

Perspectives on Innovation in Higher Education

A Framing Document for the Jandris Center for Innovative Higher Education

*Prepared for
The Jandris Center for Innovative Higher Education
at the University of Minnesota*

A White Paper for Discussion

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Executive Summary

PURPOSE AND GOALS OF WHITE PAPER

The purpose of this white paper is four-fold. First, the paper provides Jandris Center for Innovative Higher Education with a preliminary overview of the field of innovation. The overview is informed by academic literature as well as mainstream books and writings on the topic. This white paper serves as a conceptual grounding for Jandris Center's internal and external stakeholders in that a general, common language around innovation might emerge and thus enhance communication between and among stakeholders. Second, the paper provides tools (in the form of frameworks, models, and concepts) to help the Center operationalize its various activities. These tools are grounded in innovation-related research, all with an eye toward application. Neither the overview nor the tools is meant to constrain Jandris Center's own creative activity, for the actual work Jandris Center conducts may help evolve any given view or tool—yet a common starting point is a necessity for any organization wishing to facilitate innovative activity. This leads to the third purpose of the paper: to help Jandris Center understand where its efforts will be centered. A comprehensive perspective of innovation will help Jandris Center identify the primary activity and space within innovation that it wishes to focus its efforts and resources, while simultaneously remaining conscious of the holistic nature of innovation. Finally, the paper provides preliminary suggestions and recommendations that emerged from the construction of the white paper.

These tools are grounded in innovation-related research, all with an eye toward application.

The suggestions and recommendations are simply guides to keep in mind at this point in the life of Jandris Center.

The paper starts off by discussing the concepts of innovation and then provides a general framework of innovation, by which the remainder of the paper is organized. The Stages of Innovation Framework is comprised of three stages: Invention, Innovation, and Adoption. In the section on Invention, special attention is given to inter-organizational collaboration, which is a probable area of contribution for Jandris Center, as it aims to convene multiple representatives from various organizations. In the Innovation section, a model characterizing different types of innovation is presented. The Adoption section discusses the factors associated with localized or more widespread adoption of innovation. The Stages of Innovation Framework also acknowledges that the three stages take place within a broader environment, comprised of macro forces, an existing higher education ecosystem, and prior and existing innovations.

An important note in the development of the white paper and Jandris Center's ongoing work is Appendix A. Jandris Center staff examined the various frameworks and concepts in the white paper and prospectively viewed Jandris Center's activity within the context of these tools, thus providing an immediate application and perspective that bridges theory to practice.

FINDINGS AND RECOMMENDATIONS FOR JANDRIS CENTER

Innovation is a process, not an event. In this paper, the Stages of Innovation Framework is comprised of three stages that outline this process: Invention, Innovation, and Adoption. Though Jandris Center may emphasize its efforts in the Invention stage, particularly as it pertains to inter-organizational collaboration, a holistic view of innovation will provide context for the Center's work. Given this, the following points are offered as suggestions and recommendations, as Jandris Center moves forward in its work:

Effective inter-organizational collaboration increases the chances for breakthrough innovation, but such efforts require relational and technical capital, which are the product of time, energy and resource investment: Effective collaboration requires that participants build trust, spend time together, and develop cohesion as a team—this is the relationship part of the invention equation. Planning, meeting execution, and skilled facilitation are also common threads to effective collaboration. These elements comprise the technical part of the invention equation, which can potentially lead to innovations that will be adopted.

The investment level in initiatives influences results one may anticipate: Inventors may find low hanging fruit and high leverage opportunities, but in general, small investments in relational and technical support will likely result in no innovation or incremental innovation at best. Significant investments do not guarantee breakthrough innovation; it only acknowledges that relational and technical infrastructures are a necessary (though not guaranteed) condition of success.

A diversified innovation portfolio is best: Most organizations would be well-advised to invest in various innovation initiatives intended to achieve incremental and substantial impact, with limited and focused attention on a single or few breakthrough prospects. This is called a portfolio approach to innovation. A portfolio of innovation initiatives (in terms of planned impact on the field) is a diversified strategy that increases the probability of success and one that is recommended for Jandris Center. This strategy requires restraint and resolve given leadership impatience, sensationalized media accounts about innovation, and the “hype” generated by funders and enthusiastic inventors about their own creations. Though the portfolio of planned impacts may be diverse, the initiatives defining the portfolio should be connected by a common purpose, and may focus on service, process, or business model innovation.

Effective inter-organizational collaboration will require participation by insiders and outsiders:

It is unlikely that breakthrough innovation will occur with a collaboration comprised of only higher education representatives. The “usual cast of characters” is unlikely to produce breakthrough results. Outside voices are critical during invention, innovation, and adoption. Inter-organizational collaborations benefit by including individuals from different fields or even those who oppose views held by the majority. Knowledge brokers, who bridge different worlds, are also an asset to collaboration. Furthermore, participants should be diverse enough to inform both the technical aspects of design as well as what is referred to as the cultural aspects. The cultural dimension is often overlooked, but it is the key to understanding the emotion and meaning that adopters attach to innovations they ultimately use. The chances of achieving these ends is improved if Jandris Center views outsiders as collaborators who work in “co-opetition” with it, rather than as competitors wanting to infringe upon traditional higher education.

Invention, Innovation, and Adoption take place within a broader environment and industry ecosystem, both of which Jandris Center should monitor and assess:

The global, national, state, and local levels of political and demographic landscapes are examples of forces influencing all three Stages of Innovation. Furthermore, the higher education ecosystem in which particular institutions and systems operate also influences the Stages of Innovation. The ecosystem is comprised of a web of actors, structures, and processes, each facilitating or inhibiting invention, innovation, or adoption.

Adoption and diffusion of an innovation will rarely occur based on the technical and rational merits of the innovation alone:

Great innovations do not just diffuse on their own because of their technical superiority or ingenuity. Success is predicated on communication and business strategies associated with the innovation, as well as the many components of the landscape just mentioned. Just as Edison in his later years thought about strategies of distribution as much as the inventions themselves, so too must Jandris Center consider all three Stages of Innovation while simultaneously pursuing its particular focus.

The white paper, along with its content and recommendations, should be viewed as a starting point for conversation for Jandris Center stakeholders and anyone interested in innovation in higher education. It is a document that draws on academic literature and credible writings to help define and place innovation activities and efforts within a broader context. The paper also should be seen as laying important groundwork so that leaders who care about higher education can thoughtfully chart their innovation efforts without relying solely on fads or influential but unsubstantiated media accounts and conference speakers now populating the higher education space.

Introduction

INNOVATION IN PERSPECTIVE

Innovation has long been an organizational imperative, for education, business, and government. Our understanding of innovation and thus the definitions that accompany it have evolved over the decades but become increasingly numerous and diverse. Innovation has been equated with creativity, process, change, products and services, and, most recently, disruption.

Though he did not write about innovation, Thomas Edison's documented experiences stand as an early foundation from which to think about innovation. For all of Edison's genius—his own insights as well as harnessing the collective creativity and intellect of a group—recent histories have suggested that Edison's greatest contribution was not a specific invention but his

Thomas Edison's documented experiences stand as an early foundation from which to think about innovation.

organization of the invention process.¹ For Edison, invention could not be separated from the social system in which the coming innovation was supposed to seed (and eventually spread).

Edison learned that invention did not ensure success. Invention is different from innovation. Both are stages in a process leading to the determination of whether people would actually use an innovation. The famous economist, Joseph Schumpeter, some fifty years after Edison was at the peak of his work, described essentially three stages of an innovation process,² focusing on business cycles, private industry, and technological change—all of which are informative to any discussion of innovation. The Schumpeterian trilogy divides the technological change process into three distinct phases: invention, innovation, and diffusion. In the end, Schumpeter believed that the process of innovation was not complete until an innovation showed market success (diffusion of the innovation), which was the end goal.

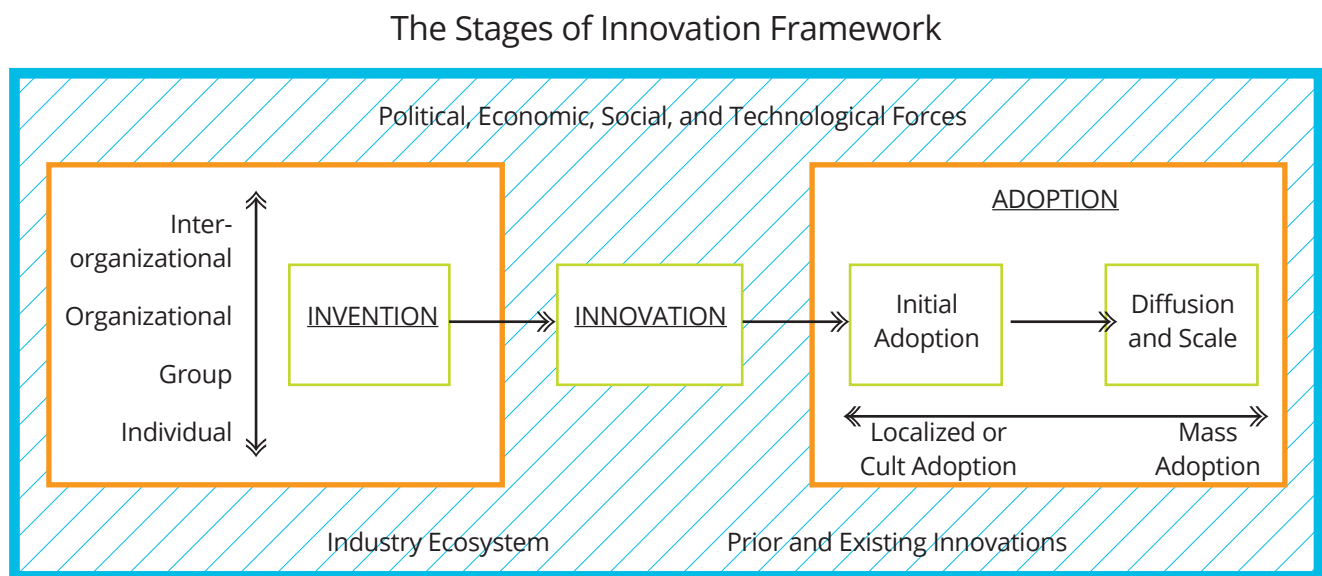
A mid-20th Century definition of innovation encompasses many of the stages of innovation as implied by Schumpeter: the generation, acceptance, and implementation of new ideas, processes, products, or services.³ Writings over the last fifty years have become more nuanced, as different authors focus on the issues, challenges, processes, and features associated with different stages. A rich literature exists on creativity and learning, which may be equated with what will be referred to throughout this paper as the invention stage (following the Schumpeter convention). Recent observers have devoted much attention to describe the characteristics of innovation; and definitive and comprehensive work⁴ describes characteristics of innovation but within the context of how those characteristics contribute to its acceptance or rejection.

