economic activity.

Agency-based Economic Development

An understanding of economic development as an agency-based activity is provided by Amartya Sen. In Development As Freedom Amartya Sen proposes that economic development is best measured not by gross domestic product, not by growth in incomes, nor by the rate of technological change, rather he sees these as the means to a greater end – "expanding the real freedoms that people enjoy" (1999, pg. 1). Sen argues that it is the capability of individuals to participate in public dialogue, politics, and economic transactions that ensures their access to the resources upon which freedom is built, such as healthcare, education, nutrition, and security. Sen suggests that improving the institutional structures for participation will lead to improvements in welfare, productivity, and innovation. In his view the goal of economic development is to enhance individuals' capability to participate in democracy and the market economy. By emphasizing the role of participation Sen places the agent at the center of the economic development process.

Sen's account of agency-based economic development targets fundamental individual freedoms, particularly as they apply to the context of developing countries, though the principle of freedom to participate through voice and action can be incorporated into innovation economies as well. Agency at its core is the universal ability of individuals and organizations to create and seize opportunities. This is the very premise of innovation and entrepreneurship. However, agency is only universal as a subjective capability, because the structure of social relations can obstruct an agent's ability to participate. Agency-based economic development requires more than a cultural attitude of participation; it also requires managing social relations so that participation is unimpeded.

There is no law in the United States that protects the right to universal participation in private concerns, nor should such a law exist, because autonomy is critical to both agency and the workings of the market economy. However, as Sabel (1993) points out laws do exist that protect the rights of parties involved in private concerns to seek representation through collective bargaining, for example.

Beyond the realm of law participation is managed through shared cultural values and the political process. Politics and cultural values converge at the level of social institutions, which are governed by a balance of authoritative power and the cultural legitimacy of authority's practices. In this way institutions are essentially public even though they may be composed of strictly private interests.

In the paradigm of industrial production pressures of cultural legitimacy force the public regulation of private monopoly cartels, but less intrusive forms of public influence also serve to regulate the practices of private interests. The ability to participate in public dialogue can apply pressures upon private interests either by influencing the values of the interest directly, by influencing the values of the interest's partners, or by prompting government regulation of the interest. In the paradigm of industrial production this type of public dialogue often involves protracted conflicts, because the autonomy of private interests is both protected and valued, while public outcry can seldom be stopped (though it can be spun on its head).

The emergence of public-private alliances places public dialogue at the center of the economic development process, because government involvement implies public involvement by extension. This does not mean that conflict is absent in network governance. In fact, conflicts might actually be more common in this form of development governance, because more voices have a say in the process. The manner in which elected officials and government agencies react to conflicting voices plays a major role in forming the institutional capacities that facilitate economic development.

Of course, government reaction is hardly uniform in the federal system. Municipal, county, state, and national forms of government all have some say in the economic development process, and managing these intergovernmental relations is a challenge in itself. (Note: Rhode Island has been chosen as a case study, in part, because each of these governmental levels is present and focused on a single region). Government agencies responsible for promoting economic development exist at each of these representative levels, and their efforts do not always align. Bureaucracy remains a problem despite the adaptability of the cooperative network approach.

It seems that bureaucracy can be a problem both within and across levels of government. State and Municipal governments often take the lead in building cooperative networks because of their inherent regional focus. In leading these networks state and/or municipal government agencies are often assigned as facilitators of regional economic initiatives. If the aim is to develop an asset such as the region's innovation infrastructure, then bureaucracy can result from the insulation of some state-level agencies, for example, from others that focus on developing different assets, such as entrepreneurship support services or manufacturing extension services.

Even if it is the same agency that leads both these efforts, bureaucracy can still occur as a result of the separation of the social networks that lead these initiatives. However, this type of bureaucracy is more easily remedied through improved institutional integration than is intergovernmental bureaucracy.

Intergovernmental bureaucracy is more likely to be present not only across initiatives, but also within a single policy initiative. This is perhaps most relevant to initiatives that attempt to support entrepreneurship and business development, because of the variety of agencies that provide services to particular segments of the business community. Not only does the segmentation of services provide a bureaucratic barrier, but the objectives of agencies that service the same segments, or at least overlap in their client markets, do not always align. A widely used example involves the national SBA funded Small Business Development Centers (SBDC's), which reside in most states. SBDC's are motivated by the number of contacts with clients; whereas state-level counterparts might be motivated by the potential impact that fewer, but more competitive clients will have on the local economy.

The fact that national, state, and municipal levels of government respond to the voices of different constituencies only amplifies the challenge of institutional change in a regional setting. In this equation it is most likely that national government agencies will be slowest to respond to local pressures, but the onus is on state and local governments to create the right institutional environment for successful collaboration across government agencies. Though there is opportunity to lobby for changes to national government agencies, the necessary institutional changes are more likely to reflect local relationships and the local framing of cooperative alliances.

The fact is that the manner in which government(s) frames the benefits of collaboration will hold great sway over the effectiveness of institutional change and the patterns of economic activity that flow from these changes. While examples have been provided that highlight the role of bureaucracy in the development of particular assets in a region, it is maintained that the central focus on assets is flawed. However, an alternative may not be evident to actors in regional economies.

The primary criticism of agency-based economic development is that it is not easily translated into practice. For regions attempting to adjust to the changing global economy Sen's call for greater capability to participate may be too vague[2] an objective given the specific pressures that challenge the vitality of a regional economy. Some of these pressures are attributed to globalization, i.e., job loss and industry decline may be attributed to import competition and lower production costs overseas, while higher cost of living along with wage and skill gaps represent domestic variants of these same challenges.

In order to address these challenges regions are often concerned with securing tangible assets such as investment capital, an educated workforce, and the institutional infrastructure to support innovation. But, according to Sen, measuring resources provides a backwards view of the development process, because it places the effects before the primary cause[3] - agency. Despite this objection to asset-based approaches to economic development, regions are often ill-prepared to implement a whole-scale shift to agency based economic development.

In reality, the tools of economic development practice may lag behind the requirements of new economic challenges. This can be combated through a process of institutional learning, whereby learning is a social process across a distributed network of actors. A more effective process of communicating new and old information allows for new combinations that may reveal synergistic opportunities among network actors. As such the social learning process is more than the wide distribution of information. It also involves the ability of actors to form trusting relations with previously unknown individuals and organizations. Furthermore, actors must be able to recognize opportunities, and take action to integrate capabilities across organizational boundaries.

Experience tells us that learning can occur in a number of ways. Wolfe and Gertler (2002) outline several approaches to institutional learning, including "learning by

[2] Admittedly, from the regional economic developer's perspective Sen's characterization of "capability to participate" is operationally vague, because all at once it implies issues relating to employment, entrepreneurship, civic action, and even consumption.
[3] According to Sen agency (Freedom) is both an initiator and an ends of development: corresponding to Aristotle's (whom Sen references often) definitions of efficient cause and final cause

doing", "learning by using", "learning by interacting", "learning by searching", and "learning by learning". The last of these is probably the least recognized method of learning. Essentially, learning by learning refers to self-reflection and self-monitoring of the manner in which learning is achieved. Self-monitoring implies recognition of the limitations to learning imposed by the structure of social relations. In other words, learning by learning searches out the voices not being heard while constructing an institutional environment that breaks down barriers to collaboration and experimentation. Breaking organizational barriers serves to deconstruct bureaucracies and silos of insulated activity.

Anthropologists might suggest that beliefs and facts are socially constructed, while existentialist philosophers might suggest that the boundaries of belief and knowledge accompany fear of the unknown. Whether it is fear or uncertainty that freezes organizational boundaries, the results are the same. Social activity conforms to organizational boundaries, and these boundaries represent limits on belief and knowledge. It is not that boundaries must be removed from organized activity. That is impractical. The point is that social learning and self-monitoring make organizational boundaries more malleable, and this is a virtue in the rapidly changing environment of the knowledge economy.

Agency is a more relevant concept than assets for the requirements of the knowledge economy, because knowledge is a ubiquitous asset carried by individuals and organizations. It is the ability to communicate and learn that increases the productivity of knowledge. Communication and learning cannot be performed by assets.

The strategy recommended here is to study institutions that support entrepreneurial activity (since this is where agency meets innovation) by examining the institutional learning process. Studying the entrepreneurial dynamics of institutional learning may speed up this learning process, but so too will studying cases in which entrepreneurial activity is inhibited. When institutions discourage open participation, snuff out the universal attribute of agency, and generally slow down the learning process the result is a drag on the local economy. Determining where and how drag occurs is fundamental to the process of change. Studying entrepreneurship and drag can help to integrate an economy by lowering barriers to organizational collaboration.

The burden of breaking through organizational boundaries falls upon the institutional entrepreneur. The institutional entrepreneur is responsible for more than developing regional assets - this is the task of the civic entrepreneur. Rather, the institutional entrepreneur must create an environment of organizational activity suitable for dealing with the unknown.

It is not known how to turn traditional manufacturers into innovative companies that recycle talent, capital, and its own organizational capabilities, but this is the challenge before us. If a new economy is on the horizon, or actually beneath our feet, then the existing assets and social patterns of economic activity must be reshaped. New industries will grow, but traditional interests should not be forcibly reshaped as much as invited to join in the process of economic change. Innovation initiatives that seek regional competitiveness have an obligation to convey a sense of relevance and accessibility to the wider regional economy. Anything short of this would not only be uncompetitive, but it would also be a cause of conflict.

As a point of warning McGrath (2003) suggests that there is a “dark side” to the entrepreneurial process, whereby entrepreneurship “is not automatically dedicated to socially desirable ends – it requires institutions to accomplish this” (pg. 527). Without the guidance of institutions, McGrath wonders whether entrepreneurship and innovation will continue to be culturally legitimate endeavors.

Strategies for Supporting Entrepreneurship and Innovation

Innovation and entrepreneurship are widely regarded as competitive factors in the knowledge economy. The benefits of entrepreneurship to regional economic development have been summarized as promoting the long-term resilience of a local economy. Resilience refers to the sustained economic rational of a particular place throughout the inevitable process of change. Resilience is not short-term stability. In fact, entrepreneurship has also been described as a short-term destabilizing factor that undermines existing economic patterns and institutions.

Long-term resilience is said to be achieved by injecting greater diversity into an economy. In comparison to other approaches to economic development entrepreneurship is seen as development-oriented rather than growth-oriented[4] (Malizia and Feser, 1999), in so far as it represents structural change to an economy – creating a structural capacity for an economy to reinvent itself. The capacity to reinvent an economy is theoretically linked to the capacity for a region to innovate, but in this regard innovation and entrepreneurship are barely distinguishable.

The challenges of economic development in the knowledge economy are mired in issues regarding the appropriability of investment in entrepreneurship and innovation. Intangible assets created through innovation as well as entrepreneurs and the young companies they create are all notoriously mobile. While intangible innovation assets are inherently mobile, mobility in entrepreneurship reflects a desire to locate young businesses in places that would seem to provide the best chance for survival and success. Also, financial investors hold decision making authority over the entrepreneurial business. This authority often dictates that the business locate near the funding source (especially with venture capital and M&A).

A related challenge deals with the uncertain future performance of entrepreneurial firms. Directly investing in entrepreneurship and innovation is viewed as a high-risk, high-reward approach to economic development. Since future market conditions along with survival prospects of any young business are uncertain, short-term return to investment in entrepreneurship is also highly uncertain. Given the condition of scarce public resources for investment, this possibility of zero or even negative short-term returns requires significant commitment in order to implement entrepreneurship and innovation strategies. This commitment is often achieved through public-private alliances.

Supporting innovation and entrepreneurship requires an intimate understanding of how these activities are manifested by individual and organizational actions as well as the regional environmental conditions under which such actions flourish. Wennekers and Thurik (1999) suggest that individuals, organizations, and regions represent different aggregate levels of entrepreneurial activity, operating together in a self-reinforcing system. In other words, individual entrepreneurship feeds organizational

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[4] See Malizia and Feser (1999) Chapter 11 "Economic Growth versus Economic Development" for further discussion of this distinction

entrepreneurship, which feeds regional entrepreneurship, which in turn promotes both individual and organizational entrepreneurship. Surely, the same holds true for innovative activity.

Assuming that these systematic relationships are real, interesting questions arise about how and at which aggregate level innovation and entrepreneurship can and should be supported. The array of strategies employed within regional economies for supporting innovation and entrepreneurship demonstrate there is no singularly agreed upon answer to these questions.

Professors of Regional Economic Development, Malizia and Feser (1999), recommend a strategy for supporting entrepreneurship in a regional economy by identifying, "sources of localization economies that support existing specializations, then determine whether these sources also have the potential to support new entrepreneurial businesses in other sectors" (pg. 209). Localization economies are a specific type of externality, or environmental benefit, which is spatially bound to a region and shared as a quasi-public good. Localization economies are important for entrepreneurship because they may provide advantages for young companies with limited resources by reducing search costs and generally supplementing business resources.

Externalities may be transmitted to entrepreneurial firms in a variety of ways, but spillovers have received much attention as a competitive resource for entrepreneurial firms. Spillovers occur when economic knowledge is transmitted across organizational boundaries. The spillover of economic knowledge may be embodied in a technology (seen as a product or process) or in knowledge carried by members of the workforce. Spillovers may occur through collaboration, mimicking, or by the transfer of personnel between organizations.

A criticism of this localization economy strategy might be that it does not explain how regions suffering economic decline or adjustment can develop new localization economies, when exogenous forces have undercut the relevance of existing localization economies. Adjusting regions often search for ways to bridge this gap. Two alternatives are direct investment and input investment in innovation and entrepreneurship.

Direct investment goes to entrepreneurial businesses or particular types of innovation that supports emerging industries, such as biomedical R&D, for example. This approach has found favor in many states and regions attempting to foster local entrepreneurship through the creation of publicly financed seed stage capital funds. The logic here is that without the gravity of strong local equity investment markets, public investment must be made to grow the industries that attract these investors.

However, while direct business investment may address a specific bottleneck for entrepreneurial firms, it has significant drawbacks. Malizia and Feser (1999) suggest that, “direct incentives or financing to encourage innovation through new business development are likely to increase competition for the same market opportunities, thereby reducing the chance for any new business to gain monopoly profits” (pg. 209).

A third investment strategy attempts to widen the scope of investment by targeting inputs rather than individual businesses or industries. Two of these strategies dealt with here include the business support resources provided by enterprise development organizations and the innovation support resources provided by organizations involved with systems of innovation. The latter typically targets investments in R&D and organizations that support commercialization of new technologies.

Investment in R&D inputs can be highly specialized, given the need for capital investment in facilities. These R&D investments may be lumpy due to the illiquid physical resources required to perform these tasks, and so may border on direct investment. On the other hand, investment in enterprise development need not be so highly specialized, even though under the current model support organizations often segment the client market. The primary resources of enterprise development are business consulting and financial capital, both of which are more easily liquidated and applied in new directions than specialized R&D inputs.

Targeting public investments in narrow fields is a meta-criticism of entrepreneurship strategies. These targeted investments can be said to artificially influence and interfere with the “wisdom” of the market. But, at the same time this criticism is only a function of the degree to which resources cannot be redirected in alternative directions. To the degree that investment in business consulting and innovation inputs lump resources into a particular firm, industry, or segment of the business environment, they may be argued against on the grounds that success in narrow fields is uncertain. Malizia and Feser make this point by stating that, “the most attractive strategies based on entrepreneurship theories do not attempt to support innovation directly, due to the inability to forecast markets accurately and the uncertainties inherent in new enterprise development” (pg. 209).

Investing in human capital is another input investment strategy. Compared to direct investment in innovation and entrepreneurship, investment in human capital is typically portrayed as involving little risk. As was already mentioned above, a strong supply of highly skilled human capital is a central component sought in the leveraging of localization economies. Investment in human capital can occur through formal education, workforce skills retraining, and simply through experience gained on the job.

