

# Assessment Models for Engagement of Higher Education Institutions in Economic Development

A Report Commissioned By *University Economic Development Association*

## Submitted By<sup>1</sup>

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## Executive Summary

The role of higher-education institutions (HEIs) in fostering regional economic development has been well recognized in recent years. In recognition of this role, UEDA (University Economic Development Association) commissioned a study of the feasibility of developing a ranking system that would reflect the depth of engagement of an academic institution in economic development. This report represents a foundational step towards this goal. It provides a comprehensive summary of four models that were determined after extensive background research to be the most well-known and/or in use to measure or categorize the contribution of HEIs to economic development. The models chosen are the following:

- Carnegie Foundation's Elective Classification on "*Community Engagement*"
- *Institutional Self-Assessment Tool* developed by the Commission on Innovation, Competitiveness and Economic Prosperity of APLU (Association of Public and Land-Grant Universities)
- *PURE* (Pascal Universities Regional Engagement) Project
- *BEDI* (Benchmarking Economic Development Impacts) Model

Additionally, we also report on the use of EIA (Economic Impact Assessment) studies for this purpose.

Based on our findings, our two primary recommendations are as follows:

- Due to the relative newness of these models/approaches and/or a lack of standardization in application, it is premature to propose any of them as the sole foundation of developing a valid ranking system. Instead, it is advisable to await the empirical validation of the *APLU Self-Assessment Tool* and the *PURE Project* before embarking on the development of such a system.
- Any ranking system developed should probably include methodologies borrowed from two or more of the models/approaches discussed in this report. In addition, in order for the ranking system to be meaningful, the methodology used needs to make adjustments for the institutional mission, social and economic landscape within which an institution operates.

# 1 Background

In recent years, the role of higher-education institutions (HEIs) in fostering regional economic development has been well recognized and has come to be commonly referred to as the “third mission” of an HEI, along with the creation and dissemination of knowledge. Third Mission refers “to all activities concerned with the generation, use, application and exploitation of knowledge and other university capabilities outside academic environments.” (Molas-Gallart, Salter, Patel, Scott and Duran, 2002).

Numerous comprehensive guides on this subject are available. In the USA, the salience of the “third mission” is evident across the entire landscape of post-secondary institutions and even in federal government based research funding (the mainstay of sponsored academic research in the United States), where “community-based impact” is commonly used as a funding criterion. Perhaps the most recent and comprehensive account of the role played by US institutions in economic development is available in the report from Rockefeller Institute of Government at University of Albany (Shaffer and Wright, March 2010). Entitled “*A Paradigm for Economic Development*” this report is a survey of university sponsored economic development efforts in the US. It reviewed literature, surveyed programs in all fifty states, and looked closely at programs and projects in about twelve states. The study found a diverse range of efforts in four broad areas:

- Advancing innovation through knowledge creation – new technologies, new processes, new products, new ideas – in their local and regional economies to yield tangible economic benefits,
- Helping employers prosper and grow through knowledge transfer – worker training, management counseling, help for startups, and other initiatives,
- Actively participating in community revitalization, recognizing their role as a significant industry in the community and taking that responsibility seriously,
- Creating an educated population – even more important in the new economy.

These findings suggest that state governments need to work more closely with their HEIs in developing and implementing their economic development strategies. They also suggest that knowledge is a factor of production and new theory of its growth should be developed. The report concludes that there is no single strategy that will work for all institutions; rather it is important “...to find the sweet spots at the intersection of their institutional strengths, and the structure of their particular communities, economies, and business clusters.” (p. 51) Finally, the report notes that many people working in economic development and community engagement would “...benefit from more cross-pollination and shared-research” (p.49).