THE STAGES OF INNOVATION FRAMEWORK

The many facets associated with innovation and the historical underpinnings reinforcing it as a process rather than an event suggest Jandris Center would benefit from a big-picture perspective of innovation that a) builds on existing contributions from the field; b) acknowledges different stages in the process; and c) provides application to Jandris Center and its partners in the conduct of their work.

Integrating existing contributions from the field into a framework strengthens its validity and application. The delineation of different stages will allow Jandris Center to articulate where it wishes to focus its effort—but within the context of and in consideration of the other stages. Finally, the framework will be useful for Jandris Center because important findings that guide action emerge from valid frameworks (e.g. what it takes to achieve inter-organizational collaboration that will result in an innovation that is useful across multiple institutions). The big-picture perspective in this paper will be referred to as the Stages of Innovation Framework and is shown in Figure 1. The central focus for Jandris Center is likely on the Invention stage, as it partners with different organizations (inter-organizational) working toward innovations that can diffuse and solve or address challenges and problems in the current higher education environment.

Figure 1. The Stages of Innovation Framework



The Stages of Innovation Framework depicts three stages: Invention, Innovation, and Adoption. Research and writing on invention covers such topics as creativity, learning, and knowledge integration. Invention may occur through individual, group, organizational, or inter-organizational (collaborations across organizations) efforts. Successful invention results in innovation, the second stage. The literature addresses properties of innovation, types of innovation, and the impact of innovations. The impact of a given innovation is often assessed during the adoption phase, though it is appropriate to plan for the scale and impact that one wishes the innovation to achieve. Innovations that are bounded by localized or cult adoption do not have large-scale effects simply because they are not utilized across a mass of users. Innovations that achieve large scale diffusion naturally have a bigger impact.

Much research exists on the many influences that determine whether an innovation will be adopted, but some of those influences speak to the other elements in the Stages of Innovation Framework. For example, Political, Economic, Social, and Technological (PEST) forces are part of

the broader environment in which the three stages occur. Much work also has been done on the influence of an industry's ecosystem on all stages of innovation, but particularly the adoption phase. The ecosystem is the complex web of suppliers, competitors, customers, relationships, and dynamics that constitutes a particular industry. From an ecosystem perspective, portable digital music players like the iPod® could not diffuse until the ecosystem provided legal and technological access to individual songs that could be downloaded in a customized way. Thus, innovations never stand on their own; they are ecosystem dependent. The last component of the model recognizes that prior and existing innovations influence invention, innovation, and adoption—each innovation is built on the shoulders of other innovations that preceded it—and those prior and existing innovations inform ongoing work in any field.

The Stages of Innovation Framework visually depicts the connection and relationship between the three stages of innovation. Just as Edison believed that attention to the entire process of innovation was important no matter what stage one might be in, so too is it necessary for higher education leaders to consider the bigger picture of innovation as depicted in the Stages of Innovation Framework, no matter which particular stage may draw their interest and attention.

The framework represents a disaggregation of the different stages of innovation to enhance understanding, increase analytical power, and suggest guides to action. Different organizations may focus on one stage or another, but an understanding of all three stages will enhance concentrated work in any given stage. Covey spoke of the wisdom that we should “begin with the end in mind”⁵ but the lesson Edison passed on to future innovators was to begin with an awareness of all the stages in mind.

The opportunity for Jandris Center likely (and initially) lies in the Invention stage, as it can serve as a convener to facilitate creativity and invention in the higher education space. The remainder of the paper expands on all components of Figure 1 but specifically details the Invention stage, given Jandris Center's likely focus, particularly as it pertains to inter-organizational collaboration.

An In-depth Look at the Stages of Innovation Framework

INVENTION

The topic of invention has appeared in mainstream books for decades, with many early and modern day volumes primarily focusing on individual creativity.⁶ The more complex topic of group, organizational, and inter-organizational creativity and invention has been a bit less accessible to the general practitioner.⁷ There are several reasons why analysis beyond the individual level remains elusive. First, the topic of invention becomes more complex when more than one person is involved in the process. Invention at the inter-organizational level, for example, is much more complicated than individual creativity, as there are infinitely more relationship dynamics that influence the process. Second, though group and organizational creativity has been exhibited throughout history, it is very difficult to reify. People like Edison harnessed the power of groups and created entire industries; they did not document their practices and capture their process. We are left to dissect and analyze such creative power with the benefit of hindsight and the liability of having to reconstruct incomplete pieces of historical puzzles. Finally, group and organizational creativity remains elusive because writing on the topic is less accessible to a general readership than individual creativity. The accessibility factor is related to the complexity issue. To be sure, writings on group and organizational creativity and learning have a long and distinguished history in the academic field, it is just that much of it has not been easily translated for public consumption and use. The writings from the 1950s onto the early 2000s of academic giants such as Chris Argyris and Donald Schon⁸ form the foundation for much of what we know today about group and organizational creativity. They were interested in connecting the individual to the organization and have set the course for fields such as organizational development, organizational change, and organizational culture—all fields that contribute to our understanding of group learning and creativity.

Inter-organizational collaboration and invention is a goal for Jandris Center, and because bringing people together requires that they work in a team, the focus of this section will be on inter-organizational and group invention. Researchers have explored inter-organizational collaboration across both public and private organizations. Some of the literature addressing inter-organizational collaboration is from higher education researchers, but most is from those outside of higher education. Most of the literature on group effectiveness derived outside of higher education because its origins materialized well before higher education was a generally recognized and formal field of study.

The focus on inter-organizational collaboration is a logical starting point for a university center because of the increasing complexity of the problems we confront in higher education. Complexity, problem solving, and invention benefit from different partners (inter-organizational) who contribute different perspectives and expertise. In today's environment, it is unlikely that any institution will be successful in the invention stage by operating as a closed system. In fact, collaboration has been called the "meta-capability" for future innovation,⁹ though there are many challenges to achieving it. As different organizations attempt to collaborate, it is often their very policies, norms, and conventions that prevent them from effectively working inter-organizationally (boundary spanning). Lack of a common language or goals may also derail well-intentioned partnerships.

Lessons on Inter-organizational Collaboration: Applications for Jandris Center

Perhaps the most instructive lessons from the literature on inter-organizational collaboration emphasize success factors. These factors could easily be formulated into two categories: technical and relational. Table 1 offers a synthesis of factors examined across a number of academic articles, as cited in the endnotes. In reality, some of the factors are related to both the technical and relational success of a collaborative.

Table 1. Technical and Relational Factors Influencing Inter-organizational Collaboration

Technical Factors	Relational Factors
<ul style="list-style-type: none">• Common purpose, explicitly identified• Meeting agendas or meeting times: loose but directional; good rhythm of activities; technical support as needed; central coordinator; and skilled facilitation• Participants chosen to minimize power and prestige differentials• Work on specific issues• Neutral venue• Continuity of participation by members	<ul style="list-style-type: none">• Time• Trust• Territory (sense of belonging to the group)• Social ties• Social time• Unstructured, informal opportunities to address issues• Social cohesion (though too much cohesion may be counterproductive)

The list of technical factors makes it clear that effective inter-organizational collaboration does not automatically occur just by bringing people together. Effective inter-organizational collaborations must be strategically planned. Meeting agendas must be meaningful and conducted under the auspices of an overall purpose that participants have explicitly agreed upon. Care must be chosen in selecting participants who represent the various organizations that comprise the collaborative, and the activities and work must be specific and build toward the common purpose. Participants need room to create; and skilled facilitation is a common thread in the literature.

Relational factors are keys to success in any inter-organizational effort and require time for the proper dynamics to formulate. People must spend time together to build trust and a sense of belonging (territory) with each other. The social ties that result mean that familiarity and social connection are part of the inter-organizational success formula. Social cohesion is somewhat related to the social ties the group develops. Cohesion refers to the bonds people develop around shared understandings, assumptions, values, beliefs, and behaviors. Interestingly, the level of social cohesion necessary to maximize invention has a “sweet spot.”¹⁰ Too much social cohesion results in less than effective team performance, because members are not willing to

challenge and go outside the norms when necessary. Too little social cohesion means members are not able to work effectively together. In other words, too much or too little comfort with each other does not optimize performance—there is a middle ground.

An important documented challenge of inter-organizational collaboration for Jandris Center to note concerns the learning and value-add that participants to the partnership take back to their respective organizations. The individuals participating in the collaborative and representing different organizations may have an enriching experience with colleagues but find it difficult to transfer their learning and knowledge back to their organizations. Often, participants in a collaborative give very little thought to the processes, structures, and relationships that must be established in their own organizations.

One study examining seven different inter-organizational collaborations¹¹ in both the public and private sectors found that though a collaborative might be successful on many fronts, they rarely resulted in organizational level capability building. There were two main reasons for this: individuals not translating the implications of the learning back to their organization, and the organizations not having the systems and processes to transfer and amplify the learning that was brought back. Importantly, knowledge sharing is more effective through social processes that have technical support systems, rather than through technical systems with little thought to social processes.¹²

Knowledge brokers are not captive to the dogmas of any given field—they are not captive to small worlds.

Researcher Andrew Hargadon speaks about knowledge brokers—and it is likely that these are important participants to contribute to a productive collaborative that Jandris Center may facilitate.

Knowledge brokers are aware of ideas and solutions that exist in different domains, and they are able to combine these in a way that solves a problem in a new domain. Knowledge brokers are not captive to the dogmas of any given field—they are not captive to small worlds. They are able to work across domains, share knowledge within and across organizations, and foresee the infrastructure that needs to be in place to support the innovations they wish to implement.

Knowledge brokers are able to bridge small worlds, but there is also value in consciously including people in a collaborative who have a variety of disciplinary perspectives. Some collaborators will have technical knowledge that is valuable in the creation of an invention, but other collaborators who consider the cultural and emotional reactions to a potential innovation are just as important. Effective design-driven invention includes cultural and technological viewpoints¹³—both the poet and scientist are necessary parts of the equation.

Perhaps the biggest challenge to inter-organizational collaboration is truly internalizing collaboration as the meta-capability of true invention. This might be especially difficult for universities, who already house a diverse array of faculty with deep expertise in a variety of disciplines. The complexity and challenges that confront higher education, however, will benefit from collaborators who come from inside and outside a particular institution, and inside and outside of higher education itself. Collaboration requires what is referred to as a “co-opetition” mindset,¹⁴ rather than a competitive one. A mindset focused on co-opetition does not view those from outside of their immediate organization as a threat; instead, they are partners who co-create for

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disciplines. The complexity and challenges that confront higher education, however, will benefit from collaborators who come from inside and outside a particular institution, and inside and outside of

mutual benefit. An initial list of entities engaged in inter-organizational collaboration appears in Appendix B. Future conversation with leaders of these organizations may provide insight into best practices and lessons learned, for Jandris Center.