Despite being an important aspect of localization economies, human capital is also mobile, particularly in the range of more highly valued skills. Highly skilled human capital may leave a region in mass if employment opportunities are not available. This is a phenomenon known as brain drain. Brain drain highlights the fact that supply of human capital does not create demand for human capital[5], especially in the short-run. Therefore, this is an investment strategy that must be matched simultaneously with job creation strategies that stimulate demand for human capital.

Entrepreneurial capital is a specific type of human capital, but one that is particularly relevant in a knowledge economy, because entrepreneurs create businesses and employment. Investments in entrepreneurial capital take place in the same university and business settings, but entrepreneurial capital is also developed within the enterprise development system. The concept of developing entrepreneurs is fairly new and untested as a long-term strategy. Lichtenstein and Lyons (2001) suggest that by tailoring business support services to the development of the individual-level skills of entrepreneurs, a region can increase the quantity and quality of entrepreneurial capital. This is a client-focused approach that is catching on in organizations that support entrepreneurship.

However, Lichtenstein and Lyons take their suggestion a step further by recommending that an enterprise development system can manage a region’s supply of entrepreneurs across a range of skill levels by coordinating service provision. Further,

[5] This point was made by Dr. Meenu Tewari in an advisory meeting, and had important implications for shaping the present analysis.

Lichtenstein and Lyons (2005) suggest that by creating a coordinated and collaborative system of entrepreneurship development services, the entire system can evolve to become an information market that connects entrepreneurs to opportunities in the local business environment. This entrepreneurial market function is one traditionally performed with the venture capital industry, but as was highlighted above this industry may not be sufficiently established in a region, and may focus on narrowly systemic profiles of emerging industries. The enterprise development system imagined by Lichtenstein and Lyons is an example of how institutional change could diversify the role of entrepreneurship in regional economies.

Together, strategies of strengthening localization economies, direct investment, and input investment represent the variety of ways that regions may attempt to support innovation and entrepreneurship. In many regions a mix of these strategies is employed. Each of these strategies also targets entrepreneurship and innovation at different levels of aggregation, including the region, organization/industry, and individual.

The perspectives of asset-based and agency-based economic development play important roles in each of these strategies. While each of the strategies outlined can be approached from either perspective, or both, it is essential that the institutional environment created to implement any of these strategies incorporates the agency perspective. For economic development planners it is easy to see the development process as reorganization and creation of assets, but is not as easy to envision how these assets may be utilized and adapted by economic actors. Furthermore, by looking at economic development as the manipulation of assets, planners may not recognize the boundaries being created that can inhibit the type of collaboration that reshapes markets to the region's collective advantage. In order to avoid the problems, planners should assume an agency perspective on the development process so that its inherent benefits in the knowledge economy can be incorporated into practice.

Summary

This chapter has demonstrated that limitations to regional competitiveness can occur at any stage of the development process. From the assessment process to planning, implementation, and in the patterns of economic activity competitiveness can be improved by assuming an agency-based perspective and by constructing a social environment that makes organizational boundaries more malleable. The barriers of bureaucracy and insulated social mobilization around discrete assets have been identified.

The institutional capabilities upon which regional economies are built do not stem from assets, but from the ability to learn, adapt, and promote a sense of agency. The concept of community capital is useful for distinguishing what types of supports are needed to enhance entrepreneurial activity, but the concepts asset perspective is limiting.

Cultural capital and polity capital as described by Johnson are particularly important concepts for the Providence case study. As the following chapter will highlight the economic adjustment process can take decades, and the traditions that carry on from a region's history impact the ability to adapt to new economic forces.

The process of economic change requires the specification of a new entrepreneurial role, that of the institutional entrepreneur. While the intent of civic entrepreneurs is to develop local assets, the intent of the institutional entrepreneur is to create an environment that is non-threatening and resilient enough to allow the structure of social relations to adapt to new economic forces. Of particular importance to the institutional entrepreneur is the ability to participate in changing economic relations.

Under-representation is harmful to an economy. It is bad for the individual or organization that cannot find a path to participating in the knowledge economy. It is bad for experimental collaboration. It is bad for the reallocation of resources. It is bad for the productivity of knowledge. It is bad for trust relations and the cultural legitimacy of innovation and entrepreneurship. By addressing issues of accessibility to the knowledge economy institutional entrepreneurs can avoid the “dark side” of entrepreneurship, and promote long-term economic resilience through greater diversity.

Chapter III

Economic Adjustment and the Providence Renaissance

By many accounts since at least the 1980's the Providence region has been on an upslope in a long period of economic adjustment that dates back to the early twentieth century. The last three decades have come to be known as the "Providence Renaissance", an era that has witnessed an end to long-term trends of population loss and industry decline. Evidence of the renaissance is noticeable in the city's built environment with thriving new public spaces and a steady stream of high profile real estate development projects. However, investment in the city's built environment might be outpacing other vital aspects of economic adjustment in the region. The need for high-wage businesses, underachieving educational outcomes, and a growing local tax effort (Leazes and Motte, 2004) are threats to the sustainability of the Providence Renaissance. Addressing these threats is the task of an emerging phase for economic development in the region.

This emerging phase of the Providence Renaissance has been ushered by a bundle of economic development strategies intended to stimulate new economic activity. These strategies are spearheaded by several collaborative initiatives that target an array of concerns such as education, community development, technology R&D and commercialization, industry cluster development, as well as support for local businesses and entrepreneurs. Participants in these initiatives have designed agendas that attempt to manage and direct the process of economic adjustment. These agendas aim at creating more jobs, better wages, a more fertile business environment, and ultimately greater economic stability in the region. The goal is to instigate change by infusing creativity, innovation, and entrepreneurship into the local economy. These initiatives attempt to accomplish this goal by mobilizing essential actors and resources to implement plans that can generate new patterns of economic activity.

One objective of this paper is to determine how organizations in the Providence region are dealing with this challenge. Chapter IV will investigate how the region's innovation infrastructure and enterprise development system operate and cooperate to support local industries and strengthen the region's business environment. The current chapter describes the context of economic adjustment in the Providence region. First, the history of this period of economic adjustment will be discussed in order to demonstrate how the region has arrived at the economic challenges it currently faces. Second, current economic development strategies being pursued in the Providence region will be describes along with arguments on their respective merits and drawbacks. Third, this chapter will detail some of the initiatives that stem from these development strategies, while highlighting their roots, objectives, and actions.

Economic Decline and Renaissance in Providence

The Providence economy has witnessed 370 years of growth, decline and adjustment. During this time the region's economy has been transformed from agricultural to mercantile to manufacturing to service based. The Providence Renaissance is the most recent era in this span of history, and it should be viewed as a response to the decline of the region's manufacturing economy during the mid-twentieth century. The circumstances that contributed to the decline of manufacturing in the region are important for understanding the strategies of the renaissance, but perhaps it is more important to understand the consequences that this period of economic decline had on the culture of entrepreneurship in Rhode Island. As we will see the continuing challenge of the renaissance is more than securing resources, but creating an environment where economic activity flourishes.

The Providence Renaissance dates back to the late 1970's, when policymakers began creating plans to revitalize the city in the face of troubling losses of population and employment. By 1980 the city's population had fallen nearly 44% from its all time high of 268,000 in 1925[6]. Also, by 1980 declining manufacturing employment was finally replaced by services as the largest employment sector in the city[7]. However, this service employment was largely non-profit and non-traded. Education, healthcare and government could not provide the multiplier benefits that declining exports of textiles, metals, jewelry and rubber had once provided. Of further consequence is the fact that these non-profit employers have been exempt from city property taxes. In order to combat these effects the plans that fueled the renaissance concentrated on strengthening

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[6] Providence: Three and One-Half Centuries at a Glance, http://www.providenceri.com
[7] Ibid.

retail, which had previously shifted to the suburbs, and financial services, a traded service which has been a longtime staple of the downtown economy.

Unlike many other industrial cities during this time Providence did not focus its revitalization efforts on retaining or rebuilding the manufacturing base upon which the city had grown. Perhaps this approach was a result of the city's diversity of manufacturing industries. Even as textile industries were steadily relocating to southern states by the 1920's other industries such as metals, rubber, and jewelry were strong enough to sustain the city's growth for the next few decades. The staggered decline of the manufacturing base could have eased the panic that beset one-industry-towns, due to expectations that another industry would rise to fill the latest void. However, after the jobs created by the employment boom of WWII were erased at the war's end and never replaced the reality of this cumulative economic decline became more obvious. The population exodus from the city was greatest (a loss of 37%) between 1950 and 1980 (U.S. Census). This was surely a consequence of industry decline as well as the corresponding period of suburbanization in America.

Not only had Providence lost the manufacturing industries that thrived in Rhode Island since Samuel Slater built the first water-powered cotton-spinning textile mill in neighboring Pawtucket in 1793, but it also lost a large portion of its middle class population. The consequences of this economic decline and population loss likely had a drastic impact on the culture of entrepreneurship in Providence.

During the nineteenth century Providence grew from its mercantile roots into a manufacturing center due to a contagious swell of entrepreneurial activity. Samuel Slater is often given the credit for being the "Father of the American Industrial Revolution", but manufacturing grew in the region because his techniques dispersed to apprentices, who then opened new mills with the backing of more confident investors. Even as economies of scale took hold and small mills gave way to large factories, new industries sprouted, creating new opportunities for entrepreneurs. In Providence, textile manufacturing created opportunities for machine makers and machine makers created opportunities for metal industries and expertise in metals dovetailed with a growing jewelry industry. New industries grew out of new technical knowledge, trusting relationships with existing industries, and a sense of optimism that accompanied the long period of economic growth.

When competition in Providence's manufacturing industries forced firms to relocate closer to resources and lower cost labor, entrepreneurial opportunities declined in the city. Left behind was a decaying city with a high concentration of non-profit based employment and a feeble tax base. Also, as the middle class fled to the suburbs they took with them their professional expertise, their influence in the community, as well as their expendable income.

Several factors combined to make the period between 1950 and 1980 particularly difficult for a declining Providence. Scholars and business leaders of the time proclaimed that large corporations were so dominant that small businesses and start-up companies had become obsolete. These dogmatic beliefs could do little to bolster the hopes of a city that had watched many of its large corporations move away. As a consequence of this reality the workforce sought employment security in the growing service industries.

The changing role of education throughout the twentieth century played an important role in building a service economy workforce. By 1950 formal education had long replaced apprenticeship as the primary means of training the workforce. Formal education made the workforce more flexible and mobile, and, therefore, less bound to the fortunes of a select industry. People also sought job security in such professional careers as teachers, lawyers, doctors and accountants. These were among the best jobs found in Providence.

However, for Providence the shift from manufacturing employment to service and professional employment was a difficult transition. The people losing their manufacturing jobs did not have the skills needed for the service jobs being created. This made job security even more vital in the lives of the city's citizens. Providence's system of patronage during this period helped to provide security for many citizens. The patronage system operated as a political machine which would trade votes for jobs and favors. Entire neighborhoods were organized, largely along ethnic lines, by ward bosses (Stanton, 2004). If the candidate backed by a ward boss won office, then kickbacks were expected in the form of city jobs and contracts. Patronage can be considered a form or economic reorganization in a declining city, though not the type of activity that inspires economic growth.

The impacts of service employment and patronage on the culture of entrepreneurship in the Providence region are not widely documented. However, we can hypothesize that their impact has been a retrenchment of entrepreneurial behavior in the Providence region. This period of entrepreneurial retrenchment corresponds to the decline of the Providence economy. The decline of local industries probably had at least three important consequences: increased uncertainty about economic performance; depleted local capital markets; and negative cultural perceptions of industry and entrepreneurship. With a large portion of the workforce being unprepared to move into the growing service industries, the security of patronage largely displaced aspirations to engage in new forms of economic activity. In this manner retrenchment can be viewed as the deconstruction of Providence's entrepreneurial environment.

By 1980 Providence had lost much of its mobile population, its formerly propulsive industries, and the entrepreneurial environment upon which the city was built. As stakeholders struggled to control declining resources, opaque networks of influence became more important in the city, leading to corruption. In fact, Providence had become infamous for its corruption, which contributed to the city's lack of appeal. Providence was home to the mafia, an organization of secretive and illegal trades which finds its economic niche in environments of distrust and uncertainty (Sen, 1999). The mafia operates much like the patronage system that controlled the city's government by trading favors for favors in a jungle of "insiders" and "outsiders". Newcomers would be forced to assimilate to this patronage system, which would largely favor the in-migration of people who could easily connect to existing social networks or those who had few other options. This condition of opaque influence is toxic to the culture of entrepreneurship, because it stifles open competition as well as the trust required to develop synergistic economic relationships outside of the city's opaque networks.

While corruption contributed to the lack of appeal in Providence, so too did the city's physical capital, which suited a manufacturing city, but not a city trying to establish high end services in the downtown. The land between downtown and the Statehouse was covered by parking lots and railroad tracks, earning the distinction as Providence's

"Chinese Wall", making the area relatively unappealing to prospective businesses. Also, the downtown area was burdened with confusing and congested traffic patterns, which also contributed to the decline of downtown activity. This inadequate built environment was blamed for the loss of downtown businesses and the lack of investment in the area. Furthermore, there was little developable land in the downtown district that could accommodate new real estate development.

If new economic activity was to take root in downtown Providence, then the city would need to reorganize its built environment and make new developable space available. Also, if Providence was to stem the tide of population outflow, then the city would have to become more appealing as a place to live. Finally, if new investment were to arrive in the city, then the closed culture of corruption and patronage had to be breached.

The Providence Renaissance has been credited with successfully addressing these challenges. The renaissance began as a series of development plans, which over three decades combined to reshape the city's built environment. During the decades of the renaissance the "Chinese Wall" of railroads was relocated underground, reconnecting the state Capital and the downtown, while also clearing valuable land for development. A convention center was constructed with hopes of drawing more activity to the area. Rivers running through the area were relocated and uncovered, adding appeal to the scenery, while also prompting the construction of more accessible patterns for automotive and pedestrian traffic. Also, retail was added in the area with the construction of the Providence Place Mall. Together these projects have opened and enlivened a previously segmented downtown district, while adding value to the quality of life in Providence.

Impacts of the Renaissance

According to Leazes and Motte (2004), authors of "Providence: The Renaissance City", the impacts of the renaissance have been mixed. The renaissance has had a positive effect on population trends in Providence. The city's population loss has been reversed with growth of nearly 14% between 1980 and 2004 (U.S. Census). As a result residential real estate development is flourishing in the city. However, the location of high-wage businesses to the downtown area has been relatively slow. Additionally, early renaissance plans intended to promote the growth of financial services and retail in the downtown area have not come to fruition. Consolidation in the banking industry has caused employment to decline in this sector of the Providence economy. While retail has grown due to the mall, it has not yet taken hold in nearby downtown districts, where mixed-use development was planned to revitalize whole blocks of property.

Other positives from the renaissance include a lower unemployment rate in the city that has accompanied growth of Providence's reputation as a destination city. The improvements to the city's built environment along with the expansion of arts, entertainment, and dining have made tourism a growth industry in Providence and throughout Rhode Island. Tourism is a basic economic sector that benefits retail and service industries. However, tourism is also a fairly volatile sector, and because of this fact Providence has faced recent challenges to building new hotels in the city, which would assist in capturing more of the tourism market.

Leazes and Motte suggest that there are also more fundamental challenges that threaten the legacy of the Providence Renaissance. Chief among these challenges is the delicate condition of revenues that the city draws from local property taxes. As has already been stated Providence is heavily populated by non-profit organizations that do not pay local property taxes. Renaissance projects largely circumvented the need for local government spending by leveraging state and national government funds. However, the weak commercial tax base in Providence has shifted the tax burden to residential properties as well as state government spending on Providence government services. The public education system in Providence relies on the state to fund about 60% of its costs, but the city's education system is at the bottom of performance measures in the state (Leazes and Motte, 2004). Undoubtedly, this is yet another substantial challenge to the Providence Renaissance, since education is not only an important quality of life issue for potential residents, but also an important resource for training the city's future workforce.