In recognition of the above trend, the University Economic Development Association, hereafter referred to as the UEDA (see <http://www.universityeda.org/>) formed the *Higher Education*

*Economic Development Impact Models Committee*<sup>2</sup> with the intention of researching the subject of developing a ranking system that would reflect the depth of engagement of an academic institution in economic development. The committee met and with the approval of the Board of Directors of UEDA, agreed to the following as its initial charge:

*Conduct preliminary background research and submit a report to the UEDA Board that describes the comprehensive landscape of what is currently available or being done across the US and the world in terms of measuring and/or benchmarking the economic development impacts of academic institution.*

This report consists of a comprehensive summary of four models that were determined after extensive research to be the most well-known and/or widely used for measurement or categorization of the contribution of HEIs to economic development. Based on our findings, we conclude that due to the nascent nature of these models and lack of standardization in application, none are feasible to use “as is” to develop a nation-wide ranking system for HEIs based on their economic development contributions.

## **2 Carnegie Foundation’s Elective Classification on “Community Engagement”**

Arguably, the most visible effort to document and recognize the collaboration between institutions of higher education and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity is the recently developed elective classification of *Community Engagement* of universities by the Carnegie Foundation for the Advancement of Teaching (<http://www.carnegiefoundation.org/>). More information on this classification can be found at [http://classifications.carnegiefoundation.org/descriptions/community\\_engagement.php](http://classifications.carnegiefoundation.org/descriptions/community_engagement.php).

This classification, which is gaining increasing attention from academic institutions, is perhaps the most visible of all in terms of “measuring” the participation by an institution in community engagement related activities. The list of US institutions that achieved this classification in 2008 is available here:

[http://classifications.carnegiefoundation.org/downloads/2008-community\\_engagement.pdf](http://classifications.carnegiefoundation.org/downloads/2008-community_engagement.pdf).

The above classification divides efforts of the HEIs in engaging their communities as belonging to one of the following two categories: (i) outreach activities and partnerships and (ii) curricular engagement.

- (i) **Outreach activities and partnerships:** This is defined as situations where “Outreach activities focus on the application and provision of institutional resources for community use with benefits to both campus and community. Partnerships focus on collaborative interactions with community and related scholarship for the mutually beneficial

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<sup>2</sup> See appendix for a list of members.

exchange, exploration, and application of knowledge, information, and resources (research, capacity building, economic development, etc.).” Examples of this would include centers with outreach missions and engaged scholarship.

- (ii) **Curricular engagement:** This is defined as situation where “teaching, learning and scholarship engage faculty, students, and community in mutually beneficial and respectful collaboration. Their interactions address community-identified needs, deepen students’ civic and academic learning, enhance community well-being, and enrich the scholarship of the institution.” Perhaps the most common example of this would be service learning or co-op/internship programs.

Clearly, economic development is a potential direct outcome of many types of community engagement activities. Economic development could also be a secondary or tertiary benefit of community engagement activities such as nutrition education, retirement planning, leadership training, and after school programs. Some HEIs have created offices or councils that separately address outreach/engagement and economic development. One focuses primarily on economic development and the other primarily on social and cultural development. These offices or councils will have complementary, and in some circumstances overlapping, roles in the communities they serve. One must be careful and recognize that not all community outreach and engagement activities have economic development as their goal.

We submit that although the Carnegie classification is not a ranking scheme, it engenders one implicitly, albeit not explicitly. The Carnegie Classification lists universities that are classified under “Outreach activities and partnerships” another set under “Curricular engagement” and a third set that is classified under both, which may arguably be considered the highest “rank” within this classification. As of 2008, 120 HEIs in the US have achieved the Carnegie classification of Community engagement; of these, 112 have achieved it for both (i) and (ii).

### **3 CICEP – Commission on Innovation, Competitiveness and Economic Prosperity**

The Association of Public and Land-Grant Universities (APLU at <http://www.aplu.org>) created the *Commission on Innovation, Competitiveness and Economic Prosperity* (CICEP at <http://economist.asu.edu/overview>) to focus on the following three objectives:

- Understanding and defining the expanding university role in local and regional innovation,
- Expanding the tools and metrics for universities to measure and explain their role to a wide range of audiences,
- Gaining a better understanding of the innovation ecologies in which A•P•L•U institutions operate.