Invention at the Group Level

Inter-organizational collaboration in practice requires individuals representing different organizations to work in teams. Thus, the literatures on inter-organizational collaboration and teams share some common points of emphasis. The literature on teams has a longer history than that on inter-organizational collaboration and encompasses the concept of team effectiveness, which is useful for Jandris Center's activities and focus. Within the literature on team effectiveness, the major concepts can be categorized as outputs, context, and process. Research on group effectiveness in virtual spaces may also inform Jandris Center's work when convening groups online and therefore also is discussed in this section.

Output, Context, and Process

The effectiveness of teams is often judged on the team's output. Output measures capture increased or decreased performance, though a specific product or deliverable may be associated with an output as well. For some teams, outputs are difficult to measure, so basing the group's effectiveness on an output is not feasible or desirable. While it is important to consider outputs, this has limited application for Jandris Center at this stage of its work. Additional indicators of group effectiveness, namely context and process variables, may hold greater promise.

The context variables influencing group effectiveness include the organization and group composition.¹⁵ Organizations influence the effectiveness of groups through culture, social norms and values, and providing the technical mechanisms through which groups operate. Organizations frame how groups work together, though structures, processes, and operating procedures may differ for groups within the same organization.¹⁶ Organizations also influence group effectiveness by creating cooperative environments and what the literature refers to as value congruence (individuals share values with the broader organization of which they are a part).¹⁷

Another context variable, group composition, refers to the nature and attributes of team members, and is one of the most highly-studied variables on group effectiveness. Group composition factors include interpersonal fit, personality, skills, motivation, member status, and diversity. Specific recommendations for creating groups include choosing participants with task-relevant expertise and a moderate level of interpersonal skill, not overpopulating groups, and finding a balance between similarity and difference among group members.¹⁸ Building groups with appropriate, diverse knowledge and skills for the given task increases group effectiveness, particularly when group processes allow for knowledge and skill transfer among members.¹⁹

Another variable that impacts team effectiveness is group processes. Some group processes can be facilitated to optimize effectiveness, and these include encouragement, modeling, and reinforcement of expected operational norms and practices. Additional group processes that increase effectiveness include structuring the nature of group tasks and goal setting.²⁰

Virtual Group Effectiveness

Structuring tasks improves group effectiveness in general, but it is a particularly important strategy to help virtual groups troubleshoot, improve brainstorming, and produce higher quality solutions.²¹ Additional best practices to maximize virtual team effectiveness include training, strategy and goal setting, developing shared language, team building, cohesiveness and coordination.²² Some potential down sides to group work in virtual settings include less conformity, more polarized decisions, and less individual opinion change over time, all of which can lead to decreases in group effectiveness.

INNOVATION

The recent attention surrounding new technologies, delivery systems, and well-capitalized organizational ventures—all of which have implications for existing institutions and their students—has put the topic of innovation at the top of the higher education agenda. The mushrooming attention to innovation has also meant that powerful concepts such as disruption have been used carelessly to describe technologies, services, organizations, and even college presidents. Indeed, innovation and disruption are the buzzwords of the day and risk becoming cliché and overused, effectively diluting their meaning and potential effectiveness in our institutions.

The heightened interest in innovation, along with its real and potential influence on administrative decision making, suggests the need for a common way to view innovation in higher education. Such a view can help classify different types of innovation and the impact they produce. It can also assist leaders who wish to more effectively encourage, manage, plan, or implement innovation-related initiatives in their organizations. Finally, a common view of innovation creates a meaningful way to talk about it. Higher education leaders need a common language to effectively communicate with internal and external stakeholders about innovation and the many critical decisions associated with this important stage of the process.

Innovation Type and Impact

Transformational or disruptive innovations are typically years in the making, usually emerging only because less sensational, incremental innovations preceded them. And though not all innovations transform industries, revolutionize service delivery, or put traditional providers out of business, it would be careless to assume that higher education is immune from large scale change. Institutions of higher education have closed, been merged, or forced to change. Still, it is important to study the range of innovations taking place within the higher education industry, from those that may render traditional institutions obsolete to others that are more incremental in nature. Those wishing to work on radical innovations that would fall in the breakthrough category must be prepared for the investment of time, resources, and learning involved in the process. A collaboration of individuals, groups, or organizations must learn to learn—generative learning—to increase the probability of producing breakthrough innovation.²³

Robert Tucker provides a conceptual framework for looking at different types of innovation relative to what he calls the degree of innovation.²⁴ Innovations are of different types. An innovation can be in the form of a product/service, process, or business model. Every innovation type ranges in terms of its impact, from incremental to breakthrough. Though media attention disproportionately speculates on breakthrough business model innovations, the fact is that such innovations are rare. The impact of an innovation is usually not known until the adoption phase, but designers of invention and innovation plan for different degrees of impact making it useful to speak of both type and impact simultaneously. Small-scale projects may purposely aim to produce incremental improvements, whereas heavily funded initiatives endeavor to produce breakthrough impacts. Table 2 below shows three different types of innovation and three degrees of impact. The dots in the various cells indicate the frequency with which such innovations occur.

Table 2. A Model for Conceptualizing Innovation

Innovation: Type, Impact, and Frequency				
		Types of Innovation		
		Product/Service	Process	Business Model
Impact of Innovation	INCREMENTAL	● ● ● ● ● ● ● ● ●	● ● ● ● ● ● ● ●	● ● ● ●
	SUBSTANTIAL	● ● ● ● ●	● ● ● ●	● ● ●
	BREAKTHROUGH	● ●	● ●	●

- = Indicates Frequency of Occurrence
- Figure created from a synthesis of works by Robert Tucker and Daniel Silverstein. Endnotes have full citations.

From an organizational perspective, an institution should have a balanced innovation portfolio as it attempts to innovate.²⁵ A balanced innovation portfolio mainly speaks to the Impact parameter of the model. A balanced innovation portfolio is one that has very few initiatives focused on breakthrough possibilities but multiple initiatives geared toward incremental or substantial improvement. These initiatives may be geared toward service, process, or business model innovation. In higher education, with the many technology developers attempting to sell their products to institutions, systems, and states, a balanced innovation portfolio may

also represent administrative strategies toward adoption: focus on the adoption of very few breakthrough innovation possibilities from developers but multiple initiatives geared toward incremental improvement.

Service innovation involves the creation of new solutions to old problems, or services that offer new benefits to both the innovating organization and one or more of its stakeholders. Service creation and service delivery are decidedly intangible in nature compared to innovation associated with products, but it is most applicable to higher education. Process innovation enhances or changes the workflow upon which successful product or service delivery depends. Business model innovation emerges because a new strategy is implemented through a new organizational form that is different from what exists in the current industry. Business model innovation also occurs when a new organization emerges to deliver a new service or perhaps even an existing service but in new and novel ways.

Applying What We Know About Innovation to Higher Education

The impact of various innovation types occurring during the history of higher education has ranged from incremental to breakthrough. Incremental innovations have been an important component in the evolution of the higher education industry, as institutions have expanded their scope of services or changed them in attempts to more fully meet evolving constituent and stakeholder needs. Breakthrough innovations have occurred less frequently, but when they have happened, transformational changes have followed. Some breakthrough innovations have given life to entirely new sectors of the industry, which now populate the higher education landscape.

Service Innovation

Service innovation, as defined in this paper, takes place within or is delivered primarily by existing institutions. New programs, courses, or student services (e.g. e-advising) are all forms of service innovation. Online course offerings are the most recognizable and publicized form of service innovation on campuses today. Colleges across the nation are taking existing classroom courses and even entire programs and offering them online. Online course offerings create

Online course offerings are the most recognizable and publicized form of service innovation on campuses today.

a substantial impact if their growth or influence (revenue generation) matches or surpasses that of existing courses. The impact of online offerings would be more accurately

classified as incremental if they simply complement or extend the reach of existing course offerings. It is also possible that, over time, online course offerings for a given program become the norm and not the exception—the incremental impact eventually becomes substantial or possibly breakthrough, depending on the growth and scale of the offering.

Identifying online delivery as a form of service innovation produces less controversy than whether the impact is incremental, substantial, or breakthrough. The controversy over the impact of online innovation, as it pertains to course and program delivery, is largely attributable to the overlapping topic of innovations occurring outside the walls of traditional higher education. Massive Open Online Courses (MOOCs), modular-based lectures (e.g. Kahn Academy), and competency-based credits are examples of innovations that generate tremendous excitement and have given rise to new organizations (business model innovation) that are focused on a single technological delivery solution or innovation. For the most part, the

impact of these new technologies is still formulating, though investor financing, early adopter enthusiasm, and an innovating organization's own promotional efforts certainly aim to position particular innovations as breakthrough or disruptive.

Process Innovation

Process innovation carries various connotations because it is often equated with the manufacturing industry and terms such as "reengineering" or "total quality management (TQM)." The initial exuberance (primarily from business and governmental agencies looking for efficiency gains) attached to TQM and other process improvements that eventually faded led one influential higher education writer to label such innovations as "fads" that follow a predictable cycle: creation, narrative evolution, time lag, narrative devolution, and resolution of dissonance. The hype surrounding the innovation never comes to fruition, and that is the eventual, predictable stage of resolution of dissonance.²⁶

The idea that process innovations that died in name have or had little to no impact is perhaps overstated. Both reengineering and TQM, regardless of their histories, drew important attention to process improvement and thus process innovation. Though a given process may have fallen out of favor in the academy, private business, or government, there always remain components of a given process that are integrated into the ongoing work of the organization. TQM and Total Quality Improvement, for example, created important conversations about assessment and accountability, and the importance of not just teaching but student learning.²⁷ In addition, process innovation remains a critical part of any organization, including institutions of higher education.

Today, process innovation in higher education conjures up images of more efficient financial aid distribution and automated registration processes, with technology acting as a key enabler. The impact of such innovation is likely substantial or incremental because business process innovation aims to improve efficiency in the delivery of support functions rather than revolutionizing something like student completion. Nonetheless, incremental or substantial process improvements in higher education are probably one of the most common forms of innovation in the industry.

The magnitude of a process innovation's impact may reach substantial or breakthrough status if leaders transform system-level processes that address student success. A current example is the effort by foundations, associations, and institutions to transform the "student pathway."²⁸ The pathway charts a student's journey through college, which covers major steps from connection with and entry into the institution all the way to degree completion. Efforts to improve the student pathway are systemic in nature, as each of the steps in the process is tied together. Coordinated improvement across the entire pathway has the potential to create a substantial or breakthrough impact on student success. Systemic process innovation is difficult work that takes years to achieve, and work on the student pathway continues today and may indeed lead to breakthrough impact.

Business Model Innovation

Business model innovations in the higher education industry have expanded opportunities and provided access to new and growing markets. The community college as an organizational innovation aligns well with the idea of a breakthrough business model innovation. Importantly, community colleges were not disruptive, they were breakthrough. Part of the definition of disruptive innovation means that traditional providers go out of business. The birth and

maturity of community colleges did not signal the death of four-year institutions as a traditional form of postsecondary education.