The remaining challenges for the Providence Renaissance point to a dire need to enhance the for-profit business base in the city. Typically this challenge is framed in terms of attracting, retaining, and creating new businesses, but here attention is placed on the entrepreneurial culture of the city. Focusing on the conditions that influence entrepreneurial behavior gets to the heart of what it is that attracts, retains, and creates new businesses in the first place – new economic activity.

From the perspective of stimulating new economic activity the Providence Renaissance has had perhaps its most lasting impact. The projects of the renaissance have served to establish a renewed sense of trust in the Providence economy and its handlers. There is new economic activity in Providence, and as Leazes and Motte point out, government has been the entrepreneur. By bringing public and private interests together over renaissance projects for the past three decades policymakers have overturned the negative perceptions of the city and have succeeded in reversing the outflow of population and investment. However, as the list of challenges suggests the work of the renaissance is not complete, but lessons from the renaissance can be useful moving forward.

The Providence Renaissance provides important insights to the process of economic adjustment throughout the entire region. First, the decline of population and investment in the city reflects the spread of economic influence to the surrounding suburbs. Second, the interdependence of Providence and the surrounding region is evidenced by the magnitude of state investment in the city as well as Providence's role in spurring tourism throughout the state. A third lesson of the renaissance is that trust must be established among "insiders" and "outsiders" in order to leverage resources and interest in the city. Fourth, the perception of Providence and the openness of its culture is a signal of how accessible the city is for investment and economic partnerships that may extend beyond the city's borders. Finally, the very fact that Providence has begun to rebound from the blow of decades of economic decline is a source of optimism that easily transcends the city's borders.

As a result the Providence region is preparing for another contagious swell of entrepreneurship within the new economic environment of the knowledge-based economy. The preparations for this transitional stage of economic adjustment are revealed in the emerging phase of economic development in Rhode Island.

Chapter IV

Rhode Island's New Agenda: Innovation, Entrepreneurship, and Conflict (?)

To date the Providence Renaissance has succeeded in reversing some of the fundamental challenges to economic growth in the region. While trust, reputation, population growth, and interest of investors have gained momentum in the city, the next step is to use this foundation to build new patterns of economic activity throughout the entire region. An emerging phase of economic development is driving economic change in the region toward an innovative and knowledge-based economy. The question is: who is on board? Along with initiatives for economic change comes conflict. Addressing this conflict has not been the focus of development activities, rather mobilizing resources and cooperative alliances has been the main goal. In fact there is some reason to believe that conflict is an intentional outcome of recent economic development initiatives in Rhode Island.

Initiating Change

The task of building an innovation economy will prove to be vastly more complicated than revitalizing the city's built environment. The reason for this is simple – change is difficult. The challenge of reorganizing the resources and institutions that contribute to new economic patterns, particularly in building a knowledge-based economy, requires widespread organizational change and massive investment in unproven plans. This involves countless influential stakeholders throughout the various industries and institutions in the region. Each of these stakeholders has a unique collection of interests, relationships, and ideas, which heightens the chance of conflict in this phase of economic adjustment. Furthermore, the push for economic change may be forceful, due to a perception of entrenched interests and contentious social relations.

At the same time deliberate change requires plans for action. In Rhode Island there are a host of strategies for supporting new patterns of economic activity. Several strategies have formed around economic initiatives that build upon themes of innovation and entrepreneurship. The concepts of innovation and entrepreneurship are nearly redundant, but they each have unique circumstances and implications within the

Providence regional economy. While these themes have no boundaries to their application, they are being harnessed along sometimes overlapping, sometimes separate policy paths. These policy paths are being formed by a series of economic initiatives, led by cooperative alliances, aimed at generating new economic activity in the Providence region.

Presumably, no single strategy would prove sufficient to induce the wide scale change that is required for the region's future competitiveness and improvements for its citizens' well being. This means that successful strategies must thrive in a pluralistic policy environment. One challenge for stakeholders backing a particular initiative is to gain enough support to get the initiative off the ground, while a later challenge is to link the initiative to others in synergistic ways, or at least allow their merits to coexist. For the region at large this translates to the need for establishing a robust support environment built upon an infrastructure of sturdy, but agile support organizations and alliances. Publicly funded support organizations participate with private stakeholders in the core alliances of economic initiatives in the region. Together organizations involved in these emerging initiatives have the potential to revitalize the culture of entrepreneurship in Rhode Island, which will help to establish new patterns of economic activity.

One initiative currently making progress in Rhode Island is a state-wide effort to strengthen the regional innovation infrastructure. The innovation initiative is often associated with technology R&D and commercialization, as well as leveraging new collaborative business models that hold potential for adding significant value to the local economy. As with most innovation systems this initiative is led by the region's universities, technology companies and state government funded agencies and support organizations.

A second initiative aims at strengthening and coordinating the enterprise development services for entrepreneurs and small businesses across the state. The enterprise development system is an important resource for enhancing entrepreneurial activity in the region. This system consists of several organizational actors that represent different segments of the business population as well a variety of public and private funding sources. The challenges of intergovernmental bureaucracy are prevalent in Rhode Island's enterprise development system.

As suggested above there are several overlaps between these two initiatives. For example, each of the initiatives is concerned with growing entrepreneurial activity in the area, and each recognizes the important roles of education and quality of life for growing and retaining a talented workforce. Also underlying each initiative is an emphasis on collaboration as a means for creating new opportunities and spreading the entrepreneurial culture that is taking hold in the region.

However, the process of economic adjustment is bound to yield conflict as established interests struggle to navigate the changing environment. There are policy insiders and outsiders for each initiative. Insiders work to mobilize partners and resources to develop the infrastructure for supporting new forms of economic activity. Outsiders raise opposition to plans that neglect their interests, struggling to be heard in a policy environment that is focused on change. Likewise, the initiatives that intend to cause economic change struggle to gain influence in the presence of established interests and parallel alliances that compete for the attention of stakeholders.

It is within this partly competitive, partly collaborative environment that the legacy of the renaissance will take shape. In this chapter we will detail the issues that have been identified as region-wide challenges to the momentum of economic adjustment in Rhode Island. We will also highlight the specific objectives of the state-wide initiatives surrounding the regional innovation system and the enterprise development system. At the same time the impact of these initiatives can be judged according to how they build upon the trust and optimism developed during the preceding decades of renaissance in Providence. The potential synergies among economic initiatives can be viewed according to their similar objectives for economic growth, while conflicts appear as threats to individual organizations and overlooked interests. In order to understand these synergies and conflicts the economic challenges in the region, at which economic development efforts are aimed, must be outlined.

Challenges for Regional Economic Adjustment

The projects of the Providence Renaissance have left some key challenges unresolved. Chief among these is the challenge of continuing to generate new business activity. This is a goal for the city itself not only to improve employment opportunities, but also to strengthen the local tax base. Of course, new economic activity is also a goal for the entire region. Reestablishing Providence as a strong urban economy should be a regional priority, because the high-end services that are attracted to urban areas are often difficult to attract in outlying areas. However, the Providence Renaissance has been very much focused on that city, while the entire state of Rhode Island is primed for economic change. The next phase of the renaissance aims at integrating the whole region into new types of economic activity.

This same strategy of regional economic integration in Rhode Island applies to the larger Boston Metro region in which Providence can play a more important role. By strengthening relationships with businesses, universities, investors, and consumers throughout the Boston Metro region stakeholders in Rhode Island can gain access to economic activity that the smaller Providence market has had difficulty attracting.

Clearly, not just any new economic activity would suffice. The process of economic growth demands that new businesses provide the jobs and wages that a knowledge economy workforce requires. This means that the new businesses sought in Providence must produce high value goods and services. According to the Rhode Island Economic Policy Council (RIEPC), there is a job gap in Rhode Island among high wage industry clusters. The growing tourism industry in Providence, while beneficial to the region's overall image, is likely to yield only marginal increases in high wage jobs. The businesses that yield significantly better jobs and incomes are often those businesses that continually produce innovative products and services. The industry clusters targeted in Rhode Island include health and life sciences, financial services, industrial products and manufacturing, tourism and hospitality, consumer products and design, communications and information technology, marine industries, and defense and homeland security.

A related challenge is increasing the level of highly skilled talent in the Providence region. Underlying problems include the quality of public education in the area, relatively low levels of college attainment, and the troubling phenomenon of brain drain. Public education has been a blemish on the record of the renaissance. According to Leazes and Motte (2004), twenty percent of Providence's grade school population has limited proficiency in English, while standardized testing scores and high school graduation rates remain well below state averages. They also point out that enrollment growth in Providence has increased at more than twice the average rate across the state between 1991 and 2000. Consultants have found that throughout the state college attainment levels have lagged behind national growth trends. These education trends are only made more troubling by the continued brain drain among the areas young, educated workforce. Consultants found that throughout the 1990's Providence's young adult population declined by eighteen percent (RIEPC). Efforts to increase the level of talented workforce in the state must address the quality of local education as well as providing the employment opportunities that this demographic demands.

The demand for new, high-wage economic activity in Rhode Island requires investment in strategies that enhance the development of new economic knowledge, which can take the form of new business models, new technologies and applications, market insights, or other commercially viable knowledge. Organizational collaboration and R&D are important generators of new economic knowledge. While R&D adds new content to economic knowledge, collaboration serves to recombine existing knowledge in new ways.

Attempts to strengthen these generators of economic knowledge present a challenge. Organizational collaboration is claimed to be Rhode Island's competitive advantage, because of the state's small size and densely connected networks. However, while new collaborative relationships are a driving force behind the emerging phase of economic development in the region, they are also a source of friction in a turbulent period of change. The relationships between policy insiders and outsiders, collaborators and competitors will play an important role in determining the content of collaborative innovations as well as the resulting patterns of economic activity. The nature and degree of competition in this collaborative process will impact the level of trust and optimism that permeates the region.

While the recombinant aspects of collaboration are necessary for widespread innovation, such strategies would eventually go stale without a steady stream of new knowledge content, which is often provided by R&D. Arguments abound regarding the important impact that locally generated R&D has on local high growth business start-ups and existing industry's commercialization of new technologies. At the same time universities are playing a larger role in performing R&D with commercial applications.

However, according to the RIEPC, Rhode Island ranks 48th among state spending per capita on higher education, while ranking last in state spending on university research. Additionally, industry investment in academic R&D is particularly low in Rhode Island. These issues are currently being addressed with new investment in university-industry R&D initiatives and a new environmental biotechnology facility at the University of Rhode Island.

Despite these efforts, without better performance among commercialization activities in the region advances in new economic knowledge will be for naught. According to reports from RIEPC Rhode Island has performed poorly in commercialization measures in the past. Successful commercialization activities require specialized resources such as early stage equity investment and pipelines of new economic knowledge, but they also require a ready supply of savvy entrepreneurs who can marshal these resources while managing competitive businesses.

Statewide efforts to strengthen entrepreneurial capital follow three strategies. One strategy is to grow a ubiquitous culture of entrepreneurship in Rhode Island, where all organizations are encouraged to act entrepreneurially by challenging existing business models and by searching for partnerships that will create new value in product and service markets. Another strategy is to directly supplement the perceived lack of highly experienced, serial entrepreneurs in the area by using incentives to draw management level talent from the Boston Metro area and elsewhere. The third strategy is to develop entrepreneurial talent through the enterprise development system. By strengthening the business support services provided in Rhode Island more people will be encouraged to pursue entrepreneurial ventures.

In addition to addressing the factors that contribute to high growth business ventures, economic development efforts in the region should not overshadow the need to improve equitable access to opportunity throughout Rhode Island's communities. Providence and other areas in Rhode Island are still prone to problems of poverty and related barriers to economic mobility, such as those often experienced in the city's non-English speaking enclaves. The renaissance approach to improving quality of living is at least as relevant in neighborhoods as it is in the central business district. The challenge of improving the economic prospects for Rhode Island's current low income residents should be reflected in initiatives that are built upon participatory methods. Poverty, of course, is a wicked problem that can be marginally improved through education, community development, democratic processes, in addition to job growth in traditional industries. Surely, without the active representation of low income communities in economic development initiatives there is a danger of isolating these populations from the benefits of innovative economic growth.

New Economic Activity: The Innovation Economy Agenda

Strengthening the innovation economy in Rhode Island has been described as a method for "raising all boats" on the tide of economic growth. It has been stated that Rhode Island can not compete over the long term with the use of direct subsidies for attracting and retaining businesses. The alternative approach in Rhode Island is to promote the development of technology and business innovation from within the state. A central focus of the innovation agenda is increasing the presence of high wage business activity. At the same time the challenge of attracting and retaining a workforce with adequate skills for high wage jobs falls upon the wide network of stakeholders attempting to implement this strategy. A skilled workforce will not locate in the region without high wage jobs, and high wage jobs will not locate there without a skilled workforce. The growth of high wage jobs and a highly skilled workforce must occur simultaneously in a ratcheting fashion.

On the workforce side this challenge is being met, in part, by education reforms that seek long-term improvements to the quality of curriculum in the public school system. The Governor's Council on Science, Technology, Engineering, and Mathematics (STEM) has been tasked with providing ideas to improve the learning process in these academic fields. The ideas proposed by STEM range from adding resources and capacity for teaching STEM subjects, to involving applied learning approaches that deepen the benefits of the scientific learning process. Another idea is to investigate opportunities for an expanded role among Rhode Island's technical and vocational schools.

Training students is only half the challenge, the other half involves connecting the students to local opportunities that serve to create ties to the area. One method for addressing this need includes implementing place based learning, which embeds a student’s education in the activities of the community through cooperative projects with area businesses and organizations. At least one model has proven successful in this regard - the MET Charter High School program. The place based strategy of the MET involves applied learning and small learning community approaches to education, and has led to a near 100% college acceptance rate among its students. A similar idea for creating local ties for students is strengthening internship and apprenticeship programs between the region’s universities and businesses.

The challenge of growing high wage jobs in the region is being met by a host of stakeholders from the business, government, and university communities. This cooperative alliance is devising and implementing plans to enhance R&D, business collaboration, and commercialization of innovations in Rhode Island. While the focus of their efforts is to provide benefits to highly educated citizens and high growth businesses, the benefits of innovation are also expected to extend to low income communities and traditional industries. This is unique attribute of Rhode Island’s innovation initiative.

The community benefits of the innovation initiatives are aimed at new approaches to education (such as ideas for extending the MET program), lowering the cost and boundaries to accessibility of healthcare, and connecting low income communities to the internet among other approaches. Thus, building an innovation economy is more than the challenge of growing high wage jobs. An innovation economy should also promote the participation of the less skilled workforce. However, the challenge of growing innovative businesses is difficult in itself, and has been the main focus of the initiative

Building an innovation economy is a lofty goal for any region. There are several reasons for this. First, innovation is difficult to engineer. Almost by definition innovation runs counter to common intuition and experience. The competitive dynamics of the marketplace along with the incremental development of new economic knowledge and technologies makes innovation a fairly unpredictable phenomenon. Second, innovation as an economic development scheme can be quite costly. Individual companies put millions of dollars into creating new products that never make it to market and the same holds true for universities and government research labs. Also, the transaction costs of time and attention are high for implementing new innovative approaches in existing businesses, especially given the uncertain outcomes of new approaches. Third, innovation requires a well networked economy wherein challenges are addressed by a variety of stakeholders, each adding insights that frame the issue and contribute incremental advances that build upon one another. Fourth, systematic innovation requires a critical mass of talent in fields ranging from design, engineering, marketing, finance, and legal among other disciplines. Finally, innovation is backlogged by a demand for entrepreneurs; there are more viable innovations produced each year than there are businesses prepared to take them to market.