CICEP projects have created two tools that we found to be relevant to the charge of this committee:

- (i) The “*Effects of the University on the Local Economy*” website was created as a toolkit for universities to use in developing measures of their contribution to regional economies.
- (ii) The “*Institutional Self-Assessment Tool to Enhance Regional Innovation and Prosperity*” is intended to help universities understand and define their roles in local and regional economic development.

### **3.1 Effects of the University on the Local Economy**

The website, <http://economist.asu.edu/overview>, and accompanying materials describe the following three distinct ways that universities contribute to the regional economy.

- (i) Traditional Economic Impact: Universities as an Economic Base Industry – “A university directly contributes to the local/regional economy as an employer providing wages and salaries to its employees, as a buyer of goods and services expending its funds, and as an attractor of others (students, parents, visitors to events such as lectures, athletics, concerts, etc) who buy goods and services in the region. Each expenditure stream creates multiplier effects resulting from jobs and incomes that are derived from its purchases of goods and services from other local businesses and from the jobs and incomes that are supported by the consumer spending of all employees, students and visitors directly or indirectly connected to the basic activity.”
- (ii) Benefits to Individuals and Society: Universities as Institutions of Higher Education – “Universities enhance educational attainment, which confers benefits on individuals and society. Educational attainment correlates strongly with an individual’s earning power. If the value of a college education is expressed on the same basis as the return on a financial investment, the net return is on the order of 12 percent per year, over and above inflation. An increase in the share of college graduates in a labor force also leads to greater productivity and wages for all workers. Nonmonetary societal benefits in regions with high proportions of college graduates include lower crime rates, greater and more informed civic participation, and improved performance across a host of socioeconomic measures such as better health. The ultimate benefit is increased productivity of the workforce.”
- (iii) Creation of Knowledge: University as Research Institutions – “Through its research activities, universities train future skilled researchers, create knowledge and skills useful in advancing the research agenda and developing new products, services, and companies, and assist companies in solving problems or adapting to opportunities. Companies often locate around universities with leading scientists and engineers with whom they wish to collaborate.”

The ultimate outcomes include quality job and business creation, enhanced prosperity and quality of life, and increased overall income and economic size of the community.

This toolkit identifies those elements a university should analyze to determine the impact of the university on its “local” economy. Many HEIs do, or have done for them, an economic impact analysis. All use some form of input-output models and include the effects of payroll and non-payroll expenditures and spending by students and other visitors. Many others include analyses of the economic benefit to the students and society. In some cases, this analysis includes the contributions of the HEI’s alumni to the regional economy and a few economic impact analyses even include the *knowledge creation* factors.

The toolkit does not provide suggested algorithms, models or specific metrics or data sets to be used by HEIs. This lack of direction is largely because HEIs are not a one-size-fits-all economic driver. In fact, those performing economic impact analyses strongly advise against comparing the results between HEIs or even subsequent analyses for the same HEI. Circumstances and assumptions that drove the outcome of one analysis will be different or change for other analyses. Although when properly applied, this approach will demonstrate/estimate the impact of the university on its regional economy (however the region is defined), it does not examine how well a university is doing in achieving its potential impact on the regional economy. In addition, this toolkit does not examine the impacts of some activities, such as business support and community development, in which many of our economic development programs are engaged. Therefore, we suggest that while this toolkit might provide insight, it should not be the primary resource in developing a rating system that would reflect the depth of engagement and commitment of an HEI to economic development.

### **3.2 Institutional Self-Assessment Tool to Enhance Regional Innovation and Prosperity**

This tool was created to help a university fulfill the following three objectives:

- (i) Understand and define its role in local and regional innovation and economic development, especially in a time of increasing expectations on universities to contribute in these areas
- (ii) Improve the metrics and measures a university uses to document and explain its roles, and
- (iii) Learn about the innovation ecology (internal and external) within which the university operates and help more clearly define the nature of economic development activities on a campus.

The tool can be accessed at <https://www.aplu.org/netcommunity/CICEPAssessmentTool>. This tool provides a means for an institution to assess its particular engagement in regional economic development. Many of the characteristics of a university making an impact on regional economic development are identified and a qualitative (Poor, Fair, Good, Superior) measure of the institution’s engagement with a specific characteristic is chosen.