Not all business model innovation in higher education is or need be breakthrough or national in scope. Institutions have created new business units to deliver training and consulting to local business, or continuing education departments. These innovations did not fit in traditional academic departments or existing units, so they became their own business model under the umbrella of an existing institution. The impact of such business models may be substantial for the community and incremental from a broader, state, and national perspective.

A Word on Disruptive Innovation in Higher Education

A significant issue for higher education leaders is how the concept of disruptive innovation and its accompanying criteria apply to higher education. Disruptive innovation redefines the future but also leaves a wake of destruction in its path, in the form of immobilized organizations that did not adopt it. If an innovation is truly disruptive, leaders must invest time, energy, and resources into the innovation or risk extinction. Management writer Jim Collins²⁹ eloquently states that when one finds a sure success, leaders should go all in and “fire a cannonball”; but if there are legitimate questions that testing and experimentation may help resolve, “fire bullets” instead. In addition, innovations mistakenly identified as disruptive carry the burden of unrealistic expectations and overinvestment that might have been better allocated to other projects and initiatives.

Clayton Christensen’s³⁰ landmark contribution on disruptive innovation provides specifically derived criteria that may qualify an innovation as disruptive. These criteria are more often assumed than proven, especially by enthusiastic media outlets reporting on new developments in a field, those championing a particular innovation, or leaders who wish to position themselves as progressive or “innovative.” A summary of six criteria capture the most prominent characteristics of disruptive innovation. First, disruptive innovations are typically cheaper, simpler, and frequently more convenient than what is currently on the market, but their performance is worse, or perceived to be worse—at least in the immediate term. Second,

Clayton Christensen’s³⁰ landmark contribution on disruptive innovation provides specifically derived criteria that may qualify an innovation as disruptive.

the characteristics of the disruptive innovation mean that its appeal starts downmarket, with a few fringe customers who do not have access to mainstream services. Third, disruptive innovators are those who operate outside the established value network. The value network is the web of customers, suppliers, competitors, relationships, and processes that bound the current industry providers. Disruptive innovators are not shackled by the existing value network and the accompanying expectations and norms that prevent established providers from executing on new product or service delivery. A related fourth characteristic is that a disruptive innovation starts with a new technology, so theoretically, any organization can build that technology into its existing products, services, or processes. Christensen’s insight reveals that this does not happen, though, and it is a new organization or a new subsidiary to an existing organization (that is, new business model) that brings the disruptive innovation to market. Fifth, the appeal of disruption grows and eventually comes to dominate the market as it moves upmarket. The eventual market domination leads to the sixth and final characteristic, which is the failure of traditional organizations. Today’s leaders go out of business or at the very least lose the majority of their market. Christensen’s own criteria might be applied to innovations such as MOOCs or

institutions operating on a competency-based credit model, to discern whether, on the balance, they are best described as disruptive or something else.

Disruptive innovation is most closely aligned with business model breakthrough innovations represented in the lower right-hand corner of Table 2 (though breakthrough is not necessarily disruptive). There are, however, differences between the private sector roots upon which Christensen's findings originate and the social and public functions that institutions of higher education serve. Higher education leaders should be mindful of such differences when attempting to apply concepts such as disruptive innovation to the industry. As just one example, stakeholder interests in the public good and/or the public sector are decidedly more value-driven (in the non-economic sense), controversial, and entrenched than what is typically found in a private organization.

In the end, popularized ideas such as disruptive innovation carry certain connotations that should be weighed against their origins before automatically assuming applicability to higher education. Perhaps what we call an innovation is less important than characterizing it in a way that informs the administrative decision making that accompanies our best intentioned efforts to continually improve teaching, research, and service in the industry. For this reason, Table 2 does not just speak to one particular form of innovation but instead examines many innovation possibilities and their impacts. In addition, the examples provided in this section are just a small sampling of possibilities. Different types of innovation may occur at the state policy level, for entire systems, or in single departments.

THE HIGHER EDUCATION ENVIRONMENT

Invention, innovation, and adoption are stages in a process, and these stages take place within a broader context—the higher education environment. The impact of the higher education environment on the adoption stage seems particularly acute and well-publicized, thus consideration of it seems appropriate before discussion of the adoption phase.

Organizational theorists have long advocated an ecological perspective³¹ to describe the array of organizations, activities, and processes that define any family of institutions or organizations.

Invention, innovation, and adoption are stages in a process, and these stages take place within a broader context.

Organizations exist within a broader environmental context, are influenced by the context, and simultaneously help shape it as well. That context is comprised of other organizations, interactions among people and

groups, existing structures, and even history. Strategy scholars also have long been concerned with the external environment of an organization, and have used terms such as value-net, value-network, industry forces, systems view, and ecosystem.³² All of these terms, as conceived of by their various authors, conceptually define the various facets of an organization or industry's environment. Activities and interactions, such as those defined by invention, innovation, and adoption strategies, encompass the internal dimension of an organization and/or industry. Those forces outside of the organization or industry are what constitute the environment.

In studies of innovation, the term ecosystem is commonly used to describe the specific organizations and processes that comprise an industry and directly affect it.

The Higher Education Environment consists of three macro variables that influence the three stages: 1) Political, Economic, Social, and Technological (PEST) forces; 2) the Higher Education Ecosystem; and 3) previous and existing innovations.

Political, Economic, Social, and Technological (PEST) Forces

George Keller is largely credited with providing strategy tools to the higher education industry.³³ Keller's strategic analysis framework primarily focuses on SWOT (strengths, weaknesses, opportunities, and threats) analysis but has overlap with what is referred to in the strategy literature as PEST (political, economic, social, and technological) analysis.³⁴ A PEST analysis focuses specifically on external factors or forces that influence the effectiveness of an organization or industry. Many strategic planners do not dedicate a substantial amount of time to a PEST analysis because it is a macro exercise that simply draws attention to broad boundaries that organizational leaders cannot control. On the balance, a PEST analysis should not consume an inordinate amount of time, but it is also a mistake to ignore it. Political forces that influence higher education include but are not limited to political behavior and federal and state laws and policies pertaining to financial aid, admissions, accreditation, and governance structures and organization of higher education. Economic forces include state resources, existing tax structures in states, and the composition of industries in the state. Importantly, economic forces also include "the market" which is comprised of competing institutions and organizations which supply or consume resources from the industry. Social forces encompass demographic changes in the population, in terms of age, race/ethnicity, attitudes, and values. Technological forces are often thought of as developments in technology occurring outside of higher education but that influence it. In reality, technological developments commonly emerge through partnerships between private or governmental entities and higher education—the early development in the late 1960s of what would become known as the Internet standing out as a prime example.

The Higher Education Ecosystem

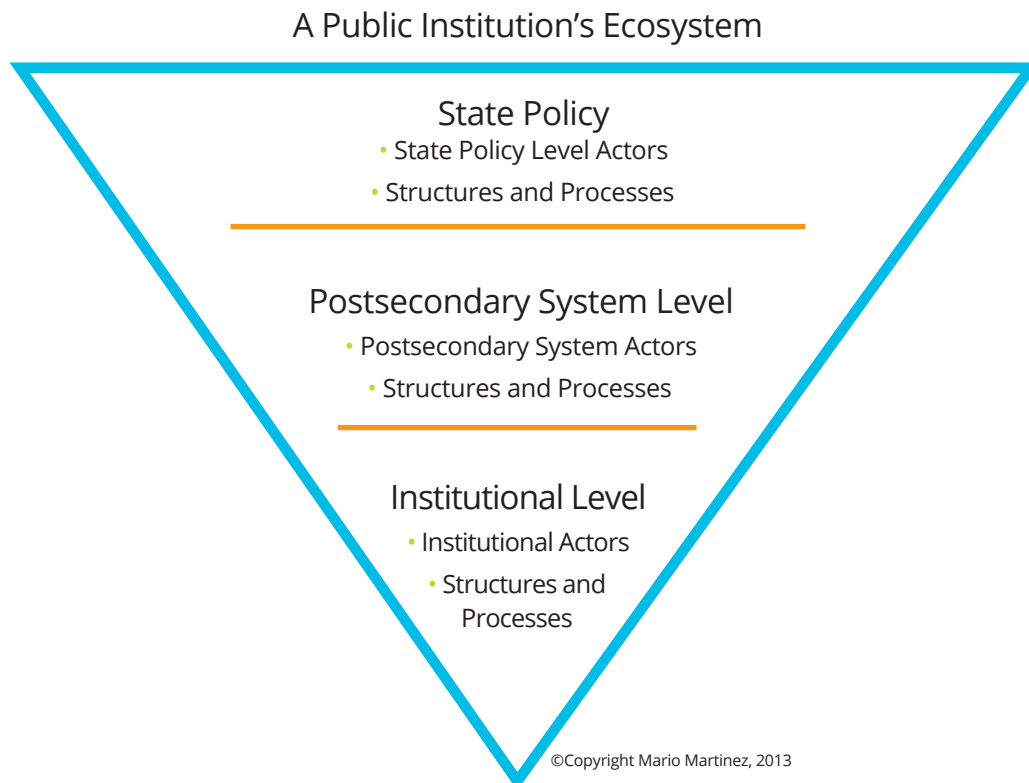
Research in policy and higher education has long recognized that multiple organizations, processes, and actors constitute a higher education environment.³⁵ A systems framework describes the various elements of a social system, the interactions that take place within the system, and the environment in which the system is located. Other efforts focused on public entities or organizations whose purpose is to at least in part address the public good distinguish among federal, state, and institutional policy levels and the many actors and "rules" that constitute those levels.³⁶ Some higher education researchers have distinguished the broader policy environment in which higher education systems and institutions operate, while others have drawn particular attention to the demographic, political, economic, and higher education specific variables that potentially influence policy adoption. Innovation scholars³⁷ address how particular organizations within a wider ecosystem strategically maneuver to manage change or stimulate innovation. Dartmouth professor Ron Adner, author of the *Wide Lens*, whose influential work on ecosystems in private industry, provides an important perspective that higher education leaders can learn from. Adner states that ecosystem principles apply to any type of organization, public or private, for-profit or non-profit.

There is an ecosystem that builds around any innovation that influences the three Stages of Innovation. As lighting inventions emerged, ecosystems developed around those innovations that came to be adopted. Candles gave way to oil lamps, which in turn gave way to gas, and finally electricity. Each progression of lighting innovation, though, had an associated network of suppliers, providers, customers, and investors that influenced subsequent inventors, innovations, and adoption. Whalers had a vested interest in oil lamps, for example, while many public and private institutions were already set up to handle gas as a source of light and influenced what might have been the expected diffusion of electricity (it took longer than anyone expected).