All of these factors suggest that building an innovation economy is a comprehensive endeavor, and in Rhode Island it is being treated as such. In Rhode Island a series of linked initiatives aim at bolstering the regional innovation system. Operating under a statewide strategy known as Innovation @ Scale, these initiatives intend to add value throughout the range of products, services, and experiences that are consumed and produced in Rhode Island. The intent is to spread innovation as a ubiquitous practice for Rhode Island organizations, both public and private. Once again, this is a lofty goal, but Rhode Island is developing the infrastructure that has the potential to treat innovation as both a ubiquitous activity and a targeted activity as it applies to the innovation pipeline.

The Innovation @ Scale strategy seeks to leverage the small geographical area of Rhode Island along with the state's dense social networks between government and business to promote testing of new business models and product/service ideas in a relatively compact and manageable market environment. This strategy is ubiquitous because it can be employed by just about any type of business, and it is novel in the way that it attempts to extend innovation beyond the pipeline.

Currently the Innovation @ Scale strategy is taking shape in Rhode Island's Business Innovation Factory (BIF), a non-profit organization that brings together leaders from business, government, academia, and non-profit sectors. Together, BIF members research, discuss, and implement plans to build new markets and innovate within existing markets. Projects being developed at the BIF involve a diverse field of interests, including statewide wireless network access, new unified models for healthcare delivery, enhancing and sharing the communications infrastructure for port security, and experience laboratories intended to enhance the services received by citizens, students, patients, and consumers.

The Business Innovation Factory is just one piece of the state's innovation infrastructure. Other aspects of this infrastructure are highlighted in "Innovate RI", a report produced by the Rhode Island Science and Technology Advisory Council (STAC), which presents a set of specific recommendations that target the state's capacity to generate and commercialize innovation in the state.

The STAC report makes five recommendations for innovation support by the Rhode Island General Assembly, one of which is a request for the support of the RIWINS wireless network project and another is a call for continued support of STAC itself. A third recommendation is for a commission to study and propose ways to strengthen the research capacity of the University of Rhode Island. A fourth recommendation shares this intention to strengthen the states R&D platform by requesting state matching funds to create the Rhode Island Collaborative Research Alliance. This alliance would connect existing life sciences, healthcare, and biomedical R&D programs in the state both in terms of knowledge sharing and funding of joint operations. The final recommendation proposed by STAC is the creation of a tax credit targeting serial entrepreneurs in science and technology fields. This proposed tax credit is intended to attract and retain experienced entrepreneurs, who can commercialize new technologies.

The BIF projects and STAC recommendations represent the central strategies of the Rhode Island innovation system, which include business collaboration, R&D, and commercialization. These strategies are influencing a variety of economic sectors, including traditional manufacturing. The Rhode Island Manufacturing Summit is a coalition of manufacturing businesses and public support agencies, which provide resources for assessing and enhancing a manufacturing company's capacity to innovate. The benefit of such coalitions goes beyond the actual services provided. Less obvious, but perhaps more substantial, benefits emerge from the supportive community of traditional manufacturers that collaborate to address common problems.

In addition to private business partners the Rhode Island Economic Development Corporation (RIEDC) provides support to this initiative, as well the College of Engineering at URI, which supplies interns and technical support to local manufacturers. The university's involvement in this coalition yields benefits beyond the direct labor and support supplied to manufacturers. The students grow local roots and connections through their internships with local firms and these roots may prove useful in retaining talent in the region.

The Rhode Island Manufacturing Summit is an example of a community partnering over innovation. These communities are often composed of a variety of stakeholders from students to organizations, including public agencies, universities and private business partners. It is these types of partnership communities that form the backbone of the state's innovation initiative. These partnership communities are functionally oriented around particular initiatives, but some organizations are involved in several initiatives. The overlap of actors in the initiatives described here helps to link efforts, expanding opportunities and spreading the entrepreneurial approach to creating new economic activity.

Conflict in the Innovation Economy

One organization that has emerged as a central actor across several initiatives is the Rhode Island Economic Development Corporation, the state's lead economic development agency, which is directly involved with BIF, STAC, the Manufacturing Summit, as well as a business support initiative known as Every Company Counts among others. Centrally positioned organizations such as RIEDC hold the potential to connect the R&D, commercialization, and collaboration efforts of the innovation initiatives to the small business and low income communities that are represented by efforts of enterprise development and community economic development initiatives.

The work of centrally positioned organizations such as RIEDC is formative to the process of initiating change in Rhode Island's economy. In particular, RIEDC has been heralded for engaging Rhode Island's business community, a posture that is successful due to the extensive business orientation of its leadership and staff. At the same time RIEDC has been criticized by other support organizations as being too self-directed and forceful in leading regional economic change.

This tension could be described in theoretical terms as a lack of trust or as conflicting visions of the region's economic future. However, a practical analysis reveals a struggle for organizational survival and influence. Some organizations involved in the process of economic development in Rhode Island are concerned that innovation initiatives do not adequately represent the interests of their respective client base. Others are concerned about increased competition over revenues generated from membership fees and/or business and government sponsorship. Another source of conflict arises as organizations such as RIEDC, which are intent on infusing entrepreneurship and innovation into Rhode Island's economy, push to get other organizations to incorporate high value added services into their business models.

Centrally positioned organizations must not only work to connect the growth of high-wage businesses to efforts for increasing the skills of the local workforce, but they must also connect to the state's other communities, including small businesses, artists, low income workers, etc. At the community level interfacing with innovation initiatives is, perhaps, relatively inaccessible to most Rhode Islanders. Isolating the organizations that represent the interests of these communities is not a solution for sustainable economic adjustment. At the same time the Providence region is in a period of change that will require existing economic development organizations to adapt to new economic realities.

Accessibility to economic opportunity is a major concern of some economic development organizations. Innovation initiatives are being led by the business and institutional communities, which are comprised of development professionals and government and business elites who are participating in this process of framing future patterns of economic activity in the state. In and of itself, this is not a harmful practice, as long as there are avenues provided for the general community to pursue economic mobility and ultimately participate in shaping the economic future of the state. In other words, the general population must be more than just recipients of innovation policy. While the objective of the innovation initiative is make this activity a ubiquitous practice, the challenge is structuring projects so that they seem more relevant and accessible to a wider population of firms and individuals.

Traditionally, the field of enterprise development has played an important role as a step in the ladder of economic mobility. While individuals in poverty are less likely to start a business, due to a lack of resources, those who successfully escape from poverty using their labor to accumulate assets are enabled to participate in business ownership if they perceive this to be a feasible and beneficial endeavor. It is assumed here that the population of small business owners contributes to the entrepreneurial culture of a region, and over the course of a generation their example of entrepreneurship can be put to use in new, high growth fields of economic activity.

However, the presence of conflict among policy insiders and outsiders that represent the various economic communities in Rhode Island, even though unintended, could threaten to separate some from participating in the state's future innovation economy. These conflicts could even slow the momentum of the economic adjustment. Because the steps taken to reorganize an economy are often path dependant, resolving these conflicts now could yield tremendous dividends in Rhode Island's future.

Entrepreneurship: The Enterprise Development Agenda

Implementing an innovation economy requires new ideas and technologies to be pursued in synergistic ways that transforms previous patterns of economic activity. Entrepreneurial activity lies at the heart of this transformation process. Entrepreneurial activity is expressed in new collaborative relationships among businesses and institutions, in the efforts of researchers to expand the frontiers of discovery, and in the creation of new businesses.

A region's enterprise development system provides services and resources that assist entrepreneurs in their efforts to create and grow businesses. Ideally, as a way of boosting entrepreneurial activity, the businesses being created and supported through enterprise development organizations would be assimilated into collaborative relationships that share knowledge and cooperate in new ventures. Enterprise development in Rhode Island is beginning to move in this direction. However, the rapidly changing economic environment has caused Rhode Island's enterprise development system to respond in sometimes divided and disorganized ways.

The field of enterprise development has long been home to a variety of organizations that act as advocates and provide specialized resources for subsets of the local business community. These segments of the business community include small businesses, minority-owned businesses, micro-businesses, technology businesses, manufacturing businesses, etc. As the global economy changes emphasis is being placed on high value added and knowledge based economic activity in the United States, and enterprise support organizations are attempting to adjust to this environment.

In Rhode Island well over a dozen new business support organizations have been established over the past ten years. Many of these new organizations have been created to introduce new specialized services or to coordinate activities within emerging industries. These new services range from industry cluster development to incubator and mentoring services for entrepreneurs operating in a variety of fields. There are also newly established organizations that provide specialized equity financing to high growth potential start-ups in the region. Networking is a service that is being offered by a growing number of Rhode Island enterprise development organizations, while information seminars also remain a popular service offering.

The shift in focus of the collective enterprise development system in Rhode Island seems to be in the type of business activity that organizations intend to support. While small businesses with minimal growth potential are still serviced by traditional business support organizations such as the SBA funded Small Business Development Center, entrepreneurs with growth aspirations seem to be the target market for most of the newly created organizations. The organizations moving into this market are attempting to service smaller niches of the entrepreneur population. Urban entrepreneurs, technology entrepreneurs, design entrepreneurs, and creativity entrepreneurs are all niches addressed by some of these organizations. The variety of networking and information forums serve to connect these diverse entrepreneurs to each other, existing business activity, as well as best practices in various fields. There is clearly a collective effort in Rhode Island to support entrepreneurship and the growth of an entrepreneurial culture.

However, findings from the Council on Competitiveness suggest that the activity of Rhode Island's entrepreneurship support organizations is "not sufficient to stimulate the level of entrepreneurship activity and new company creation needed for a competitive innovation economy" (STAC, 2006 pg. 12). The claim that there is a shortage of serial entrepreneurs in Rhode Island is resonating among several economic development professionals in the region. The value of serial entrepreneurs is that they have a track record, which investors can investigate to gain confidence in the leadership behind a new venture. The organizations that would like to see an increase in serial entrepreneurs are incubators and investment groups, both of which would like to select clients from a wider pool of qualified entrepreneurs.

In 1997 the Rhode Island legislature voted to create the Slater Fund to support the development of high growth businesses within technology industries in the state. The Slater Fund is now the early stage financing arm of four Slater Centers that serve as incubators to young technology firms. The four Slater Centers focus on emerging Rhode Island industries, including biomedical technology, design and manufacturing, interactive technology, as well as marine and environmental technologies. Thorne Sparkman, Director of the Interactive Technologies Center, suggests that the biggest challenge to his organization is finding experienced entrepreneurs to join management teams that often include university researchers who are trying to commercialize a technology they helped to develop.

While the Slater Fund helps to seed entrepreneurial ventures other investment groups want to see incubators such as these develop a pipeline of quality ventures for later rounds of investment. Angel capital investors such as those within Rhode Island's Cherrystone Angel Group serve as a financial bridge between seed stage funding and investment from traditional venture capital firms. Stakeholders in the Providence region recognize that in order to attract more venture capital investment, the flow of viable ventures as well as experienced entrepreneurs must increase.

The quickest way to increase the flow of viable ventures is to attract serial entrepreneurs from elsewhere through the use of targeted investments and incentives such as those proposed by STAC. However, a sustainable long-term strategy for increasing the level of entrepreneurial capital in a region involves developing and recycling entrepreneurs that emerge from local businesses and universities. One need not own a business to become a serial entrepreneur. In fact many growth businesses require intrapreneurs (internal entrepreneurs) to create new business units and subsidiaries within the existing firms. Supporting intrapreneurship is a task that is largely ignored by enterprise development, though it could serve to increase the level of serial entrepreneurship locally. Over time innovation initiatives and enterprise development initiatives could be combined in Rhode Island to target this source of long-term entrepreneurial activity.

Criticism of state incentives and direct investment in high growth entrepreneurship often centers on the fact that these funds are targeted to select industries and relatively elite circles within the economy. Small business advocates favor entrepreneurship policy that is ubiquitous and accessible to a wide cross-section of businesses. While targeted strategies aim at jumpstarting entrepreneurial activity in the region, ubiquitous strategies aim at spreading the benefits of the innovation economy. Both approaches may be necessary for Rhode Island's economic competitiveness. The enterprise development system is in a position to bridge both these strategies by breaking down barriers and integrating service delivery in a manner that links high growth with a ubiquitous entrepreneurial culture. This type of integrated service delivery could encourage entrepreneurship in a wider range of industries, while also creating a support infrastructure that acts as a ladder for business growth and the development of entrepreneurs.

The overall goal of increasing the quality and frequency of business creation in Rhode Island translates to a need for effective service delivery. Ideally effective service delivery would provide affordable access to the resources required by nascent entrepreneurs and existing businesses across the full range of local industries, while also developing the soft skills of entrepreneurs from various fields. Effective service delivery would also compel more people to pursue business opportunities by making the start-up process more feasible and running a business more manageable. Furthermore, effective enterprise development services would act as an engine for growing the region's knowledge based innovation economy, while also introducing innovation to traditional industries.

Many professionals in the enterprise development field believe that in order to achieve effective service delivery the entire system of subsidized business support services must be rationalized. Rationalizing the system can coordinate service delivery occur in many ways, but it often assumed that coordination implies consolidating services, resources, and influence into a central authority. This need not be the case.

Consolidation threatens support organizations that already compete over limited funding from private and public sources. It can also be a non-starter for organizations that control the bulk of resources, if consolidation implies relinquishing control over the use of those resources.

In Rhode Island there is an echoing complaint among economic development professionals that there are too many organizations supporting entrepreneurship. This claim is made by representatives of these very same support organizations, because they must operate in what they perceive to be a highly fragmented and competitive service environment. Louis Soares, director of RIEDC's small business program, Every Company Counts (ECC), suggests that competition in the field has both positive and negative consequences. On the positive side new support organizations often introduce innovations to the field of service delivery. On the negative side competition can result in turf conflicts that inhibit collaboration, ultimately acting as a barrier to improving the effectiveness of service delivery.

It is widely acknowledged that competition among publicly subsidized business support organizations is an irrational use of public funds, especially if competition does not lead to more effective service delivery. But, measures of effectiveness are not agreed upon. For example, there is currently a debate in the Rhode Island enterprise development system over the merits of quantity versus the merits of quality in service delivery.

The quality of service delivery sometimes conflicts with strategies that aim at providing services to a greater number of businesses and entrepreneurs. Quantity goals in government subsidized business services can coincide with political goals – where numbers make better headlines than other qualifiers. The number of service transactions with clients may increase accessibility measures, but this strategy may fair poorly in terms of the value added per client. Moreover, measuring transactions puts support organizations that offer similar services in direct competition over clients, yielding a constant sum game.

An alternative approach for the delivery of support services would sacrifice quantity for quality, choosing to add more value per client. This approach also has been called client based, because the focus is on the development of the client business rather than simply on providing greater access to commoditized resources. In Rhode Island this client focused approach is taking hold in business incubators and in networks that provide mentors for budding entrepreneurs. In fact, most of the new enterprise development organizations in Rhode Island have been conceived on the premise that this client based strategy is in high demand.

Reports of competition and a highly fragmented market among enterprise development organizations raise important questions about the effectiveness of both the transaction based and client based strategies. Transaction based strategies are less likely to yield increases in high growth entrepreneurial activity, but they allow for greater access across a wider business population. On the other hand, client based services may increase the number of high growth businesses, but these organizations are only catering to small segments of the entrepreneur population, which, in turn, is being continuously subdivided. These conditions lend credence to arguments for rationalizing the enterprise development system, but they also heighten the fears of consolidation.