The self-assessment is divided into two major categories: “How do you assess the institution’s current performance?” and “How important is this activity to the institution’s role in regional economic development?” The sub-categories are as follows:

1. Engage and Assert Institutional Leadership
2. Create a Supportive Culture
3. Ensure that University Activities Benefit the Public
4. Develop an Innovation Economy
5. Provide Relevant Educational Opportunities and Programs
6. Promote Openness, Accessibility and Responsiveness
7. Communicate Contributions, Success, Achievements that Benefit the Region

There are a total of thirty-eight characteristics to evaluate in each of the two primary categories. The tool is designed to be used across a broad university constituency to gather diverse feedback.

This tool could make a very good starting point in developing an evaluation instrument for measuring and ranking the contribution of academic institutions to economic development. The specific characteristics could be appropriately modified, expanded, or narrowed. Instead of, or in addition to, a “Poor, Fair, Good, Superior” rating system, narrative responses would be more appropriate in evaluating the institutions performance under the characteristic. The institution could complete the questionnaire and provide it to its regional economic partners for the stakeholders’ concurrence on the responses.

#### **4 Third Mission and PURE Project**

This model represents a European approach to measuring the outreach and engagement activities of an HEI. As mentioned before, the phrase “third mission” refers to all activities concerned with the generation, use, application and exploitation of knowledge and other university capabilities outside academic environments. Third mission activities in universities stimulate and direct the application and exploitation of knowledge to the benefit of the social, cultural and economic development of our society.

As noted in Benenworth (2006), the evolution of the European Union’s (EU) universities has accelerated in recent decades, to include third mission expectations for nation-building, regional economic development, socially responsible growth (e.g., green technologies), and industry cluster development. Combined with the traditional first two missions (instruction and research), universities are considered cornerstones for the future economies of the EU countries, grounded in an expectation that knowledge industries, high technology products, and service sectors will be critical. Operationally, EU universities will need to accept an academic entrepreneurial mindset, but with the added complexity that the universities be part of both regional and national innovation systems that link academic institutions with businesses and markets. Related, and just as important, the universities are collaborating with governments to address policy issues to create globally competitive environments.

The institutionalization of third mission programs has had a number of critical issues emerge for university leaders. Challenges have abounded and continue to do so. Allocation of resources away from the first two missions, the process of commercialization using public funds, impacts on faculty time and incentive packages, the balance of basic and applied research, and measurement of the value universities add are but a few of the topics being actively discussed.

To address the issues, EU universities are adopting benchmarking strategies to assess regional impact. Perhaps the most well known is the PURE (Pascal Universities Regional Engagement) Project launched in 2008 by the Observatory PASCAL ([www.obs-pascal.com](http://www.obs-pascal.com)). Observatory PASCAL (Place Management, Social Capital and Learning Regions) is an international research and policy development alliance that

“aims to develop, communicate and explain new and emerging ideas in the areas of place management, social capital and learning regions. It was founded to enable governments at all levels and associated policy-makers to benefit fully from emerging research and learning about how best to foster balanced and sustainable economic and social development in their regions. The central purpose is to enable the effective delivery of policies that improve the quality of living and working circumstances at local and regional levels, recognizing the importance of learning, social capital and the necessity of partnership for the successful implementation of policy.”

PASCAL operates globally from three centers at RMIT University, University of Glasgow and the Northern Illinois University. It is co-directed by Professor Mike Osborne in Glasgow, Professor Bruce Wilson in RMIT and Dr Robert Gleeson at NIU. The Chief Executive of PASCAL is Mr. John Tibbitt, based at Glasgow University.

The benchmarking tool put forth by Observatory PASCAL and described below will hereafter be referred to as the “*PURE Project*” tool. It is detailed in Charles, Conway and Benneworth (2009). To measure university outcomes, the tool distinguishes between two types of indicators:

Practice Indicators: these relate to the ways a university “seeks to interact with the region,” to determine if the university is doing the right things to benefit a region.