As the work across a number of fields seems to indicate, managing change³⁸ and innovation for any organization takes place in a larger environment (e.g. PEST), but there is also an ecosystem of actors, organizations, and processes whose dynamic activity has very important and direct influence on the institution of interest. Combining the literature from a variety of fields—including the contributions from higher education researchers whose work focuses particularly on institutions and policy environments—suggests there is a Higher Education Ecosystem that is part of the larger higher education environment.

Figure 2 below represents an example of an ecosystem for a public institution that belongs to a system (over 80% of students attend public institutions, many of which belong to systems, so demonstrating the concept of an ecosystem in public higher education has tangible appeal). The figure demonstrates the concept of an ecosystem of a public higher education institution. Conceptualizations specific to different sectors of higher education (e.g. private institutions, liberal arts institutions, etc.) may look somewhat different, but Figure 2 illustrates the ideas associated with an ecosystem perspective. The important thing is to sketch out the ecosystem for an organization or an industry. This will facilitate conversation about different actors,

Figure 2. Example of an Ecosystem in Public Higher Education



organizations, and processes which may influence the three different innovation stages. In Adner's terminology, mapping out the ecosystem helps us develop a blueprint of the ecosystem and will provide insights about those things that may facilitate or inhibit innovation efforts.

Prior and Existing Innovations

There exists a perspective that there is no such thing as a completely "new" innovation. Every innovation builds on that which precedes it. Innovation is really just a recombination of past ideas and concepts. Karl Weick has eloquently described creativity as "putting new things in old combinations and old things in new combinations."³⁹ It is not so much that Ford created anything from scratch as much as he combined different existing innovations into a coherent system to manufacture and distribute the automobile.

The idea that previous and existing innovations influence current and future innovations seems to apply across industries. The legendary success of Elvis is attributed to what is referred to as recombination.⁴⁰ Elvis Presley and his producer, Sam Phillips,⁴¹ masterfully bridged two existing musical brands: rhythm and blues on the one hand, and country music on the other. When Presley and Phillips combined the popular country ballad, Blue Moon of Kentucky, with an R&B beat, they struck on an innovation that appealed to white teenagers and an audience that began to broaden based on this "bridging" of previously but separately existing musical traditions.

There is also evidence that innovations outside an industry influence organizations within an industry.⁴² As outside innovations gain traction, organizations within a particular industry increase their "search" intensity, as they consider how the innovation or variations of it may benefit them. On the other hand, innovations by an inside organization do not necessarily prompt similar organizations to copy the innovation, but it does provoke cognitive activity and the search for their own solutions as they attempt to compete and remain relevant.

In higher education, innovations are taking place in teaching, research, and service—and technology is often (but not always) a key facilitator of that innovation. New enrollment management systems, blended learning methods, and redesigned pathways are but a few of the many efforts occurring across the field. For those who believe that new innovations are possible in higher education, it is, at the very least, important to be aware of prior and existing innovations (and those in progress) and how ecosystems build around those innovations and how the actors that occupy those ecosystems develop expectations and preferences. Innovations that develop inside or outside of higher education will push institutions to consider novel approaches to new and persistent problems (sometimes called "wicked problems"), because it is often a piece of this innovation and a part of that one that leads to a powerful recombination that emerges as a true solution for a particular institution or system.

ADOPTION

The adoption of an innovation is dependent on the features of the innovation and how the innovation will be positioned given its features. Rogers and Christensen⁴³ both describe features of an innovation such as cost, convenience, usability, complexity, and compatibility. Rogers's description of features of innovation that influence diffusion is comprehensive, and his framework draws on a plethora of studies and literature reviews. Rogers describes five factors that influence the diffusion (or adoption) of an innovation: 1) relative advantage of the innovation over what currently exists; 2) compatibility with what exists now; 3) complexity of the innovation; 4) trialability, or whether people have been able to "try out" the innovation; and 5) observability, which is somewhat related to trialability but refers to whether people have been able to observe the innovation, even if it is vicariously through others' implementation or use of the innovation. Some researchers have added to Rogers's list. For example, result demonstrability is the degree to which people can see proof that the innovation works; image refers to the degree that using the innovation enhances one's image or status in the social system; and voluntariness refers to whether the users are able to use the innovation voluntarily or it is forced upon them.⁴⁴ Rogers also recognizes that the adoption of an innovation is dependent on communications associated with the innovation, the characteristics of the social system (or ecosystem, as used in this paper) in which the innovation is attempting to seed, and the timing associated with its introduction.

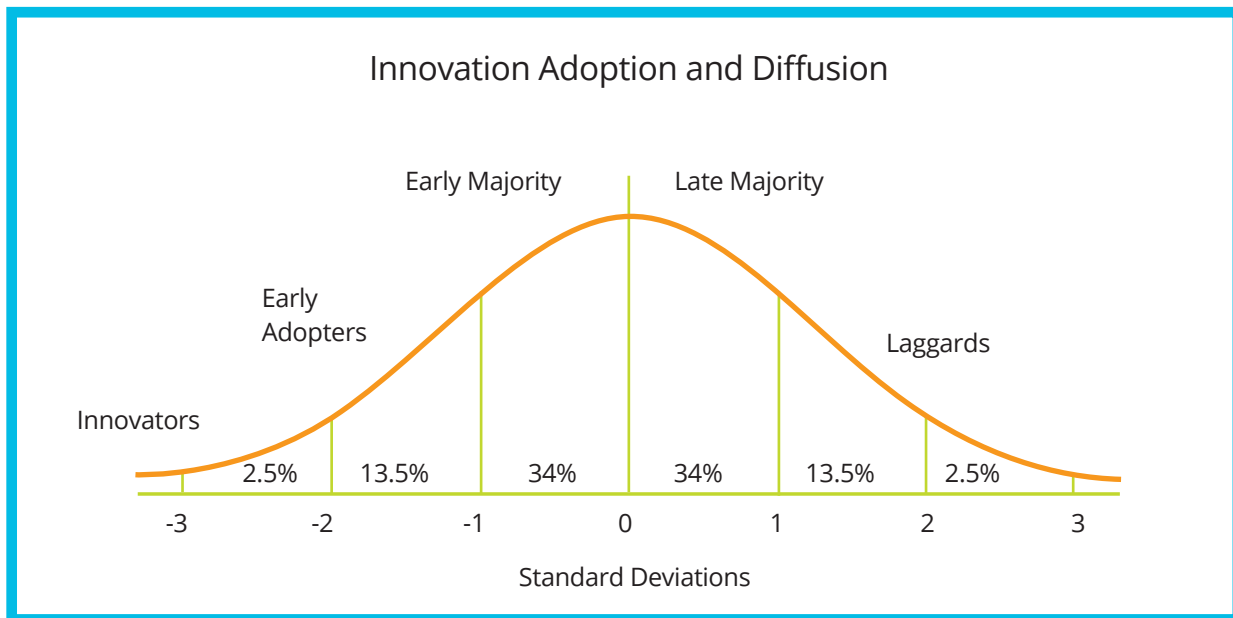
One study in higher education found that compatibility is an essential feature of new organizational innovations largely because of the complex web of actors, organizations, structures, and processes that are inherent in a public industry like higher education—that is, it is difficult to penetrate the existing ecosystem.⁴⁵ Thus new innovations in postsecondary education must contend with both regular market forces and the intrinsic properties of the higher education industry. A second reason compatibility surfaced as a critical feature was because the innovation must still break the many barriers to entry within the existing higher education industry ecosystem in order to legitimize itself in the eyes of students, existing institutions, policy makers, and even accreditors.

Outside of higher education, there are literally thousands of studies that analyze innovation adoption using Rogers's lens. These studies range from how the Plains Indians came to adopt the horse as a beast of burden to why remote, native villages resist the adoption of boiling water as an innovation in cleansing and food preparation. One study took the Rogers framework and also operationalized result demonstrability, image, and voluntariness to examine the factors that account for whether a group would adopt a technical computer system to facilitate better decision making.⁴⁶ The researchers found that relative advantage, complexity/ease of use, trialability, result demonstrability, and compatibility all contributed to a latent belief among group members toward adoption of the innovation.

The Level of Adoption and Diffusion

Some innovations “scale” and diffuse across a large band of adopters, while other innovations remain relatively localized and maintain only a cult-like following. The level of diffusion, whether large or small, is related to the factors of innovation articulated by Rogers and others, as well as the communications, social system, and timing associated with the innovation. No matter the number of adopters or users of the innovation, various labels which were first popularized by Rogers are used to describe the groups who come to adopt the innovation: innovators, early adopters, early majority, late majority, and laggards. These different groups follow a normal distribution curve, whereby innovators and early adopters are a small percentage (estimated at about 15%) of the total population who eventually adopt the innovation, and the early and late majority constitute the bulk of adopters (68%). A sample of adoption patterns is shown in Figure 3.

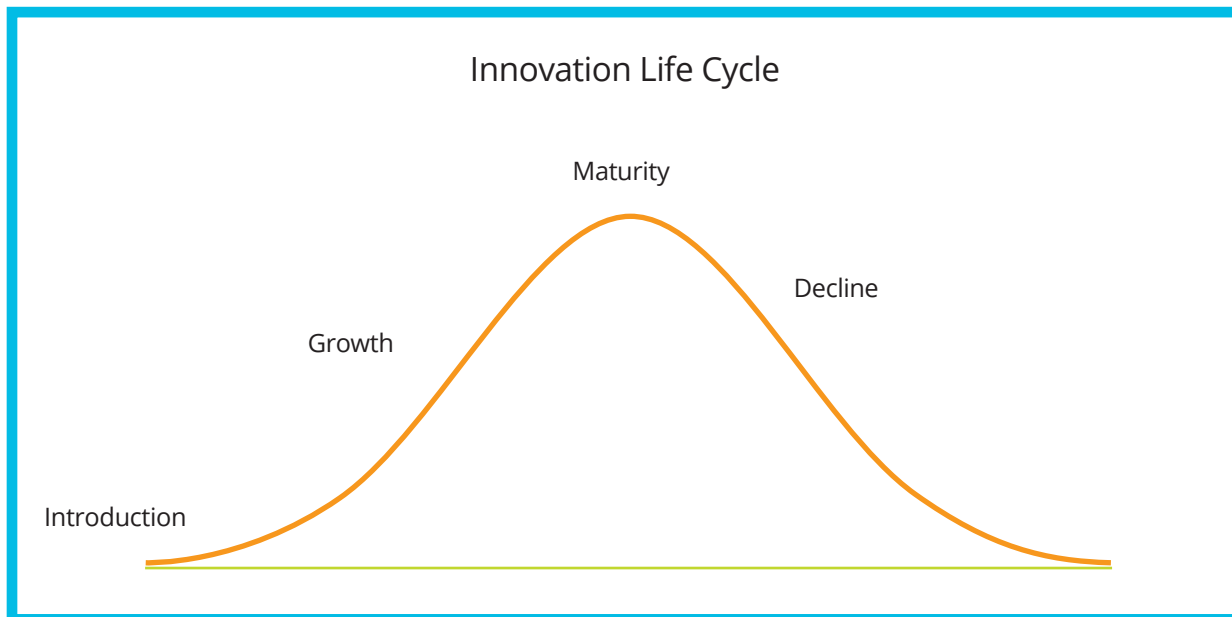
Figure 3. Innovation Adoption and Diffusion



The Innovation Life Cycle

Most practitioners and theorists ascribe to the idea that every innovation—be it a business model, process, or service/product—has a life cycle. The life cycle of an innovation may be measured in months, years, or, in the case of higher education, decades or centuries. For those innovations that achieve either a localized/cult following or those that scale more broadly, the pattern is that there is an early ramp up period, but it eventually levels off. Figure 4 below shows the typical life cycle of an innovation.