Rationalizing Service Delivery through Conversation

In order to establish an innovation economy in Rhode Island, the entrepreneurial culture there must flourish, and the enterprise development system must accept this as its challenge. Before this can happen the organizations that make up this system must have a conversation on how to collectively address this challenge. However, this conversation is at an impasse. Attempts to start this conversation have broken down over differences in interests – both the interests of clients and the interests of the organizations themselves. There seem to be two stereotyped camps in this conversation – the client based "innovators" and the transaction based "egalitarians". For the conversation to continue it must be mutually acknowledged that both camps have their merits and their weaknesses. At the same time the interests of both camps must be met.

The camp of "innovators" is composed of several state government funded business support organizations, such as the Slater Centers, Urban Ventures, ECC, and the Tech Collective among others. The interests of this camp lie in the transformation of the Rhode Island economy toward innovation and high growth entrepreneurship. Louis Soares from ECC has been a staunch supporter of innovative, value-added business support services. His organization has led efforts to rationalize the Rhode Island enterprise development system in two ways - first, by centralizing information that makes the system more transparent to the end user, and second, by attempting to foster collaborative relationships among support organizations that increase the value provided to the client.

Despite these efforts, collaborative partnerships have failed to gain sufficient traction. This is due, in part, to the fact that client focused organizations and transaction based organizations measure success in different ways. Innovators have been trying to force transaction based organizations to adopt a client based model by competing with higher value-added services. However, transaction based organizations are not feeling the effects of increased competition, because their number of client touches have not been drastically impacted. The result is a highly competitive and contentious environment that lacks the trust and communication needed for collaborative service delivery. Without collaborative innovations the enterprise development system in Rhode Island may continue to fragment as innovative reactions to market demand are forced to accompany the creation of new support organizations.

The transaction based "egalitarian" camp is composed of organizations that represent traditional industries, such as manufacturing, retail, and small business generally. The largest of these organizations are funded by the federal government with matching state government funds. These include the Rhode Island Small Business Development Center, the Rhode Island Manufacturing Extension Service, the Rhode Island Procurement Technical Assistance Center, and the Rhode Island International Trade Office. While these federally funded organizations are not inherently adverse to new innovative approaches, they do operate under guidelines that are not entirely specific or reactive to Rhode Island circumstances. At the same time federal funding is crucial to business support services in Rhode Island. If federal funding is a necessary reality, then the equal access, transaction based approach is a necessary reality as well.

Local government organizations also seek to represent the interests of traditional industries. The Providence Economic Development Partnership, directed by Donald Eversley, is a municipal level economic development agency that has been actively supporting the city's manufacturing industries and neighborhood retail districts. Eversley has felt compelled to play the role of contrarian in the face of a city-wide initiative to strengthen the creative economy. Eversley is concerned that the blue collar population which remains the backbone of the Providence economy may be ignored by a creative economy initiative that targets knowledge workers and artists. By acting as a contrarian Eversley is representing interests that deserve equal access to future economic opportunities.

Perhaps, stereotyping these camps as “innovators” and “egalitarians” is unnecessarily dualistic, but it does inform the state of contention within Rhode Island’s enterprise development system. Other terms could be used here to describe the camps, and the terms selected here are neither used by the organizations themselves nor meant to imply strict allegiances. In fact, these terms are selected to reflect a positive view of seemingly conflicting interests. Presenting negative views of these interests would not help the conversation.

The real underlying problem is the presence of an “us and them” syndrome in Rhode Island’s enterprise development system. The division of identities in the enterprise development system reinforces silos of activity that act as boundaries to collaboration. Divisive categories only serve to inhibit the conversations that are necessary for spreading new economic activity throughout the Rhode Island economy. In order to overcome this threat the conflicts must be confronted and dealt with appropriately.

An appropriate resolution of these tensions must recognize that in the face of a rapidly changing economic environment contentions should arise and contrarian views should be voiced. Because contrarian views arise when some interests are left out of the conversation, the conversation should be widened to include these voices. By allowing contrarian views into the conversation the “us and them” syndrome can be diffused through the recognition of mutual interests. The fact is all sides want to see the local economy adjust and grow in this period of economic change.

The principles of accessibility and high value-added services can transform Rhode Island’s entrepreneurial culture. But, without continued conversations about how to integrate and leverage these approaches, the enterprise development system will likely maintain insufficient capacity for supporting the necessary level of entrepreneurial activity.

Constraints to collaborative activity need to be identified, removed, and in some cases accepted in order for integration of business support service delivery. When this happens, then the conversation can commence, and trust can be established among divided organizations. When trust is established then the constraints can be made to disappear through collaborative and innovative ideas that meet the variety if economic interests in the region and among organizations.

Summary:
Innovation, Entrepreneurship and Economic Adjustment

To this point innovation and entrepreneurship initiatives have gained recognition as viable paths to new forms of economic activity that will help Rhode Island adjust to the changing economy. As a first step these initiatives have taken action to gain the support of stakeholders from the public and private sectors. The resulting swing in policy has caused rifts among outsiders, who believe their interests are not sufficiently represented in these initiatives. This contention over the representation of interests is mixed with unease over the increasingly competitive field of business support service delivery.

It is clear that encouraging region-wide economic change requires the adaptation of various institutions. Secondary education, research universities, the enterprise development system, and forums for business collaboration are just a few of the fields that must adapt to change. What is, perhaps, more important is that these institutions must also lead the process of economic change within the region.

It is also clear that the Providence regional economy will not be successfully transformed simply through the acquisition of resources such as R&D funding, serial entrepreneurs, and equity investment. These are important inputs, but harnessing the activity of economic actors through structures that promote participation in the innovation economy is tantamount for success.

If collaboration truly is Rhode Island's competitive advantage, then this advantage must be strengthened in a bottom-up fashion. Collaboration is both a practice and a skill. When cultivated, collaboration will pay dividends for those who incorporate this practice into their business operations. If collaboration is viewed as a top-down strategy, then the dividends will be limited to elite circles.

Transforming Rhode Island's economy will also require breaking old cultural patterns such as those instilled through decades of patronage. Rebuilding trust in government and business should be a central goal of economic initiatives in Rhode Island. Managing change is not easy, and without trust it is near impossible. At the same time stakeholders must realize that the current state of contention is natural, though it should not be allowed to impede the adjustment process.

The future of Rhode Island's innovation economy seems to lie in integration – both regional integration and organizational integration. The Providence region is on a course to share in the new economy growth that has long been part of the Boston Metro region. Current economic initiatives within Rhode Island have led the charge. However, in order to turn these short-run successes into long-run advantages innovation and entrepreneurship initiatives will need to transition from a period of striving for recognition and separation from old economic models to a period of reconnecting to existing economic patterns in the region. Entrepreneurship and innovation initiatives are linked in their pursuit of change. The challenge now is to link them to the rest of the economy. Studying the processes of trust building and institutional change in an adjusting economy will shed some light on how to do this. These topics will be addressed in the following chapter.

Chapter V
Social Organization of the Knowledge Economy

The economic initiatives currently being pursued in Rhode Island arguably represent the most ambitious plans for transforming the state's economy since the age of Samuel Slater. Many economists would suggest that this is no coincidence. It is widely believed that the modern economy has entered a new age – the age of knowledge production. The historical argument goes as follows: just as the mastery of industrial manufacturing techniques ushered in the 150 year period defined by industrial production, our increasing ability to generate, replicate, communicate, recombine, and discard knowledge has marked the beginning of a new period defined by knowledge production. Unlike the American Industrial Revolution the Providence region has not played a leading role in the emergence of the knowledge economy, and so it must adapt in more deliberate ways.

The knowledge economy is not simply built upon knowledge production. An example from the industrial era will help to illustrate this point. As small mills gave way to large factories, mass production required new channels of communication and distribution. During this time telegraph lines, railroads and highways were important infrastructure developments. Likewise, department stores were an example of new distribution models and managerial hierarchies played an important role as a communication channel. Both of these represent patterns of the social organization of mass industrial production. Similarly, knowledge production requires new channels of communication and distribution. The internet and wireless technology are obvious examples of the new infrastructure, but the presence of these technologies tells us little about how to act and how to organize social relations. In the knowledge economy production is only part of the challenge.

Acquiring the resources for knowledge production, though expensive and protracted, is a relatively un-mysterious endeavor. Combining investment and skilled labor can yield research findings and the development of new products. Certainly, the productivity of new knowledge will vary, and part of this will be due to the social value of that knowledge. There are fairly sophisticated methods of predicting the social (and monetary) value of a new product, which serves to rationalize the process of knowledge production in R&D labs.

However, another aspect of the productivity of knowledge is bound to the manner in which knowledge is collected and distributed. R&D may lead to new technologies, but the productivity of that technology may depend on how it is applied and recombined with other technologies[8] often across organizational boundaries. The process of communication is much more mysterious than the knowledge production process. The necessary resources and the most efficient methods of organizing communication are not at all clear, because communication is very circumstantial – even subjective. Moreover, the communication of economic knowledge has no center of production that resembles the R&D lab. Knowledge is ubiquitous, and new combinations of existing knowledge can produce value with the potential for better cost-effectiveness than generating new knowledge.

At the same time there are social practices and forms of organization that promote or inhibit communication. Casson (2000) points out that since information (a precursor of knowledge) is easily transferred, appropriating returns may be more difficult, and the costs of communication can become high. Casson also states that, "embedding communication within an institutional framework helps to speed up communication, reducing misunderstandings, and provide moral checks on deceit" (2000, pg. 119). Assuming this line of argument, the productivity of a knowledge economy is tied to the effectiveness of its institutional framework.

Examples from Rhode Island will help to explain how organizational communication creates the foundation of a region's institutional framework. Challenges to the future of Rhode Island's knowledge economy can be explained in terms of organizational communication. Misunderstandings, lack of trust, and other barriers to communication all negatively impact the workings of a knowledge economy. To some extent each of these problems are evident in Rhode Island.

Interviews done with Rhode Island's economic development professionals provide some useful evidence. When asked about the biggest challenges faced by their

[8] See Lester and Piore (2004) on the role of radio and telephone industries in the development of the cell phone.

organizations most representatives suggested that obtaining enough of some important input resource (funding, talent, investment deal flow, and membership) tops the list. However, when asked about how to better obtain these important resources several interviewees defaulted to complaints about the way that other organizations fail to communicate and cooperate with their own. Multiple interviewees used terms such as “silos”, “fragmentation”, “inflexibility”, and “bureaucracy” when discussing the enterprise development system. Other remarks demonstrate a pointed lack of trust in specific organizations. One interviewee describes a situation in which the organization was “burned” in an effort to create a partnership. Furthermore, there is widespread confusion over the functional meaning of terms such as “entrepreneurship” and “innovation”, and this confusion only serves to slow communication about how to enhance entrepreneurial and innovative activity in the region. In this way reports from interviewees signal barriers to communication within the region’s enterprise development and innovation systems.

The following sections will investigate the dynamics of knowledge communication and social organization in an adjusting economy. Theoretical insights about trust and identity will be combined with theories about social mobilization and institutional change to discern the implications of Rhode Island’s efforts to grow an innovation economy. Also, the conditions of economic adjustment within an emerging knowledge economy should be made clear.

Social Adjustments to the Knowledge Economy

The transition from an industrial economy to a knowledge economy can be described in a number of ways. The changing environment can be seen in a long trend of employment shifting away from the manufacturing sector, or in the changing skills of the workforce, or in the emergence of knowledge-intensive technology industries, or in a reversing trend in the size distribution of U.S. companies, or in the growing role of outsourcing and inter-firm cooperation throughout supply chains. Each of these changes reveals some aspect of how competition is adapting to and extending the knowledge economy.

For regions such as Rhode Island changes in the competitive environment requires adjustments in the ways that organizations behave and the ways that institutions influence this behavior. Audretsch and Thurik (2004) suggest that regions can gain a sustainable advantage by supporting innovative and entrepreneurial activity. But, in order to understand what is implied by this call for innovation and entrepreneurship, perhaps, some examples are needed to distinguish these from the previous patterns of the industrial economy.

Based on observation of the changing economic environment, Audretsch and Thurik (2004) present "A Model of the Entrepreneurial Economy" which distinguishes the characteristics of the emerging entrepreneurial model of the knowledge economy from the waning managerial model of the industrial economy. They describe the managerial model as one of large scale production that finds advantage in a supply of unskilled labor as well as low capital costs. Under this model the desire for certainty and continuity yields internalized production for improved efficiency. Also, they suggest that the premium on certainty and predictability leads to enduring financial relationships with banks, which enjoy long-term relationships and predictable returns. These financial relationships are tempered by the attitude that a business failure is a mortal failure. Audretsch and Thurik describe leadership under the managerial model as autocratic and supervisory, where work is distributed to employees on a transactional basis. Finally, government policy in the managerial model is perceived as a constraint on big business through anti-trust, industry regulation, and public ownership.

In contrast, Audretsch and Thurik (2004) present the entrepreneurial model, which is built upon knowledge production, communication, and commercialization. Highly skilled labor and entrepreneurs are the competitive inputs to this economic system. Change and uncertainty are the norms, favoring efficiency through internal flexibility and market transactions, rather than bureaucracy and hierarchical production. Audretsch and Thurik describe uncertainty as a reason for increased communication via a network of partners that facilitates the exchange of new ideas. Financing is also a network function in the entrepreneurial economy as businesses may partner with multiple investors over the lifespan of the company. Equity investors specialize by industry and/or stage of growth in order to better recognize a firm's capabilities and profit opportunities.

This specialized, incremental system of finance operates in a manner that distributes the calculated risks of inevitable entrepreneurial failures. Audretsch and Thurik characterize entrepreneurial failure as a contribution to the learning process, which is accompanied by the desire to recycle talent from unsuccessful ventures. Leadership in the entrepreneurial model is described as democratic and transformational, where leaders motivate and facilitate workers in discovering and implementing new innovations. Finally, Audretsch and Thurik find that government policy under the entrepreneurial model is enabling, targeting growth by supporting the inputs that contribute to knowledge production, communication, and commercialization.

The juxtaposition of these two economic models may yield clear categorical distinctions, but within economic regions distinctions between these two “models” are less clear as their expressions are intertwined in a world that operates on both models. In Rhode Island the changing economic model is contemporaneous with a process of economic adjustment following a period of decline.

Determining which factors constitute the ability of regions to adapt to change and adjust existing patterns of economic activity, particularly among declining regions, has been a long-studied question in the field of economic development. This is a complex question that can be approached from a variety of angles. However, there are a series of arguments that deal with the social organization of economic change that may prove useful given the conditions in Rhode Island. These arguments will be briefly introduced here in order to demonstrate their relevance, while detailed discussion of their insights will follow.

When decline is viewed from a resource base perspective it is easy to become convinced that the economic rational upon which regions are sustained may be lost over the course of history. Sabel (1992) chronicles the logic of arguments which suggest that some regions simply don’t have the capacity to rebound from the vicious circle of decline. He points out that inherent to several of these arguments is an influence of a protestant ethic, which intimates that only a select few are destined to prosper. In other words, fate, hard work, and an individual’s virtues are seen as the foundations of economic prosperity from this perspective. In opposition Sabel argues that economic activity is social activity and trust is the touchstone of economic growth. He describes how trust can be created, rather than being simply an accidental byproduct of local circumstances. Building trust from conflict involves reshaping the boundaries of identity. Inflexible boundaries of identity are burdens to an adjusting regional economy.

Safford (2004) presents an argument about economic change in declining regions based on the role and structure of social capital mobilization. Youngstown, Oh and Allentown, Pa. are used as regional case studies, to demonstrate how a dense network of social capital is not always ideal in the face of economic adjustment. His findings suggest that beyond creating density in social networks, "it is more important that the structure of social relationships facilitate interaction – and mobilization – across social, political and economic divisions" (2004, pg. 2).