Performance indicators: These “assess the consequences of past actions.” These indicators ask if the university did things right and as a result achieved positive outputs.

While the report outlines a procedure for implementation, the most important substantive aspect for universities involves the eight distinct groupings of processes that define regional competitiveness and form the essential basis of the benchmarking tool. According to the model, the eight groups of processes that underpin regional competitiveness are:

1. Enhancing Regional Infrastructure
2. Human Capital Development Processes
3. Business Development Processes

4. Interactive Learning and Social Capital Development
5. Community Development Processes
6. Cultural Development Activities
7. Actions to Promote Environmental Sustainability
8. Promoting Engagement Within the University

Within each process, the report identifies benchmarks with a total of 57 detailed benchmarks in the eight categories above that are targeted to capture the activities of an HEI in enhancing regional competitiveness. The 57 benchmarks are further described as specific qualitative metrics based on levels of good practice and quantitative metrics related to performance.

As an example, for category (1), namely “Enhancing Regional Infrastructure,” the measures are:

- Engagement in regional infrastructure planning and assessment
- Using university demand as lever to upgrade infrastructure
- Investment in a high quality campus
- University involvement in multi-partner knowledge precincts (districts, tech parks, renewal projects)
- University participation in provision of public transport or other services
- University provision of core public services

Similarly, for category (4), “Interactive Learning and Social Capital Development,” the measures are:

- Involvement in regional governance
- Contribution to regional economic analysis
- Analysis of regional futures
- Staff exchanges
- Participation in learning region strategies
- Hosting policy seminars and workshops with local partners
- Connecting regional partners to international networks
- Supporting collective leadership of regional learning culture

As of today the “PURE Project” model has entered its first phase of implementation and data collection in fifteen regions around the world in countries such as Norway, England, Botswana, Australia, Italy and the US.

Thus the “PURE Project” tool based on the “third mission” of HEIs starts with an assumption that an HEI’s core three missions are transmission and dissemination of knowledge (teaching/learning in its many forms), creation of knowledge (research in its many forms), and application of knowledge for the betterment of regions, nations, and quality of life. These three missions are complementary and overlapping.

In that regard, it may be commented that the “PURE Project” tool shares many characteristics with the self –assessment tool developed by APLU discussed before. Similar to both tools, the activities that are assumed to contribute to the “third mission” are familiar ones, such as technology transfer and protecting intellectual property, community and economic development (local, regional, national, global), partnership formation, social capital development, corporate and environmental citizenship, and cultural, arts and intellectual development.

One of the most pressing topics currently under consideration in Europe is how to fund Third Mission projects in a manner that does not slice into resource allocations for academic and research activities, yet builds in sufficient funding to allow significant progress. With a global recession, funding for Third Mission activities is perceived as more important than ever, yet maintaining a sustained, predictable resource stream has been difficult.

In closing, the “PURE Project” mindset assumes that HEIs, businesses, and government share a desire to create industry clusters with globally competitive innovation at its core. The HEI’s role in each of the four areas is self-evident. More significant than just having a role is the assumption that HEIs have a leadership role, an expectation that they will contribute actively and positively to make life better and to make the economy strong. There is a collective pressure to assure that research and educated citizens make a positive difference in the broader framework of society. In short, the expectation is that HEIs exist for the public good. Thus this model makes a clear case for the tilting of the balance bar toward the public good for HEI’s decision-making and action.

## **5 The BEDI Model**

The BEDI (Benchmarking Economic Development Impacts) Model (2008, 2010) was developed at the North Carolina State University by the BEDI Task Force. Anticipating increased expectations for providing economic development impacts, NC State University established a university-wide task force to benchmark existing economic development impact measurement techniques and then to develop more advanced and comprehensive methods for measuring the university’s impacts from the “knowledge” impacts on the regional economy. The “Benchmarking Economic Development Impacts” (BEDI) Task Force work stretches beyond economic growth measures to the broader economic development support resulting from innovation transfer activities of the university.