Figure 4. Innovation Life Cycle



The implication of Figure 4 is that once the life cycle begins to peak or taper off (approach maturity or decline), it is time to go back to the Invention Phase, to maximize the chance of starting another cycle with another innovation, before the current innovation dies—this has also been referred to as the “S-curve.”

Variations of the innovation life cycle have been forwarded by the business community. Gartner, a marketing research firm, explores new technologies and their innovation cycles and created what is called the “Hype” cycle.⁴⁷ Questions should accompany new innovations that are hyped by the media and presented as cure-all solutions: When new technologies make bold promises, how do you discern the hype from what’s viable? When will such claims pay off, if at all? Innovations that are primarily fueled by hype experience dramatic and abbreviated introduction and growth phases, but there is very little in terms of maturity before a dramatic decline. Some of these innovations may eventually settle into a true growth and maturity stage after their radical rise and fall, when realities set in. Other hyped innovations simply die.

Strategy, Innovation, and Adoption

Every innovation has associated with it a set of strategies, whether intentionally or unintentionally created, that influence the level of adoption and diffusion that it will achieve. Purposefully planned, an innovation's features and characteristics may create and enable strategic positioning. The literature on strategy is very often tied and intermingled with the topic of innovation and diffusion. Porter's classic strategies of Differentiation, Cost Leadership, and Focus⁴⁸ provide traditional explanations of why an innovation may or may not have adoption appeal. The classic strategies of differentiation, cost leadership, and focus have been applied to business, higher education, healthcare, and just about every other industry one can imagine. Innovations in higher education that are able to combine two strategies (differentiated cost-leadership or differentiated focus, for example) will maximize adoption and diffusion possibilities. Ignoring the quality question for the moment, institutions that are based on competency credits (differentiate) and reduce costs by eliminating the research function and replacing faculty with mentors (cost-leadership) improve their chances of adoption.

Less researched than Porter's three strategies are more progressive notions of strategy and innovation, such as the four dimensions associated with strategic innovation: 1) Create (Is our innovation new? What should we create that will be new?); 2) Raise (What should we emphasize or elevate?); 3) Eliminate (What should we get rid of or stop doing?); and 4) Reduce (What no longer distinguishes us? What should we strategically ramp down?).⁴⁹ Create, Raise, Eliminate, and Reduce are strategies that, like Porter's three classic strategies, apply to higher education and, if built into an innovation during the invention phase, may very well improve the chances of adoption and diffusion.

Influential innovation and strategy writers and scholars today take the best of different contributions and combine them in ways that help innovators travel the three Stages of Innovation most effectively.⁵⁰ For example, the degree that an innovation is differentiated, more cost-effective, or more focused than existing or previous innovations may well depend on what is Created, Raised, Eliminated, and Reduced during the Invention Phase. Table 3 below combines two strategic concepts from the literature: Porter's Strategies of Differentiation, Cost Leadership, and Focus with Chan's approach to Create, Raise, Eliminate, or Reduce different elements associated with those strategies.

Table 3 Porter's Strategies and Chan's Approach to Innovation⁵¹

	Create	Raise	Eliminate	Reduce
Elements of Differentiation				
Elements of Cost Leadership				
Elements of Focus				

It may be that strategies that eventually influence adoption take us back to the beginning of the Stages of Innovation Framework. One must be creative and invent combinations of strategies to improve the probability of adoption and diffusion. So, it is not just invention of the innovation that is necessary, but equally important is invention of strategies to improve the chances that the innovation will have appeal to either a localized group or a wider population. There are, after all, a lot of efforts that have produced interesting innovations that ended up going nowhere, because the critical stage of adoption was all but ignored or assumed. The wisdom throughout the literature is “do not expect the innovation to sell itself.” In the end, the lesson for Jandris Center is clear: the activity that Jandris Center chooses to engage in will benefit from a conscious awareness to all three Stages of Innovation, even if its niche is focusing on inter-organizational collaboration at the invention stage.

Summary

Innovation is a process, and thus it is important to develop a view of the various stages of this process. In this paper, the Stages of Innovation Framework is comprised of three stages: Invention, Innovation, and Adoption. Though Jandris Center may find strength emphasizing its efforts in the Invention stage, particularly as it pertains to inter-organizational collaboration, a holistic view of the process will inform Jandris Center's work at any stage and make it more effective.

As Jandris Center brings together representatives from different institutions and organizations for inter-organizational collaboration, there will be opportunity and challenge. The opportunity is that the complexity of challenges facing higher education today requires collaboration across organizations to conceive of solutions and innovations. The evidence in the research literature suggests that partners and collaborations are the most common avenue by which breakthrough innovation may occur. The challenge is constructing a collaboration that will work. Simply put: effective collaboration requires energy, effort, and resources. Effective collaboration requires participants build trust, spend time together, and develop cohesion as a team. Planning, meeting execution, and skilled facilitation are also common threads to effective collaboration. In addition, it is unlikely that substantial or breakthrough innovation will occur with a collaboration comprised of only higher education representatives. Outside voices are critical to the process of invention, innovation, and even adoption strategies to help the innovation diffuse. In short, effective inter-organizational collaboration requires both economic and human investment.

Innovation is a process, and thus it is important to develop a view of the various stages of this process.

The lessons from the research and perspectives represented in the white paper also suggest that there are different types of innovation that inventors hope will have different levels of impact. The Innovation

Types and Impact model in Table 2 offers important insight in that it may be unrealistic to expect and plan for every effort and initiative to result in breakthrough innovation. Furthermore, it is often incremental innovations that eventually enable substantial or breakthrough impact. A portfolio of innovation initiatives is a diversified strategy that may lead to better results, and one that is recommended for Jandris Center. Not all of Jandris Center's activities should endeavor to be breakthrough. This is a hard strategy to follow given sensationalized media accounts around certain innovations, the "hype" that tends to surround innovations that are well funded (often generated by funders and enthusiastic inventors), and the impatience of leaders and top administrators who are hoping for breakthrough change. The reality is that inter-organizational collaboration is a worthwhile endeavor, but it will take time, patience, investment, and resolve.

Every invention that culminates in a tangible innovation takes place within a broader environment and ecosystem, both of which Jandris Center should monitor and assess. The political and demographic landscapes are but two forces influencing all three stages of innovation. The higher education ecosystem in which particular institutions and systems operate is comprised of a web of actors, structures, and processes, each facilitating or inhibiting invention, innovation, or adoption. In short, any innovations that may sprout from inter-organizational collaborations orchestrated by Jandris Center—or any other activity Jandris Center embarks on—have no guarantee of adoption or diffusion. Adoption and diffusion of an innovation is not just the result of the technical and rational merits of the innovation. Success is predicated on communication and business strategies associated with the innovation, as

well as the many components of the landscape just mentioned. Just as Edison in his later years thought about strategies of distribution as much as the inventions themselves, so too must Jandris Center find its focus, all the time aware of all three Stages of Innovation and the higher education environment in which this work takes place. Appendix A is a good starting point for applying the concepts in the white paper to Jandris Center's current and planned activities, so that these activities may be grounded in research and reality while also reaching for new creations within higher education.

Appendix A

**PORTFOLIO EXAMPLES:
APPLICATION OF INNOVATION CONCEPTS
TO JANDRIS CENTER INITIATIVES**

The various activities and initiatives currently taking place at Jandris Center are offered in this Appendix as examples that map to the various concepts discussed in the white paper. The mapping of the activities and initiatives is offered for illustration purposes. The development of these activities and initiatives may subsequently align with additional concepts discussed in the paper, as additional features of the innovations emerge during implementation.

The current work of Jandris Center includes a portfolio of initiatives that foster innovation in the areas of product/service, process, and business model. Across all three areas, Jandris Center facilitates inter-organizational collaborations, bringing together diverse groups of knowledge brokers that inform technical and cultural aspects of innovation. As referenced in this paper, Jandris Center views external stakeholders not as competitors, but as collaborators who work in “co-opetition” to create new platforms and opportunities in the field of higher education. This philosophy is underscored in Jandris Center’s statement of values:

“Jandris Center strives to create an imaginative, dynamic community committed to addressing the most pressing problems facing higher education and society. Jandris Center brings together people and groups—locally, nationally, and internationally—to critique and redesign postsecondary policies and practices to meet the needs of a changing world.”

As illustrated in the model for conceptualizing innovation (Table 2, page 12), the majority of work around innovation is done at the incremental level. At this level, the central focus is on exploring innovative practices to meet the evolving needs of stakeholders. Examples of Jandris Center’s work around incremental innovation include public forums, post-baccalaureate certificates, and its emerging partnership with the Citizen Alum initiative.

INCREMENTAL INNOVATION

Public Forums (product/service)

Jandris Center hosts a series of public forums to convene scholars, practitioners, and other interested parties around important issues or innovations in higher education. Delivered both online as an interactive webinar and as an in-person event, Jandris Center forums allow people locally and around the world to interact with guest speakers and panelists around innovative ideas, policies, and practices. Dialogue such as this encourages and facilitates collaboration across the scholar-practitioner divide, bringing various and sometimes conflicting ideas into conversation with one another.

The forums are first and foremost a vehicle that aligns with the Invention stage, particularly inter-organizational invention and collaboration. This collaborative vehicle is a necessary and initial step in the Stages of Innovation, and it starts with conceptions that result from the collaborations that are most commonly described as product/service innovation.

Jandris Center forums model innovation in their use of hybrid events to bring people into conversation with one another through a variety of mediums, but also for the topics aimed to disrupt old ways of thinking around long-standing issues in higher education. The forums themselves, as well as developments that may result from them, would likely be incremental in impact. While the forums are most related to product/service innovation, there may be cases when innovative ideas emerging from forums may facilitate process or business model innovations. The forums are an important function of Jandris Center as a facilitator of generative thinking and expression.