Several authors have studied the role of institutions in regional economies. Saxenian (1994) made famous the comparison of Silicon Valley and Massachusetts' Rt. 128 region, which followed divergent approaches to developing innovation economies. Her findings suggest that organizations situated within regions with strong support institutions are able to innovate more rapidly, due to more efficient methods of communicating and sharing knowledge. Similarly, Wolfe and Gertler (2002) find that the process of economic adjustment is best achieved through the re-creation of existing institutional capacities. Institutional change is said to take place through learning, which serves to adapt capacities to the demands of the rapidly changing economy. However, if learning processes are reactive to individual challenges rather than proactive to shared opportunities, then institutional fragmentation may take hold. Wolfe and Gertler underscore the importance of a different ethic - one of reflexivity – where concern for the "other" (as opposed to the self) helps to facilitate communication. Without reflexivity economic adjustment may resemble a tournament rather than a conversation.

Finally, Aldrich and Martinez (2003) describe how new industry populations emerge and thrive. They suggest that learning and legitimacy, as seen in the eyes of the society, are vitally important for the growth of these populations. Aldrich and Martinez point out that this process of market creation (and institutional re-creation by extension) is a balance of cooperative and competitive behaviors. But, they emphasize that cooperative behavior is indispensable, because, "successful collective action at the population and community levels allows entrepreneurs to create environments favorable to their existence" (2003, pg. 367). These favorable environments are created through a collective process of institutional change. They go on to suggest that institutional environments can be shaped by government efforts - "state sponsored associations, alliances, and other activities can also create strong incentives for organizations and populations to engage in mutualistic activities, as well as a compliance structure for reducing the likelihood of competitive activities" (2003, pg. 388).

Together these arguments explain a fair portion of the local circumstances in Rhode Island, where trust, silo boundaries, participation, dense social networks, fragmentation, institutional change, and market creation are all parts of the economic adjustment process. The next sections seek to provide a thorough understanding of how to adapt these conditions for economic change.

Trust and Identity

Conflict is ever-present in the economic life of regions, through good times and bad. However, during periods of widespread economic change parties to a conflict can become balkanized, undermining the capacity for a region to adjust to and compete in a changing environment. Sabel (1993) suggests that regions which are able to regulate conflict are better prepared to sow the seeds of fertile economic activity. According to Sabel, it is the process of creating trust, long believed to be impossible as an act of will, that can help a regional economy regulate the conflicts that accompany change.

Sabel defines trust as, "mutual confidence that no party to an exchange will exploit the other's vulnerability" (1993, pg. 1133). Vulnerability is described as a "hold-up" problem, where upon committing resources to a venture, other parties are in a position to renegotiate the terms, forcing more investment and sacrifice on the part of the first mover. Within a neoclassical or liberal framework self-interested parties might be expected to maximize their returns through hold-up tactics. Thus, there is little room for trust. In a regional economy this means that collective action in the process of change will be weak, and competing interests are left to go it alone.

However, going it alone is not an option within regions that have experienced economic decline. Fading resources are not attractive to any interests, and actors within a declining region have few options, but to recombine and leverage existing resources. Reestablishing trust in contentious environments is necessary for this process of revitalization.

Sabel points out that the stories of trust relations within regional economies often hinge on a sense of common history, where trust is a byproduct of some shared identity, even if trust was not the intended outcome of that history. According to Sabel, the problem with these stories is that they fail to recognize that conflict is ever-present and the sense of common history is merely a byproduct of storytelling itself. History is rewritten time and again by those who seek to alter the framework of trust relations. Sable's example of the relations between post WWII Japan and the U.S. are illustrative of this point. The challenge for building trust is to rewrite history, or find mutual interests, among conflicting parties, and this requires the manipulation of the boundaries that define group identity.

Barth (1969), using ethnography as his tool, studies the boundaries of identity in ethnic relations, but his findings may also inform the process of identity formations in regional economic relations. Barth's work highlights the factors that contribute to the maintenance of identity boundaries as well as the circumstances under which actors change identities. He maintains that participation in some form of social identity takes place because there is a social unit that continues through time despite the exchange of actors across the unit's boundaries and despite changes to the cultural artifacts that at any point in time might distinguish an actor's identity. The key to the maintenance of identity boundaries lies in a mutual sharing of values by which actors are judged. Barth writes that identity, "implies a claim to be judged, and to judge oneself, by those standards that are relevant to that identity" (1969, pg. 14). He also points out that, "on the other hand, a dichotomization of others as strangers, as members of another ethnic group, implies a recognition of limitations on shared understandings, differences in criteria for judgement of value and performance, and a restriction of interaction to sectors of assumed common understanding and mutual interests" (1969, pg. 15). From this it is not difficult to infer that distinct identities, even among parties to conflicting economic relations, serve to reduce common understanding and mutual interests.

The lessons that Barth puts forth involving the process of changing identity include insights on acceptance, co-dependence, and personal motivation. Even within ethnic relations the mechanisms of acceptance resonate with the status of regional economic relations. Acceptance into another identity may depend upon stated devotion, payment, advantage to members of the accepting group, and the ambitions of all influential stakeholders.

An example might serve to bring the similarities into focus. In Rhode Island there are some organizations are bound by a shared interest in enhancing innovation and entrepreneurship, while other organizations are bound by opposition to these initiatives, because their interests not represented by these strategies as they have been implemented. The separation of these groups has been referred to as creating silos, because of the apparent boundaries that separate interests and types of economic activity.

However, crossing the boundaries of these silos might not be easily achieved. If an organization would like to participate in innovation projects, that organization must be accepted by those that control the direction of the innovation initiative. This acceptance would surely include some stated devotion to the principles and performance of the innovation initiative, because weak membership and internal conflict are unwanted. At the same time commitment of resources to the innovation initiative may be required in some cases for membership. Additionally, the perceived advantages of allowing new member organizations into initiatives combine with the ambitions of stakeholders to determine if certain organizations are allowed to become involved. Conversely, personal motivation to become identified with innovation in Rhode Island may depend upon the alternative options available to an organization as well as the performance of organizations involved with the innovation initiative.

According to Barth, co-dependence functions differently than acceptance, because identities are not wholly exchanged, but the barriers between those identities are reduced. In his classes Barth tells stories of regions that act as centers of trade along the coast of the Indian Ocean, where multiple ethnic identities are found. The constant interaction of trade spreads common understanding and mutual interest, multiplying the overlaps between identities and reducing contention. Barth states that, “in the pursuit of participation in wider social systems to obtain new forms of value they (identity groups)[9] can choose between the following basic strategies:" 1) assimilate into the larger social system, 2) participate as a minority, 3) adopt practices, but do not participate in the larger social system.

These same strategies hold true for organization deciding how to move forward in a changing economic environment. For example, organizations that provide services to traditional manufacturing industries could 1) shift their services to meet the needs of emerging industries, 2) continue to represent traditional industries, while connecting them to the innovation economy, or 3) operate as in the past, using new technologies, without connecting to emerging industries. Co-dependence forces these decisions. While the third option reflects an individualistic approach, the first and second options are both co-dependent approaches in adjusting economies.

Sabel cites mutual dependence as the focal point of shifting economic development strategies. The difference between co-dependence and mutual dependence might simply be the recognition of the need to work with minority sectors and declining industries in the process of economic adjustment. Sabel describes three models of economic development as seen from the role of state government, which progress toward to government facilitating the recognition of mutual interests among the array of a region's organizations and industries. The first strategy began in the 1970's when state governments became weary of "smokestack chasing" and shifted toward supporting young technology-intensive industries. Advances in high-technology industries were expected to filter down to traditional industries, resulting in improved productivity. The focus of policy in this model was to reduce the barriers to innovation through better access to capital and technology. Public-private relationships were created to manage the accumulation and distribution of these resources.

The second model, beginning in the 1980's, emphasized the importance of related services such as marketing and workforce training. Known as the extension-service model, it took at different stance on traditional industries, which would no longer be "abandoned" in favor of emerging industries. Rather, traditional industries would become laboratories for process and product innovation that could help overcome the high costs

[9] My parenthesis

of local labor. Entire industries, such as automotive and textiles, became the target of this policy approach, which promoted organizational collaboration along supply chains.

By the 1990's a third model of state-led economic development was forming. Sabel suggests that this model was created upon the realization that neither the resources nor services provided by the previous two models were the primary causes of successful economic development. This model attributes successful economic development policy to cooperative efforts among informal networks that include industries, labor unions, educational institutions, banks, and politicians. Sabel writes that, "what mattered was the social system by which packages of programs were defined and administered, rather than the precise definition of any single program or service" (1993, pg. 1152). Under this model state government encourages actors to define their needs through collaborative networks.

By relying upon the network of actors to communicate their mutual interests the state becomes better informed and is enabled to make better decisions for the local economy. At the same time collaborative networks function as forums for reorganizing local industries, where discussion of interests and capacities can lead to new perspectives and innovative ideas for increasing productivity or developing new products. Furthermore, discussion of overlaps and gaps within industries serves to clarify entrepreneurial opportunities.

Sabel suggests that state governments must also play an active role in this model by shaping indirectly the economic actors' identity as well as their interests in order to reorganize programs and policy. By getting actors to communicate their interests in efforts to inform policy, government enters a conversation with these actors and can play an influential role.

Sabel warns that this third "cooperative" model only operates efficiently when organizations are secure in their autonomy to voice their interests while also being flexible enough to realign those interests through a collaborative process. Sabel calls this balance of autonomy and flexibility a dynamic of "reflexivity", where identities overlap in the recognition of mutual interests. This is seen as a community of interests shared through greater communication among organizational actors, and within this type of community trust can be expected to thrive.

However, the negotiation and communication of unified interests may prove unsuccessful given weak trust relations. Entrenched opposition, those who find the current situation acceptable or the alternatives unacceptable, may break the cycle of cooperation. In Rhode Island, there is a cooperative network which aims at building an innovation economy, but entrenched opposition comes from traditional industries and traditional service providers. Untangling entrenched opposition requires substantial capacity for negotiating across interests. As will be described in the following section the structure of cooperative social networks and the capacities of the institutional environment can either inhibit or assist the negotiation process.

Social Mobilization and Institutional Change

Building cooperative networks begins with a process of social mobilization, whereby a select group of actors are engaged in efforts to lead change - in this case economic change. Social mobilization can be analyzed in multiple ways, but a popular approach is by characterizing the ways in which social capital is leveraged. Safford (2004) uses the following definitions to describe social capital: “Social capital refers to the resources available to actors which derive from their location in the structure of social relationships (Adler and Kwon, 2002); the expectations for action within a given community that affect the economic goals and goal seeking behavior of its members (Portes and Sensenbrenner, 1993)” (2004, pg. 5).

Safford details the preeminent views on the nature of social capital, which include the communitarian perspective championed by Robert Putnam and the social mobilization approach described by Theda Skocpol. The communitarian approach focuses on the ability of social capital to create higher levels of trust and cooperation, through which communication and norms of reciprocity ease transaction costs and facilitate collective action. In this view dense social networks are assumed to be conducive to the general welfare of the community by taking advantage of shared identities and the willingness to combine resources for the collective interest.

In contrast the social mobilization approach suggests that conflict is ever-present in community affairs, and in some cases sharp conflict can lead to competition for control of power and resources. The underlying point is that social capital can be leveraged for the benefit of sub-cultures or factions. If the interests of powerful and densely connected factions outweigh the interests of the general community in places of authority, then a fragmentation of the community's social structure can be expected. Conflict can be expected from these situations as well.

Safford's analysis of two closely matched adjusting economies (Youngstown and Allentown) finds that network density can be counter-productive to the interests of the community, if dense networks segregate portions of the community from the adjustment process. When factions do not communicate effectively, then alternative visions of economic change may compete, yielding scattershot plans that ultimately find less support than unified plans.

In democratic communities unrepresented interests find ways to make their voices heard. This is the case with economic development professionals in Rhode Island who use phrases like "creative economy mafia" to describe how power seems to be over-represented by the interests of emerging industries and the highly-skilled workforce.

To ease these types of tensions Safford recommends a social mobilization process that has few boundaries to participation. In his analysis boundaries to participation are seen in the structure of the social networks that take the lead in initiating change. When the social networks are disconnected from key stakeholders or entire populations, then conflict and dissention can be expected. But, when barriers to entry are reduced then under-represented factions can join the ongoing and unified deliberation. Barriers to entry may reflect existing relationships or strong signals of identity that emphasize differences between groups rather than similarities. In his case studies Safford found that the better connected networks (Allentown) had more success in the economic adjustment process.

In Rhode Island innovation and entrepreneurship initiatives are in a catch-22 situation when it comes to barriers to entry. On the one hand, these initiatives are pushing for change which requires a new vision of economic activity. On the other hand, the focus on "innovation" and "entrepreneurship" presents metaphorical and even functional barriers to entry for some organizations and populations. While innovation is being marketed as a ubiquitous practice, the organizations that have been involved in these efforts tend to already be highly innovative. The BIF experience laboratory's focus on enhancing retail shopping experiences will be an interesting test of the ubiquity of innovation. Will it be the largest shopping malls and boutique shops that receive the benefits or will the benefits also impact the locally owned corner store? Even posing this question raises related questions about whether a corner store should be involved in an innovation initiative, and that is where the barrier arises. Perhaps the corner store owner could derive value from such involvement, but how would she know if the program does not target corner stores or does not communicate relevant applications and ways to become involved.

Similarly, entrepreneurship is an obvious target of the enterprise development system, but the focus on high growth entrepreneurship presents a barrier to innovation in small business environments. Malizia and Feser (1999) suggest that there are qualitative differences in the distinction between entrepreneurial businesses, new businesses, and small businesses, and these distinctions should be reflected in the types of support services provided by development organizations. While this may very well be true, the implications for social mobilization are that the enterprise development system may become fragmented, and indeed it has in Rhode Island. In order to address these challenges, some level at which the interests of corner stores or small business support centers overlap with boutique shops and technology firm incubators must be recognized and communicated.

Safford points out that the true impact of social mobilization lies in the "stickiness" of the structures it creates. Stickiness refers to the path dependency of social structures and identities, whereby future interactions are made more probable by past interactions. Stickiness is also a function of institutional capacities. Institutions are more than social structures in that they house the normative values through which social structures develop. Of course, institutions also change, and this change is led by reflexivity in conversation and social behavior, or by a change in the balance of power. In the process of adjusting to the knowledge economy there must be reflexivity between practitioners of the entrepreneurship model and the managerial model described by Audretsch and Thurik. The more adaptable institutions are, then the less sticky will be the structures created through social mobilization.

Wolfe and Gertler (2002) find that the process of economic adjustment is best achieved through the re-creation of existing institutional capacities. They suggest that social learning is at the heart of economic adjustment. Wolfe and Gertler write, “the process of innovation and institutional adaptation is essentially an interactive one in which the means for establishing supportive social relations and of communicating insights and knowledge in all its forms are crucial to the outcomes” (2002, pg. 3). They claim that learning by institutions is a higher order of learning, whereby, “self-monitoring of the learning process itself becomes an integral feature of the institutional structure” (2002, pg. 3). By speeding up the learning process, adaptation is likewise sped-up and inefficient norms are replaced by those that facilitate development. In this way learning and forgetting are tied to the process of economic adjustment.

Wolfe and Gertler believe that economic growth and integration of regions occurs through technological and institutional advances, which are structured so that knowledge is collected and distributed through a wide social network. The structure of the institutional learning network is critical to the adjustment of a regional economy. They write that, “long periods of growth and decline in industrial economies result from the measure of complementarity, or lack thereof, between the prevailing organization of the production process and the dynamics of the socio-political institutional structure” (2002, pg 10).

However, distributed learning does not necessarily address the issue of power relations found in some instances of social mobilization. Institutions can be co-opted by power relations, and in Providence’s long period of patronage regimes these power relations took their toll on the capacities of local institutions. One reason for this is that patronage was fed by a level of secrecy due to the inherent corruption of the practice. Current challenges to open communication in Rhode Island may stem from this tradition. Wolfe and Gertler point out that, “the inability to engage in the talk that can build trust and mutual understanding often reflects the absence of a tradition that values the presence of these kinds of public institutions” (2002, pg. 12).