The BEDI Task Force focused attention on the university's myriad community-based educational programs and partnership roles, and on the most appropriate ways to measure the impacts of those programs in communities of interest and place. The task force examined related work on understanding and measuring NC State University’s economic development activities, inventoried the university’s traditional and nontraditional engagement educational programs and activities, and was piloted in departments and units across the university. In consultation with

the wider University community, BEDI developed a useful logic model methodology for assessing and quantifying the economic impacts of various programs, and began work on a standardized evaluation system applicable across all colleges, units, and centers at NC State.

It is important to distinguish “economic impact” assessments from those that are widely publicized for HEIs. These studies precisely identify the expenditures that occur in the general proximity of campus from students, faculty, and staff being located on campus and from people attending recreational events on and around campus. The economic impact of interest to this study does not center on the expenditure effects. Rather, the resultant assessments of this work should focus on the economic impacts from the “knowledge effects” of NC State University. Those knowledge effects result from campus proximity and beyond.

To begin with, the authors of the BEDI model list eight categories that identify major activities which define the broad portfolio of extension and engagement activities of an HEI. The eight categories and their definitions are as follows – note that although the specific examples used in the original report pertain solely to NC State University, we have generalized them below so that they are applicable to any HEI.

1. Curriculum in Classes and Programs: Courses or programs that incorporate frequent, structured, and disciplined reflection on the linkages between the activity and the content of the academic experience
2. Co-curricular Service Activities: Organized, extra-curricular civic or community service that students perform in addition to academic coursework or programs
3. Knowledge Creation and Diffusion: Activities that develop, share, analyze, test and demonstrate new knowledge; such activities are considered engagement when they are conducted in collaboration or partnership with external constituents.
4. Technology Transfer and Commercialization: Activities include applied research, capacity building, evaluation studies, policy analysis, demonstration projects, and technology commercialization
5. Public Events and Understanding: Resources designed for the public include managed learning environments (e.g., museums, libraries, gardens, galleries, exhibits); expositions, demonstrations, fairs, and performances; and educational materials and products (e.g., pamphlets, websites, educational broadcasting, and software)
6. Technical and Expert Assistance and Training: Activities where HEI personnel respond to requests from individuals, programs, or agencies and organizations external to the university by sharing their knowledge, expertise, and skills in order to help those entities build capacity to achieve their goals; activities may focus on using expertise to address or improve the effectiveness and efficiency of the organization or to improve knowledge and skills. This category includes such activities as consulting work that is performed for the benefit of the constituent, expert testimony and other forms of legal advice, assisting agencies and other entities with management and operational tasks. Technical assistance

is much broader than providing technology-based assistance even though this might be a form of technical or expert assistance.

7. **Clinical / Diagnostic and Testing Services** — All client and patient (human and animal) care provided by university faculty members through unit-sponsored group practice or as part of clinical instruction and by medical and graduate students as part of their professional education; For example, this may include medical/veterinary clinical practice, counseling or crisis center services, and tax or legal clinic services.
8. **University / Industry Research Programs** — All collaborative and cooperative activities whereby university and multiple industries' resources are pooled for shared results such as membership consortia and resource centers.

As stated earlier, in order to assess these knowledge effects the logic model methodology was employed. Logic models are analytical tools widely used in many fields to depict the causal relationships between planned work and expected results. The WK Kellogg Foundation recommends the use of logic models in engagement work so that, with a visual roadmap, stakeholders can fully participate in planning and evaluating programs. The BEDI task force adopted the WK Kellogg Foundation's definition of logic model components:

- **Inputs or Resources** include the human, financial, organizational, and community resources available to direct toward doing the work.
- **Activities** are the processes, tools, events, technology, and actions that are an intentional part of the program implementation.
- **Outputs** are the direct products of program activities and may include types, levels and targets of services to be delivered by the program.
- **Outcomes** are the specific changes in program participants' behavior, knowledge, skills, status and level of functioning. Short-term outcomes should be attainable within 1-3 years, while longer-term outcomes should be achievable within a 4-6 year timeframe. The logical progression from short-term to long-term outcomes should be reflected in impact occurring within about seven to ten years.
- **Impact** is the fundamental intended or unintended change occurring in organizations, communities or systems as a result of program activities within seven to ten years. In the current model of WKKF grant making and evaluation, impact often occurs after the conclusion of project funding.