Post-Baccalaureate Certificates (product/service)

Jandris Center is in the process of developing post-baccalaureate certificates to serve the needs of higher education professionals. The programs can be categorized as incremental in the domain of products and services, drawing on the concepts and frameworks articulated in this paper. Most of all, they address unmet professional development needs in the field of higher education by sector and field of practice. These certificates will provide participants with the knowledge, skills, and competencies to apply innovative thinking and frameworks to successfully lead institutions in a rapidly changing environment. As credit-earning programs, they will stand alone as post-baccalaureate certificates, or if students so choose, could be transferred to a related master's or doctoral program.

Citizen Alum Summer Institute (process)

Jandris Center's ongoing support for the Citizen Alum initiative represents its focus on process innovation. Led by Professor Julie Ellison at the University of Michigan, Citizen Alum is a rapidly growing national initiative that counters the image of alumni as primarily "donors" with a vision of them as also "doers." Such a philosophy reconceptualizes alumni as crucial partners in building multigenerational communities of active citizenship and learning (see citizenalum.org).

Citizen Alum is a catalytic effort that is aimed at process, because it is meant to create and change the practices, activities, and relationships between alumni and their alma mater. Moreover, the initiative reflects the concept of "recombination" as discussed in this white paper. Weick's description of creativity as "putting new things in old combinations and old things in new combinations"⁵² represents the central work of the Citizen Alum movement. Specifically, Citizen Alum combines traditional alumni relations practices with initiatives around democratic engagement in higher education. By shifting the focus to alumni as allies in education, Citizen Alum offers a new way of engaging alumni with one another, with current students, with the institution, and with the broader community. These "recombinations" have been created at Citizen Alum campuses and traditional roles of alumni and civic engagement professionals have been reimagined.

Jandris Center has supported the work of Citizen Alum campus teams and civic engagement leaders through summer institutes that foster skill development and information sharing across teams and roles.

SUBSTANTIAL INNOVATION

Higher Ed Redesign Initiative (process and business model)

The Higher Ed Redesign Initiative is a collaboration between Jandris Center, Midwestern Higher Education Compact, and the University of Minnesota’s College of Design. This initiative employs design thinking for social innovation to address persistent challenges related to higher education quality, access, and affordability. Currently, the Higher Ed Redesign Initiative is conducting a pilot program focused on leveraging open educational resources to advance equity, cut costs, and improve quality in higher education. The pilot program is comprised of 18 Design Associates representing diverse sectors, organizations, and academic disciplines. The program focuses on how institutions might better leverage the talent and creativity of knowledge brokers to create new prototypes that address persistent problems in higher education.

The Higher Ed Redesign Initiative is intended to provide substantial innovation in the area of process and business models. At the process level, the initiative focuses on design thinking for higher education which aims to apply a new set of tools to address persistent challenges. Such a process may eventually be scaled to address higher education problems at various levels (e.g. state policy level, institutional level). At the business model level, a primary aim of the Initiative is to create new prototypes that address specific design challenges. In the current pilot project, the aim is to create new prototypes that potentially unearth business models that utilize open educational resources within traditional campus environments.

Table 1A organizes each of these initiatives by impact and type of innovation discussed in this paper.

Table 1A. Jandris Center Initiatives by Potential Innovation Type and Impact

		<i>Types of Innovation</i>		
		Product/Service	Process	Business Model
<i>Impact of Innovation</i>	INCREMENTAL	Public Forums Post-baccalaureate Certificates	Citizen Alum Initiative	
	SUBSTANTIAL		Higher Ed Redesign Initiative (design thinking process)	Higher Ed Redesign Initiative (new prototypes)
	BREAKTHROUGH			

Appendix B

ENTITIES ENGAGED IN CONVENING AND PROBLEM SOLVING

The Tobin Project www.tobinproject.org

Mission: “To mobilize, motivate, and support a community of scholars across the social sciences and allied fields seeking to deepen our understanding of significant challenges facing the nation over the long term, and to engage with policymakers at every step in this research process.”

Inspired by the life and work of Nobel laureate James Tobin, the Tobin Project facilitates scholarship on pressing societal problems with a focus on public policy and practice. Currently their research focuses on economic oversight and regulation, democratic institutions, consequences of rising income inequality, and national security.

Project staff developed a model for developing innovative, interdisciplinary research that could be considered a best practice for policy or practice-focused research. The Tobin Project Model includes the following:

- “Define strategic research questions with the greatest potential to benefit society.
- Engage leading scholars across disciplines and institutions, and build communities of scholars around core research questions.
- Incubate and produce new research through scholarly collaboration and with policymaker input.
- Disseminate compelling ideas through academia, public discourse, and policy formation.
- Innovate continually on the Tobin Model of strategic research development.”

Center for Social Innovation csi.gsb.stanford.edu

Vision: “A networked community of leaders actively building a more just, sustainable, and prosperous world.”

The Center for Social Innovation (CSI) is a unit of the Stanford Graduate School of Business that aims to strengthen the capacity of individuals and organizations to develop innovative solutions to societal problems through cross-disciplinary idea exchange. Their programs are grounded in social change theory and aim to raise awareness of social innovations through research and education, building skills, and advancing action with MBA students, alumni, faculty, and practitioners.

CSI conducts research on social innovation across a wide variety of disciplines, has certificate programs for Masters students, runs an executive leadership program, and has a wide range of community engagement programs and events. CSI is a good model for Jandris Center to emulate as they are embedded in a research university and have a wide variety of functions driven by a specific vision for their program and their community.

EdLabs: The Education Innovation Laboratory at Harvard University
www.edlabs.harvard.edu

Mission: “We aim to solve the problems that many others believe are intractable. Our ultimate goal is to close the achievement gap and to put ourselves out of business.”

EdLabs is an education research and development laboratory focused exclusively on closing the racial achievement gap in US schools. EdLabs “is not a traditional academic center or think tank” but rather brings together scientists, educators, and implementers to generate ideas and implement experiments that have potential to transform K–12 education. Guided by research and through partnership with reform-minded school leaders “who place what is best for children over adult issues,” EdLabs aims to eliminate racial achievement gaps in US schools.

Though founded five years ago, EdLabs is action-oriented and has implemented and studied projects in schools around the nation. While not necessarily a convener, EdLabs is a determined and focused problem solving organization that will publish and defend their results whether or not they are politically popular. Their honesty of purpose and commitment to data-driven action are notable and exhibit a willingness to be disruptive in achieving their goals.

Social Science Research Council
www.ssrc.org

Mission: “Nurtures new generations of social scientists, fosters innovative research, and mobilizes necessary knowledge on important public issues.”

Founded in 1923, the Social Science Research Council (SSRC) is a long-running research center that focuses on supporting innovative, interdisciplinary research that has a practical application by convening researchers around international social science topics. Their five research concentrations currently are conflict and peace building, development and social change, the public sphere, knowledge and learning, and strengthening global social science. The SSRC considers their niche “to innovate and incubate, to identify emergent lines of research that will be enhanced by interdisciplinary ties, and to help scattered researchers achieve critical mass in the creation of a self-sustaining new field.”

The SSRC is a model of how to convene researchers across disciplinary boundaries to address public problems in a practical way. Their work is driven by a single focus on research for solving important societal problems, which is an important and clear metric for the projects they support.

Monitor Institute
www.monitorinstitute.com

Purpose: “To partner with mission-driven organizations and their leaders, helping them make the hard choices and take the necessary actions to reach a new level of impact. Our approach marries our deep grounding in strategy, networks, social innovation, and human systems with the fundamentals of professional advisory services—effective project management, skilled facilitation, and well-timed intervention.”

The Monitor Institute is a social enterprise that applies commercial strategies to help mission-driven organizations through new problem solving strategies to get beyond standard solutions to innovative, high-impact change. Their approach is to be future-oriented, create practical insights, and facilitate human systems. As a leader in convening groups to help them ideate and function at a higher level, the Monitor Institute has developed best practices around convening for innovation.

The Monitor Institute uses language similar to that of Jandris Center to describe their purpose, including “challenging assumptions,” “redefining expectation,” and “disrupting the status quo.” While this organization is not an academic or research center, they seem to have a similar function but come from an industry background that could be informative to Jandris Center’s work.

Endnotes

1. For an excellent treatment of the history of lessons from Edison, see Hargadon, A.B. and Douglas, Y. (2001). When Innovations Meet Institutions: Edison and the Design of the Electric Light. *Administrative Science Quarterly*, 46(3), pp. 476–501.
2. Joseph Schumpeter. (1939). *Business Cycles: A Theoretical, Historical, And Statistical Analysis of the Capitalist Process*. Also, the website <http://www.provenmodels.com/14> contains an excellent description of the Schumpeterian trilogy and Schumpeter's contributions to how we think about innovation within the context of the business cycle.
3. This definition comes from Thompson, J.D. (1967). *Organizations in Action*. New York: McGraw-Hill, p. 36.
4. Everett Roger's book, *The Diffusion of Innovation*, is the cornerstone work for any practitioner or theorist on the topic. Roger's comprehensive treatment on the topic is a must read, and he chronicles history, literature, and practices associated with innovation and diffusion.
5. Stephen Covey's first habit in the *Seven Habits of Highly Effective People* is to begin with the end in mind.
6. Examples of books on individual creativity range from early, clever titles like Roger Von Ochi's "Kick in the Seat of the Pants" to more serious treatments of the subject like Tony Buzman's "Mindmapping" and "Brainsteering" by Kevin Coyne and Shawn Coyne.
7. An excellent example of innovation and creativity for organizations is *Innovation X*, by Adam Richardson.
8. Argyris and Schon wrote many books, individually and together. Examples include: Argyris, C. & Schon, D.A. (1978). *Organizational Learning: A Theory of Action Perspective*, Reading, MA: Addison-Wesley.
9. Miles, R.E., Snow, C.C., & Miles, G. (2000). *TheFuture.org*. Long Range Planning, 33. 300–321. Elsevier Science Ltd. write of collaboration across organizations as a meta-capability. They also outline some of the barriers to collaboration specified in this text. Adrienna Kezar (2003) (Kezar, A. J. (2003). Enhancing innovative partnerships: Creating a change model for academic and student affairs collaboration. *Innovative Higher Education*, 28(2), 137–156) outlines barriers mentioned in this same paragraph, along with van Winklen (2010). I draw on these authors throughout this entire section. Van Winklen's article is particularly helpful in the discussion on sustaining collaboration and the relational factors in the table in this section (Van Winkelen, C. (2010). Deriving value from inter-organizational learning collaborations. *The Learning Organization*, 17(1), pp. 8–23); and Miles, Snow and Miles on time, trust, and territory, also in the table.
10. For an informative discussion on social cohesion, see: Im, S., Montoya, M.M., & Workman, J.P. (2013). Antecedents and Consequences of Creativity in Product Innovation Teams. *Journal of Product Innovation Management*, 30(1), 170–185.
11. See the Van Winkelen study for the seven collaboratives examined.