Referring back to Sabel, there are ways to build trust and communication where it is currently lacking, and the state can play a major role in forming trust relations and strengthening the capacities of local institutions. This can be achieved through the very organizations that the state sponsors in furthering economic development. Wolfe and Gertler defer to DiMaggio and Powell (1991) by quoting, “changes in organizational structures and processes reflect changes in the broader sets of institutional norms and rules in which they are embedded" (2002, pg 9). By this account there is clearly a process of institutional change occurring in Rhode Island. However, to the degree that Rhode Island's state-led economic development organizations conflict with entrenched interests, they may actually be forcing the process of institutional change rather than encouraging change through reflexivity in broader local institutions.

Here there are two aspects of institutional change in plain view – institutional learning and institutional drag. Institutional learning has been explained as self-monitoring for efficient adaptation, but institutional drag reflects constraints on social behavior that are slow to adapt. Wolfe and Gertler frame these as negative and optimistic perspectives on the role of institutions, but it should be expected that both learning and drag will coexist within changing regions.

The problem of institutional drag is that it impacts the ability for institutions (and organizations) to socialize individuals with the norms that would prove successful in the emerging economy. This issue is heightened by the nature of the economic value of knowledge, which tends to diminish when it is more widely available. Conversely, the knowledge that is embodied by individuals and not widely known, tacit knowledge, increases in value. Therefore, the institutional drag in Rhode Island that seemingly is anchored by a tradition of secrecy may hold greater economic value for select individuals and networks through which secrets and favors travel, but will not maximize the social value of knowledge through open forums of communication. Drag implies that the remnants of past culture hold on into the present even when those norms are no longer favorable. The inability of some to identify with the initiatives that are leading the process of change in Rhode Island may cause them to hold onto old norms even longer.

Once again, Sabel's call for recognition of mutual dependence plays an important role in combating the effects of drag. In Rhode Island patronage acted a form of economic security, and Sabel presents a method for introducing a level of security to in new and unknown patterns of economic activity. According to Wolfe and Gertler, Sable recommends learning along with monitoring, whereby parties, "ensure that the respective gains from learning are distributed among them according to standards that they have agreed upon" (2002, pg. 12). Monitoring allows for those who do not trust or readily identify with new economic patterns to gain security in the process of change. Of course, monitoring only provides security for those who are party to the agreement in the first place, but future agreements about the mutual benefits of adjusting to the knowledge will help to ease fears of change.

However, it is clear that adjusting to the knowledge economy requires more than assimilating actors who do not readily identify with innovation or entrepreneurship – it also requires supporting those who do. Just as agreed standards may help the reluctant actor to participate in new patterns of economic activity; they also help the ambitious actor in efforts to construct new products, new companies, and even new industries. Aldrich and Martinez (2003) describe how new industry populations emerge and thrive through a process of learning and gaining legitimacy. Since, new industry populations do not have recognition within their environment; they must establish ties with suppliers, consumers, and the government.

The emergence of new economic populations is favored in regions with adaptable institutions and accessible support organizations. Aldrich and Martinez suggest that the diffusion of information that can occur through learning institutions, "increases the likelihood that potential entrepreneurs will perceive opportunities for combining old resources in new ways, or at least recognize opportunities in already existing populations" (2003, pg. 391). Furthermore, environments that support collective action with the institutional capacity to build trust, enhance learning, and monitor agreements provide an advantage for the survival prospects of new economic populations. Aldrich and Martinez write that, "in contrast to the view that the 'best' companies will prevail in the modern economy, we have ample evidence that collective action early in the life of a population affects which firms prosper and which do not" (2003, pg. 392).

Summary

Creating opportunities for mutual benefit through an open process of social mobilization is a prerequisite for success in the knowledge economy. Innovation and entrepreneurship, two competitive inputs in a knowledge economy, require efficient and distributed communication across the various organizations and social relations in a region. The process of economic change unfolds through tradeoffs of uncertainty and trust, while conflict is, perhaps, the only certainty.

However, theory and case studies suggest that state governments are in a strong position to promote economic growth by engaging the social networks involved in the various aspects of managing patterns of economic activity. In this role the state has two charges - first, to collect the information needed to make decisions about how to invest in the region's future; second, to reduce the boundaries that separate economic interests by establishing an institutional environment that promotes participation, communication, and security.

In Rhode Island state-led efforts to establish this effective institutional environment, while making great strides, still face some challenges. Entrenched opposition and the remnants of a secretive culture must be assimilated into the conversation of change through an ethos of trust and openness. Leaving unrepresented interests behind as the economy moves forward is not a viable option, because this merely avoids the practices of reflexivity and self-monitoring, which are the engines of change. Learning only happens when the unknown is addressed, and the knowledge that can be acquired by recognizing the mutual dependence of Rhode Island's economic actors, traditional and innovation, powerful and weak, will serve to strengthen the capacity and resilience of the state's economic institutions.

The next chapter will investigate how entrepreneurship and innovation are being implemented in the Rhode Island economy through the stories of two state-level organizations. These organizations are central to the process of institutional change in Rhode Island, and their successes and challenges are representative of the economic issues that the region must face moving into the knowledge economy.

Chapter VI
Institutional Entrepreneurship in Rhode Island

The institutional environment in Rhode Island is largely influenced by the state's concentration in education, healthcare, and government services. Rhode Island's population of firms is dominated by small and medium sized companies. As a result the responsibility of leading economic change in Rhode Island has been assumed by the largest stakeholders, universities and hospitals as well as state and local governments. Increasingly, the for-profit business community is being asked to participate by informing government of its collective needs. At the same time it is recognized that the state must improve its stock of high-technology and high-growth businesses in order to compete in the knowledge economy. While targeted investment has begun to pay dividends in the high-tech, high-growth arena, many of these young industries are not yet strong enough to take the lead in economic development initiatives.

The result is that despite positive economic growth in Rhode Island for the past several years, state government, universities, and hospitals are still the major players in an economic environment that seeks strong growth in for-profit sectors. The combination of university and hospital research makes Rhode Island a candidate for emerging biomedical and life science industries, and much of the targeted investments continue to support this field. These investments take the form of R&D funding, infrastructure development, and seed financing for young companies. If there is a nucleus of innovation and entrepreneurship efforts in Rhode Island it is in biomedical and life science industries. There are several other budding industries as well, and together these represent Rhode Island's hopes in the knowledge economy.

However, it takes years even decades for emerging industries to mature, and the risks of failure are high. So, as investment continues in these emerging industries, stakeholders in Rhode Island have sought ways to diversify their investments in the knowledge economy by spreading innovation and entrepreneurship as ubiquitous practices across the variety of local industries.

This chapter will outline how institutional entrepreneurship is being led by state funded organizations in Rhode Island to overcome the challenges of building an innovative and entrepreneurial economy despite an institutional environment that is thin on large for-profit technology companies, which often play a lead role in this process. The stories of select organizations will be used to describe various approaches and challenges to institutional entrepreneurship. In each case the structure of social relationships play an important role in the relative success of institutional entrepreneurship endeavors. These organizations are working within the context of innovation and entrepreneurship initiatives as described in Chapter IV. While concepts on the social organization of the knowledge economy, presented in Chapter V, will be used tools for describing how these institutional entrepreneurs make organizational boundaries more malleable, while the balance of power, the level of participation, and the ability to create a reflexive value structure will be used as barometers of success. Finally, these stories will be presented in sections according to the initiative, innovation or enterprise development, with which the organization is most closely affiliated, and these sections will be preceded by arguments that resemble best practices for each initiative.

Supporting Innovation

As has already been described an efficient structure of communication is vital to implementing an economy based on innovation. But, according to Lester and Piore (2004), the term efficient may be an inappropriate qualifier. In fact, in their view the type of communication that promotes innovation may be quite inefficient. Lester and Piore suggest that innovation requires two types of communication, analytical and interpretive.

Analytical communication is well understood and commonplace within firms and R&D labs that focus on developing new products. It is the analytical view that defines markets, assesses available resources, and divides the production process into discrete actions. As Lester and Piore point out it the analytical view that provides structure to firms, as business units are demarcated and chains of command are pronounced. However, they also believe that it is the analytical view that threatens the vitality of innovation in U.S. companies.

In order to understand this last point it is necessary to introduce the counterpart to analysis – interpretation. Lester and Piore describe interpretation as the process of defining problems. This does not mean solving problems; rather it infers contemplation and discussion of what needs to be solved in the first place. Interpretation involves determining the range of problem alternatives that analysis can be used to solve. Interpretation is an open-ended process, which means that it can be the epitome of inefficiency. While analysis is directed and clearly defined, Lester and Piore liken interpretation to a conversation, which merely seeks to be interesting and engaging.

The temptation of analysis is that it values efficiency, and in the interest of efficiency it seeks to solve whatever problem it is presented. Without thoroughly exploring the range of problems to work on, one may miss the most interesting questions and fall behind those who do find them. According to Lester and Piore, the problem is that analysis and interpretation are opposing forces that people may find hard to manage simultaneously, even though they are both required in the process of innovation. The perceived inefficiency of interpretation has led policymakers to neglect its importance. As Lester and Piore put it, “We are in danger of learning the wrong lessons about innovation. As a result, we risk neglecting those capabilities that are the real wellspring of creativity in the U.S, economy - the capacity to integrate across organizational, intellectual, and cultural boundaries, the capacity to experiment, and the habits of thought that allow us to make sense of radically ambiguous situations and move forward in the face of uncertainty” (2004, pg. 5)

Lester and Piore believe that interpretation is best achieved by integrating across organizational boundaries through a process of open but managed communication. Management, here, refers to the opening of boundaries that separate organizations, so that the conversation is supplied with fresh views and ambiguities. Examples of this type of boundary crossing integration include conversations between otherwise separated technical specialists and conversations between producers and end users.

Lester and Piore describe four spaces in which interpretive conversations can lead to innovation. These include the interior of firms, industrial districts (regional economies in this case), the regulatory process, and the university. However, they fear that policy decisions may be crowding the interpretive process out of these traditional homes to innovation. In particular, they cite the institutional interests of reducing barriers to market signals and the increasingly corporate sponsorship of university research as challenges to the interpretive process. If regions intend to make innovation the bedrock of economic activity then they must preserve their interpretive spaces.

In terms of best practice Lester and Piore provide several valuable points of reference. Perhaps the most important of these is that organizations must value and master the interpretive process. As suggested this involves reducing the barriers to inter-organizational collaboration. For institutional entrepreneurs in regional economies this means creating and maintaining interpretive spaces that are non-threatening to participants, while stimulating conversations that are intriguing enough to draw in participants with a variety of perspectives. Lester and Piore suggest that stimulating intriguing conversations requires the skills of a “cocktail hostess”, who not only invites guests to the party, but keeps conversations going by continually abstracting and communicating the relevance of on-going conversations for the benefit of other guests. There is a final step for institutional entrepreneurs, which involves assisting participants in making the difficult transitions from interpretation to analysis. For our purposes this translates as the institutional capacity to link interpretive conversations to the key stakeholders that have access to the assets through which innovative ideas can be turned into innovative realities. These assets may be entrepreneurs, capital, R&D facilities, business consultants, etc. Together these practices can serve as guides for organizations that seek to create new patterns of economic activity.

The Business Innovation Factory

The Business Innovation Factory is an excellent example of a public-private partnership investing in a region’s interpretive space. BIF was started as a non-profit partnership where the business, government, and academic communities can discuss the most interesting problems to solve. These problems include new business concepts that hold vast potential, but lack a forum for testing their viability in a real world marketplace. BIF acts as a forum for interpreting the interesting questions and problems in the Rhode Island marketplace. The experience laboratory, RIWINS, and healthcare delivery projects are all examples of how BIF conversations address problems that are relevant to Rhode Island, while also holding commercial potential for scaling nationally or globally.

BIF is a stakeholder in Rhode Island’s innovation system, but it functions as an institutional entrepreneur, because it creates the non-threatening environment for traditional innovation stakeholders to collaborate with a wider range of interests. BIF infuses a social value orientation to the process of innovation by creating solutions to some of Rhode Island's intractable social problems, such as the digital divide and the effectiveness of healthcare delivery. Organizations that become involved with the BIF are encouraged to not only expand their relationships with other organizations, but also they way in which they perceive and interact with the Rhode Island community at large.

The participants in BIF conversations also represent a wider range of perspectives than could be expected in a regional innovation system. In many ways conversations are facilitated by BIF's Research Advisory Council, which plays the role of "cocktail hostess". Members of this council are not Rhode Island-centric; the list includes professors from Harvard University, Babson College, the University of Southern California, the University of Rhode Island, and Brown University, while other members are accomplished authors and corporate leaders from companies such as IBM and Proctor & Gamble as well as several innovation consulting companies. The charge of this group is to direct BIF research in a manner that maintains relevancy for the organization's members by following emerging business trends and providing guidance to collaborative projects. In this way BIF links conversations to assets during transition to the analytical phase of product development.

BIF is a membership organization. As Saul Kaplan, BIF Founder and Chief Catalyst, suggests, volume is not the primary objective for membership. Currently, membership is listed at twenty-two organizations from both the public and private sectors. The idea is to create a manageable community of innovators, where conversations can thrive and trust can lead to action on collaborative projects. Accessibility to ideas flowing through BIF is expanded by information and networking forums, which serve to communicate new ideas and best practices in innovation in fields ranging from public infrastructure development to managing innovative human resources and beyond. These communication forums not only provide new information to regional organizations, but they also diffuse the values of innovation so that they become part of the local vocabulary.

Cultural change is an important aspect of how BIF perceives its institutional entrepreneurship duties. In a state that is just now emerging from a long period of economic decline, changing the value system of public and private organizations is a substantial challenge. For a culture that has been encouraged to favor security over opportunity through decades of economic decline, adjusting to the collaborative talk of innovation may require some leaps of faith. The fragmented and competitive environment for business support organizations in Rhode Island does not favor a swift transformation to opportunity seeking collaborative innovation. Organizations that are not ready to change based on faith in innovation need other reasons to become involved in the economic adjustment process. Organizations that act as institutional entrepreneurs must, as McGrath (2003) suggests, examine what it is that motivates organizations to invest in innovation before wide-scale change can be expected.

BIF is not currently aiming at wide-scale change in the Rhode Island economy, at least in terms of turning innovation adverse organizations into innovators. Rather, it is attempting to build a community of innovators that blaze a trail for the rest of the economy. In this way the approach is combination of agency-based and asset-based, because it seeks to promote the agency of those who possess knowledge and capital assets, but depend upon new collaborative relationships to turn these into innovations.

For BIF "innovator" is an identity, or a group, that possesses certain characteristics, and this identity is both reinforced and heralded as way of signaling how others should behave in the knowledge economy. Innovation is a process of social mobilization in Rhode Island, which seems to involve drawing sharp distinctions between types of economic activity in order to promote the cause of innovation. The fact that the innovation agenda would unevenly benefit the stakeholders who share in this exclusive "innovator" identity is not a concern, because "innovation is the future". The fact that this may lead to negative consequences due to a lack of broad cultural legitimacy and the continued fragmentation of the regions institutional environment is a weakness. It is recognized here that building momentum for adjusting to the knowledge economy may require this identity formation stage. However, the boundaries of the "innovator" identity need to lose their sharp edge, so that traditional industries and low-income populations can be encouraged to participate in innovative activities. There are signs that this process may already be starting, as tourism interests seem to have infiltrated the innovation complex through the proposed retail experience laboratories. But, until the problem is recognized as an identity barrier it can not be resolved appropriately.