Shown below in Figure 1 is a generic logic model:

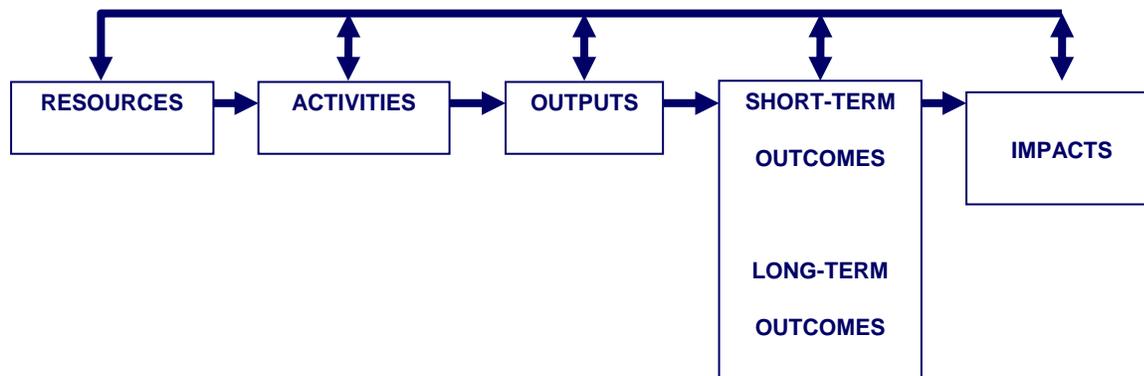


Figure 1: Generic Logic Model

For example, when applied to category 1 of an HEI’s engagement (Curriculum in Classes and Programs), the above logic model translates to the following shown in Figure 2.

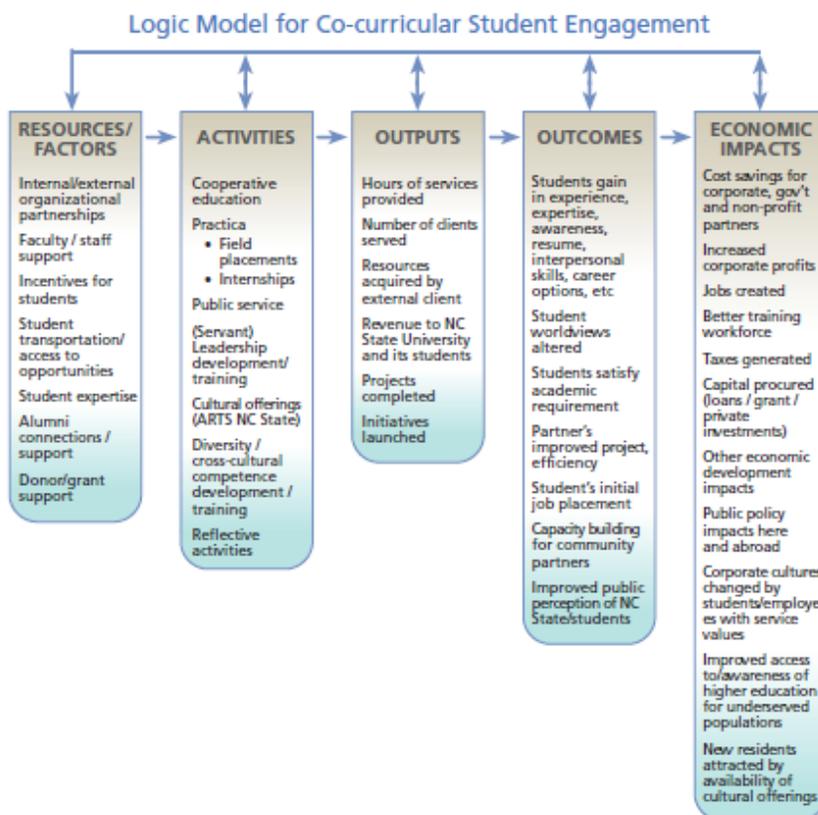


Figure 2: Logic Model for Curricular in Classes and Programs

Working with the logic models and understanding the relationships in the models is key. Logic model construction has many advantages in creating an understanding and common language for the real purpose associated with resource requests and/or activities. It develops congruence with strategic goals and accountability. It also can drive more meaningful measurement.