12. The idea of social processes and knowledge brokering comes from the fine work of Andrew Hargadon, the same author who documented the lessons from Edison. See: Hargadon, A.B. (2002). *Brokering Knowledge: Linking Learning and Innovation*. *Research in Organizational Behavior*, 24, 41–85.
13. Roberto Verganti's book, *Design-Driven Innovation*, is an important contribution to how we must include different perspectives during the design phase. On page 144 of his book, he visually captures the importance of both cultural and technical contributors, to an initiative.
14. The term "co-opetition" was popularized by Adam Brandenburger and Barry Nalebuff, in their popular 1996 book entitled "Co-opetition"
15. Gladstein, D. L. (1984). *Groups in context: A model of task group effectiveness*. *Administrative Science Quarterly*, 29(4), 499–517.
16. Guzzo, R. A., & Shea, G. P. (1992). *Group performance and intergroup relations in organizations*. In M. D. Dunnette and L. M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (2nd ed.), (pp. 269–313). Boston, MA: Nicholas Brealey Publishing.
17. Hoffman, B. J., Bynum, B. H., Piccolo, R. F., & Sutton, A. W. (2011). *Person-organization value congruence: How transformational leaders influence work group effectiveness*. *Academy of Management Journal*, 54(4), 779–796.
18. Guzzo, R. A., & Shea, G. P. (1992). *Group performance and intergroup relations in organizations*. In M. D. Dunnette and L. M. Hough (Eds.), *Handbook of Industrial and Organizational Psychology* (2nd ed.), (pp. 269–313). Boston, MA: Nicholas Brealey Publishing.
19. Hackman, J. R., & Morris, C. G. (1975). *Group tasks, group interaction process, and group performance effectiveness: A review and proposed integration*. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology*. Vol. 8. New York: Academic Press.
20. Guzzo, R. A., & Dickson, M. W. (1996). *Teams in organizations: Recent research on performance and effectiveness*. *Annual Review of Psychology*, 47(1), 307–338. Also see Hackman and Morris, as cited in endnote 19.
21. See Guzzo and Dickson, as cited in endnote 20.
22. Powell, A., Piccoli, G., & Ives, B. (2004). *Virtual teams: a review of current literature and directions for future research*. *ACM Sigmis Database*, 35(1), 6–36.
23. Baker, W.E. and Sinkula, J.M. (2002). *Market orientation and product innovation: Delving into the organization's black box*. *Journal of Market-Focused Management*, 5, 5–23. Boston: Kluwer Academic Publishers.
24. Tucker's 2008 book *Driving Growth Through Innovation* forms the basis of the typology in this section. The addition the "service" category and "frequency" of the different types and impact of innovation comes from: Silverstein, D., Samuel, P. & DeCarlo, N. (2009). *The innovator's toolkit*. Hoboken, NJ: John Wiley & Sons, Inc.
25. The idea of a balanced innovation portfolio also comes from Silverstein and colleagues.

26. Robert Birnbaum's influential piece *The Life Cycle of Academic Management Fads*, in the *Journal of Higher Education* describes these stages in depth, and provides Birnbaum's opinion about the negligible impact of such innovations.
27. See Marilee J. Bresciani, Megan Gardner, and Jessica Hickmott's book on *Demonstrating Student Success*, Chapter 1, for a fuller discussion and history on process improvement and higher education.
28. The Bill and Melinda Gates' Foundation effort, *Completion by Design*, is an example of a multi-million dollar effort to transform the student pathway, which takes a systematic, process-oriented approach.
29. See Jim Collins book *Great by Choice*.
30. Christensen has long been researching innovation (private sector innovation), and it was his book, *The Innovator's Dilemma*, that really popularized the notion of disruptive innovation, becoming a favorite term for leaders who want to be seen as progressive and instigating changes. In higher education, the media and leaders have adopted the term to describe presidents, universities, and just about any other project or initiative they are working on.
31. Gareth Morgan's book, *Images of Organizations*, provides a detailed description of organizations from this perspective, in his chapter, "Nature Intervenes: Organization as Organism."
32. Branderberger and Nalebuff, in their book, *Co-opetition*, use the term value-net; Clay Christensen, in *The Innovator's Dilemma*, uses the term value-network; Michael Porter, in *Competitive Analysis*, uses the terms Industry Analysis and Five Forces to define the external environment; and Ron Adner, among many others, uses the preferred term used in this paper "ecosystem." The ecosystem is more conventionally used in studies and writings that pertain to the topic of innovation, so I will stick with that convention.
33. George Keller's 1983 book *Academic Strategy: The management revolution in American higher education*, is widely viewed as a classic in strategy for the higher education field.
34. For a comprehensive treatment of strategy tools, which includes PEST, see Robert Grant, 2005, *Contemporary strategy analysis* (5th edition). PEST discussion starts on p. 68.
35. There exists a strong academic basis for thinking about public organizations as existing within a broader environmental context. A sampling of authors and researchers over the years whose work has laid a foundation for thinking about the environmental or ecosystem perspective generally and how this perspective might be applied to higher education specifically include: 1) Easton, D. (1953). *The Political System: An Inquiry into the state of political science*. New York: Alfred A. Knopf. 2) Ostrom, E. (1999). *Institutional rational choice: An assessment of the institutional analysis and development framework*. In P. Sabatier (Ed.), *Theories of the policy process*. Boulder, CO: Westview Press. 3) McLendon, M. K., Hearn, J. C., & Deaton, R. (2006). *Called to account: Analyzing the origins and spread of state performance accountability policies for higher education*. *Educational Evaluation and Policy Analysis*, 28(1), 1-24., and 4) Richardson, R. and Martinez, M. (2009). *Policy and performance in American Higher Education: An examination of cases across state systems*. Baltimore, MD: Johns Hopkins University Press.

- ^{36.} Eleanor Ostrom is a Nobel prize winner in economics, for her work on institutional theory. Among her contributions are the acknowledgment of different levels within a system.
- ^{37.} The work of Rod Adner is particularly important here. Adner's book, *The wide lens: A new strategy for innovation*. New York, NY: Penguin Group (USA) Inc. is a treatment of ecosystems in private industry, but the concepts and ideas hold great implications for those interested in higher education. Adner's statement in this paragraph that ecosystem principles apply to both public and private organizations is on page 79, of his book. See also Christensen, C. M. (2003). *The Innovator's Dilemma*. New York: Harper Collins. and his already mentioned term "value network" for an explanation of the larger environmental context in which organizations operate.
- ^{38.} An important contribution to any work on innovation and change, at the organizational level is Burke, W. W., & Litwin, G. H. (1992). A causal model of organizational performance and change. *Journal of Management*, 18(3), 523-545. This model has survived the test of time and reinforces the existence of different levels within an organization, which must be accounted for during the change process. Roger's book on the *Diffusion of Innovation* conceives of organizations at different levels: companies, public entities, or even entire states are conceptualized as organizations, all of which have different levels which must be accounted for. The *Industry Ecosystem for Public Higher Education* borrows from Burke's idea of levels, but also from the work of authors like Easton, Osrom, McLendon, and Richardson and Martinez, as noted above.
- ^{39.} Karl Weick has a number of influential books and publications. His book *Sensemaking in Organizations* is a classic in the field. This particular quote is from his 1979 book, *the Social Psychology of Organizing*, p. 152.
- ^{40.} Andrew Hargadon is an important researcher in the innovation area. See his two articles: Hargadon, A.B. and Douglas, Y. (2001). When Innovations Meet Institutions: Edison and the Design of the Electric Light. *Administrative Science Quarterly*, 46(3), pp. 476-501. Hargadon, A.B. (2002). *Brokering Knowledge: Linking Learning and Innovation*. *Research in Organizational Behavior*, 24, 41-85.
- ^{41.} The Elvis story comes from Robert Palmer's book *Rock & Roll: An Unruly History* (1st Edition)
- ^{42.} Information on "search intensity" and how outside and within innovations influence particular organizations is from research by: Greve, H.R. & Taylor, A. (2000). Innovations as catalysts for organizational change: Shifts in organizational cognition and search. *Administrative Science Quarterly*, 45(1), 54-80.
- ^{43.} The parameters appear in Clay Christensen's, in the *Innovator's Dilemma*, and by those provided by Everett Rogers in the *Diffusion of Innovation*. It is Roger's, however, who provides a more comprehensive foundation for thinking about variables that influence the diffusions of innovation.

- ⁴⁴. The three additional features associated with adoption are from: Moore, G.C. & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research*, 2(3), 192–222. These additional three features were used, in addition to Rogers’s original five, by Schwarz, A. and Schwarz, C. (2007). The role of latent beliefs and group cohesion in predicting group decision support system success. *Small Group Research*, 38(1), 195–229. Sage Publications.
- ⁴⁵. This study was presented by the author at the Association for the Study of Higher Education, 2012. Martinez, M. & Smith, B. Building Toward A Theory of Innovation in State Higher Education Systems. Research paper to be presented at the meeting of The Association for the Study of Higher Education. Las Vegas, Nevada, November 2012.
- ⁴⁶. See the study mentioned earlier by Schwarz, A. and Schwarz, C. (2007). The role of latent beliefs and group cohesion in predicting group decision support system success. *Small Group Research*, 38(1), 195–229. Sage Publications.
- ⁴⁷. Go to: <http://www.gartner.com/technology/research/methodologies/hype-cycle.jsp#> for a discussion and various graphics of the Hype Cycle in various fields and for various technologies.
- ⁴⁸. Michael Porter’s 1985 book *Competitive Analysis* is widely regarded as one of the most influential works in the field of strategy, even today. This book explains the differentiation, cost leadership, and focus.
- ⁴⁹. The Eliminate, Reduce, Create, and Raise strategies are also features of Kim and Mauborgnes’ work in *Blue Ocean Strategy*, 2005.
- ⁵⁰. For an influential example of combining different theories and ideas associated with strategy and innovation, please see the book *Business Model Generation*, by Alexander Osterwalder and Yves Pigneur. The authors combine many ideas of strategy and innovation into a coherent visual to help individuals, groups, and organizations maximize their innovation efforts.
- ⁵¹. Table is a combination of Porter (endnote 48) and Chan (endnote 49).
- ⁵². Karl Weick has a number of influential books and publications. His book *Sensemaking in Organizations* is a classic in the field. This particular quote is from his 1979 book, *The Social Psychology of Organizing*, p. 152.

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J Center strives to disrupt assumptions, reframe problems, and envision scenarios to create a better future for higher education and society.

J Center is anchored in the belief that the current system of higher education in the United States is unsustainable, and that transformational changes are necessary to ensure high quality, accessible, and affordable higher education for future generations. Imaginative thinking that challenges current practices and inspires new approaches and insights is required. Our work is focused on three thematic areas: *Leading Change*, *Civic Engagement*, and *Teaching & Learning*.

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