The aggressive pursuit of innovation by BIF and other organizations involved in the regional innovation system demonstrates an application of power, which may only reinforce the formation of factions in the region's economy. While BIF is pushing to create new institutional capacity in Rhode Island, it still faces the challenge of fragmentation. Melissa Withers, Market Development Manager at RIEDC, suggests that BIF effectively competes for membership with other state-level business support organizations. As the institutional component of Rhode Island's innovation initiative BIF is in a position to influence the practices of other organizations that support innovation in the state. But, other support organizations are slow to become partners. There is a perception of an uneven power balance that threatens the influence of other organizations whether they are competitors or partners.

For example, the STAC innovation policy recommendations presented to the Rhode Island General Assembly are all likely to be passed, while other organizations struggle to lobby for legislative reforms. The influence of innovation on Rhode Island's policy agenda can be daunting for organizations that represent other interests even if they overlap with the innovation initiative.

The tension between different organizational advocates of overlapping business communities can be seen as competition for attention and resources, but it can also be viewed as a reaction to centralized power and struggles of social mobilization. RIEDC and BIF would like to partner with more support organizations around innovation initiatives, but the aggressive push for change might be ostracizing these very same organizations. One interviewee said that RIEDC led initiatives are moving forward like a train, and while the train will make regular stops at the station, if you don't get on board the train will not wait. This comment seems to reflect a stance that other organizations ought to adapt to RIEDC-led initiatives, because these initiatives will not adapt to other organizations. This is a hard-line approach that displays an uneven perception of mutual interest, and a confidence that comes with uneven power. While the need for change is evident, so is the need for trust, and both should be addressed by institutional entrepreneurs.

Supporting Entrepreneurship

The foundations of entrepreneurship vary depending on the scale at which you observe it. From a regional perspective entrepreneurship relies upon a willing culture, an effective network of support services, an attractive business environment, and the presence of entrepreneurial talent. From a firm or industry perspective entrepreneurship relies upon innovative ideas, a market that allows for monopoly profits, and the presence of talent. From a personal perspective entrepreneurship requires a sense of self-efficacy, or a can-do spirit, a sense of control over resources and the competitive environment, the know-how needed to assert that control, and the presence of an opportunity.

Supporting entrepreneurship requires each of these factors to come together. It is typically assumed that state programs can influence only one of these factors – the presence of effective support services. However, in Providence building an entrepreneurial culture will require much more. Increasingly, entrepreneurship support services are being tailored to help develop the skills of an entrepreneur, while also providing the resources needed to start and manage a business and assistance in navigating a particular industry or regulatory environment. Furthermore, entrepreneurial networks are designed to assist entrepreneurs in recognizing opportunities for business ideas as well as making contacts with mentors and potential business partners. However, at the most basic level entrepreneurship is a personal act, and developing the capabilities to recognize opportunity and marshal resources towards that end are the staring points for growing an entrepreneurial culture.

Lichtenstein and Lyons (2001) present a model of entrepreneurial development that focuses on the development of individual entrepreneurs. Their model is a client-focused model in that it takes as its objective assisting in the development of personal capabilities rather than the only the creation of companies. This is a fundamentally backwards approach considering the aim of entrepreneurship strategies is the creation of companies, particularly those that have the potential to grow. However, if the obstacle to growing an entrepreneurial culture is seen as a lack of entrepreneurs, then developing the capacities of individuals may be the most direct route to circumventing this obstacle.

In an effort to create a framework for developing entrepreneurs Lichtenstein and Lyons propose a fully collaborative system of service delivery, which tailors services to the particular profiles of entrepreneurs, and then helps them climb the ladders of venture scale and personal ability. The entrepreneur–centric system they have imagined and implemented in several regions across the country presents a vision of possibilities for the collaborative delivery of enterprise development services. The client centered, tailored service approach requires fully integrated information sharing of client cases across the system's organizations. It is furthered envisioned by Lichtenstein and Lyons (2005) that this system, fully developed, could act as a market that connects entrepreneurs to business opportunities and unclaimed market niches. In other words, by centralizing the development of entrepreneurs, the market would use the enterprise development system as a way of recruiting and attract entrepreneurial talent. This is in addition to the companies created through the opportunity recognition of the entrepreneurs themselves.

Lichtenstein and Lyons term this integrated method of service delivery the "Entrepreneurial Development System™," which has actually been implemented in some regions, though not yet developed to the full potential they imagine it possesses. While the vision on an entrepreneurship marketplace may be a stretch of reality now, it does provide an alternative view for the role of the enterprise development system. This example demonstrates how collaborative service delivery can unlock new potential for business creation and development in regional economies.

The first challenge to enacting this prescribed approach is for enterprise development systems to target the development of entrepreneurs. In Rhode Island this process is solidly underway with several organizations supporting entrepreneurs explicitly. Several other organizations support business creation and development, but the focus is on the business. These two approaches would need to be reconciled and combined under the entrepreneurial development model.

The second challenge to implementing this model is integrating service delivery between a variety of organizations that represent different segments of the business environment and act upon different performance measures. In Rhode Island Every Company Counts has acted as an institutional entrepreneur focused on integrating business support service delivery.

Every Company Counts

Every Company Counts was created as an organization that could help to rationalize and maximize the effectiveness of the Providence region's enterprise development system. ECC acts as an information clearinghouse and first point of contact for entrepreneurs and small business owners in search of support services. ECC makes the enterprise development system more manageable for clients by explaining which organizations would meet their needs, while putting them in touch with a known associate at the appropriate organization. ECC seeks to maximize the value provided to each client, as Louis Soares, Director of ECC, explains, by providing services that go "a mile deep and an inch wide." He suggests that this approach is more effective than services that are "a mile wide and an inch deep."

While ECC promotes a client focused approach it also seeks to instigate better communication among service providers by tracking referrals and establishing conversations among these organizations. As such ECC has been acting as institutional entrepreneur. The problem to date has been that, other than simply maintaining direct contacts with each organization, ECC holds little power to convince organizations to begin to collaborate with each other over service delivery. ECC does have partners that share in the client focused approach, and, therefore, find greater value in the services that ECC provides. But, these partners also hold little sway over organizations that have no reason to change based on their own performance measures.

In fact, Louis Soares believes that without some positive financial motivation most enterprise development organizations would find little use in rationalizing the enterprise development system. The challenge is that these organizations are insulated from client demands for more focused services, because of very particular operational guidelines that have been established through various levels of government bureaucracy. The performance measures of these organizations are not created to overlap, and they are not motivated to do so, based on the structure of funding. Since many organizations receive funding on a transaction basis, they are in direct competition for client transactions.

The efforts of ECC have not to been entirely effective in changing the institutional environment. But, Louis Soares points out that other organizations such as

RISBDC may be in a position to gain more support for a unified enterprise development system, because that nationally funded organization has control over more resources. The problem is that RISBDC is a transaction focused organization, and it might be the most challenging organization in which to implement institutional change, because it is mired in bureaucracy that responds mostly to national pressures for change.

The challenge here is to start a conversation that addresses the interests of each organization, while also creating better service delivery. But even getting the parties to the table has proven difficult. If Rhode Island is serious about developing an entrepreneurial culture, then the enterprise development system is a natural place to begin. Win-win strategies must be applied in order for the organizations involved to have reason for entering and sustaining this conversation. Framing these win-win strategies is the responsibility of institutional entrepreneurs.

ECC’s strategy for integrating service delivery has been described as intent to “explode” the supply chain of business support services. By this he means that clients can be empowered to seek out different services from different organizations that may be most helpful with a particular service. The existing supply chain typically involves working with a single organization to meet the various needs a business or entrepreneurs may have, from business plan development to financing and technical support. ECC’s model would require organizations to collaborate over clients, where one organization has greater capabilities for helping entrepreneurs develop their business plan and others have more capacity for providing financing or technical support.

The central challenge to developing this type of integrated system is a matter of building trust. Trust is needed between organizations in order for there to be willingness to adapt their service delivery model, and trust is needed between service providers and clients in order for a mutually beneficial relationship to grow. As Sabel (1993) points out building trust requires reframing the stories upon which conflicting assumptions and beliefs are constructed.

It seems that a vision of “exploding” the existing supply chain will do little to foster trust in potentially cooperative organizations. At the same time the unwillingness to enter into necessary conversations about integrating the enterprise development system also does not inspire trust. In order for ECC’s entrepreneurial visions to become a reality a new story must emerge, which depicts prior conflict as an unfortunate misunderstanding and presents a vision of a win-win for all organizations involved. At the same time the functional and ideological differences of support organizations must be overlooked until common ground can be identified and the conversations that promote trust can begin. Trust is the necessary precondition for adapting the enterprise development system, but this condition can be created through greater reflexivity in the efforts of institutional entrepreneurs.

The boundaries that separate support organizations can be described in terms of the inherent differences between performance measures, or they can be described as untrusting social relations which inhibit the willingness to make those boundaries more malleable. The first description elicits actions that force change, because inherent differences may only react to new market conditions. The second description elicits actions that seek trust as a precondition of change, through which inherent differences can be turned into recognition of mutual dependence and mutual interests. Reducing the boundaries between organizations requires emphasizing shared identities without creating new barriers. In order for institutional entrepreneurship to be successful in Rhode Island's enterprise development system the organizations involved must not be threatened with the idea of change even if change is the goal. Communication between organizations should be a learning process, whereby new opportunities are identified in the ambiguities between organizations. The potential exists for Rhode Island's enterprise development system to play a major role in strengthening the region's knowledge economy, and this potential is what should bring organizations to the conversation.

Summary

Institutional entrepreneurship through state-level organizations in Rhode Island has had positive impacts in framing the state's expectations for actors in the knowledge economy. However, these same efforts also present challenges to the overall effectiveness of institutional change in the process of adjusting to the knowledge economy.

In the case of innovation the concentration of power makes institutional entrepreneurship quite effective. In fact, it may be too effective if other organizations that support innovative companies fear partnering due to the one-sided distribution of influential power. In the case of the enterprise development system power is not held by the institutional entrepreneurs, and as a result institutional change has been slow.

The examples of the Business Innovation Factory and Every Company Counts also suggest the structure of social relations underlying the regional innovation system and the enterprise development system yield very different performance in terms of inviting participation. In the innovation system participation among allied stakeholders is quite strong, though participation among actors in the broad economy is weak. In the enterprise development system this dynamic is reversed, where participation in collaborative stakeholder alliances is weak, but there is broad representation of the overall economy in the client base.

As for enhancing shared values the performances of the two systems also diverge. The example of BIF suggests that the values of innovation are easily identifiable and shared by an exclusive group of "innovators", though these values are not necessarily ever-present across the region's organizations and institutions. The case of ECC suggests that there is a lack of agreement over the values that should be reflected in the enterprise development system. This is likely due to the fact that organizations which segment the business environment and act as advocates for sub-sets of this population are bound to reflect a wide sample of values.

Though institutional entrepreneurship in these two systems faces different challenges, in some ways these challenges are complementary. Where one system is weak the other is strong. As institutional entrepreneurship evolves in Rhode Island it may be possible to combine one system's strengths with the other's weaknesses. In order to do so the two systems must become more closely integrated as innovative and entrepreneurial activity take hold in Rhode Island.

Chapter VII
Conclusions

Economic adjustment in the knowledge economy relies upon innovative and entrepreneurial activity to create value within firms, to create employment for individuals, and to create resilience in regional economies. The pressures of globalization and the rapid diffusion of economic knowledge demand that organizations and institutions adapt new patterns of economic activity. This paper has examined how this transition is taking shape in Rhode Island.

The method used here for investigating this process has been to observe the effectiveness of institutional entrepreneurship in leading these changes. Taking this institutional perspective requires background on how and why Rhode Island's economic environment has evolved as it has. An historical look at the state's economic decline and the renaissance of Providence provides the context of economic and institutional change that is currently emerging in the region. Rhode Island's adjustment to the knowledge economy is taking place through two over-arching initiatives that aim at strengthening innovation and entrepreneurship in the state. These initiatives are being led in part by the regional innovation system and the enterprise development system. In order to detail the effectiveness of institutional entrepreneurship in the process of economic adjustment, this paper has focused on the stories of two state-level organization, the Business Innovation Factory and Every Company Counts, which have played central roles instigating institutional change.

The aim of this research is to demonstrate how the effectiveness of institutional entrepreneurship – as a means of enacting economic adjustment – is influenced by the social structure of regional alliances. In order to answer this question the effectiveness of institutional entrepreneurship is measured by three conditions. The selection of these three measures is based upon the merits of the agency-based perspective of economic development. First, the balance of power in the process of institutional change is selected because balanced power combats corruption and protects individual freedoms. Second, participation is selected as a measure of effectiveness because greater participation reflects lower barriers to the universal human capacity for agency. Third, shared values are used as a measure because they represent the freedom to participate in public dialogue as well as the capacity for individuals and organizations to empathize with others.

Each of these measures allows for greater integration within a changing economy. Economic integration is necessary because it promotes change that has a net social benefit. Net social benefits are achieved when a wider range of resources can be recycled into more productive forms of economic activity. Without integration in the process of economic change innovation and entrepreneurship can become destructive forces, and they may lose legitimacy within the local culture.

Furthermore, a variety of concepts related to the organization of social relations are used to describe ways that economic activity may become integrated across otherwise insulated industries and across organizational boundaries. Trust, identity maintenance, social mobilization, and institutional change are all factors that influence and reveal the structure of social relations.

In both cases of the regional innovation system and the enterprise development system the effectiveness of institutional entrepreneurship has been mixed. In the case of supporting innovation the strong identities of "innovators" and the tightly allied mobilization of social networks has led to deeply shared values among a select group, but weak participation in terms of volume, and an uneven balance of power. Innovative activity seems to be taking hold in elite circles, though there are substantial challenges in terms of integrating innovation throughout the regional economy. On the other hand, the enterprise development system has a wide base of participation, but institutional entrepreneurship in the field has been challenged by a lack of trust relations and an inability to mobilize support organizations around common interests.

Innovation and entrepreneurship are intimately related in the knowledge economy. As Rhode Island moves forward with initiatives to support innovation and entrepreneurship, it may become increasingly important for the efforts of the innovation system and the enterprise development system to become more closely aligned. In many ways the weaknesses of one system are complemented by the strengths of the other.

If the ECC and other support organizations that follow the client-focused approach do not have the influence to get the transaction-focused support organizations to enter into conversations about integrating the enterprise development system, then perhaps organizations involved with the innovation initiative may hold the power to do so. By acting as a third parties that have a shared interest the development of entrepreneurial capital in the region, innovation organizations such of BIF may be able to facilitate trust-building conversations within the enterprise development system. Conversely, collaboration between the innovation system and the enterprise development system may assist in diffusing innovation throughout the various segments of the region's business environment.

Ultimately, the goal of institutional entrepreneurship is to lower the barriers to organizational collaboration and integration of regional economic activity. Performing the role of an institutional entrepreneur may require a perspective this is unattached to the success of any single organization in order to bridge alliances. Institutional entrepreneurship focuses on creating non-threatening environments where participants can form synergistic relationships even where they are least expected. In this way the institutional entrepreneur harnesses the universal human characteristic of agency by reducing the barriers to its expression.

The Rhode Island economy has witnessed the extremes of economic growth and decline over a 200 year period, and now it witnesses a critical opportunity for growth once again. The degree to which the region will be able to seize this opportunity for growth in the knowledge economy relies heavily on the abilities of its institutional entrepreneurs to create environments for social learning where the productivity of knowledge can be increased.

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13. Charles Kingdon, Brown Technology Partnership & Brown Forum for Enterprise 6/30/05
14. Donald Eversley, Providence Economic Development Partnership - 7/8/05
15. John Cronin, Rhode Island Manufacturing Extension Service - 7/8/05
16. Katherine O'Dea, Tech Collective - 7/11/05
17. Melissa Withers, Rhode Island Economic Development Corporation / Business Innovation Factory – 3/30/06