Measuring impacts is often very difficult, if not impossible. The impacts may occur too far in the future, often taking as long as ten years to develop. Also, a significant impact often relies on numerous factors and the importance of the particular input or activity to develop the impact cannot be discretely measured. In these cases, clearly articulating and gaining understanding of the relationship between an activity, its outputs, outcomes, and impacts is imperative. The model may prove that impact measurement is too difficult.

Impact measurement is always preferred, but when unreasonable to measure meaningfully, understanding the path to the impact is necessary and equally important. With this understanding, the dialogue can then seek to define what outcomes should be measured. Outcomes occur within a reasonable timeframe and are more discrete.

The new model is currently being implemented and is useful to external stakeholders by demonstrating the benefits the university confers on communities and regions. It documents the benefit and value to beneficiaries of programs in relationship to financial, social, political, human, cultural, natural, and built capital. This level of comprehensive reporting of the knowledge effects is rare in most programs. In addition, the model is useful internally for documenting opportunities for improvement, best practices, increasing extramural funding for engagement programs, and developing standards for engaged scholarship.

## **6 Economic Impact Studies For HEIs**

Of all the different methodologies in use by HEIs to measure and document their impact on regional economies, perhaps the most well known and established in terms of usage is the economic impact analysis (EIA). Such studies have been done by academic researchers as well as private consulting companies. An excellent survey of the academic studies and the methodologies used is available in Drucker and Goldstein (2007). By contrast, a well quoted example of one done by a private consulting company is that for the Pennsylvania State University done by Tripp Umbach, Inc (2009). There are several reasons for the burgeoning interest in these studies and the immense surge in their numbers in the last decade, especially in the US. First, the tectonic shifts in the economies of the developed countries that has resulted in a shift from traditional manufacturing to knowledge-intensive industries have accentuated the role played by HEIs in producing a trained workforce. Second, and no less important, long-term declines in financial support from public coffers has also added impetus to demonstrating the positive economic and social returns that tax-payers expect from HEIs. Notwithstanding the reasons for performing such studies, “the approaches and methodologies have varied widely and perhaps not too surprisingly, have yielded a whole range of estimates regarding the impacts of universities on their regional economies” (Drucker and Goldstein, (2007)). Therefore, we have chosen to include these studies under a separate section as one set of methodologies, rather than a unified model, that are nonetheless very widely used and available. Further, in an effort to demonstrate and explain the usage of one such EIA, we have chosen to describe in some detail the well-known and oft-quoted EIA for Pennsylvania State University mentioned above and

followed it up with a brief summary of an EIA done for the research enterprise at University of Alaska.

## **6.1 The Pennsylvania State University Economic Impact Study For 2008**

The Pennsylvania State University (Penn State) report uses a nationally recognized methodology developed by the American Council on Education (ACE) for the measurement of college and university economic impact.<sup>3</sup> The report measures the direct and indirect impact of the twenty-four Penn State campuses on the Commonwealth of Pennsylvania by quantifying the social and economic impact of the University's operations, visitors to the university, students, employees and alumni expenditures, in-state businesses owned by alumni, services provided by the university to businesses in the state; and the economic development activity of university research spin-offs.

Penn State is reported to have had an 8.5 billion dollar net economic impact on Pennsylvania making the University the single largest contributor to the state's economy. The University supported more than 67,000 total jobs (both direct and indirect) and every dollar invested by the Commonwealth in support of Pennsylvania State University operations returned \$25.06 in total economic impact. In 2008, the University returned \$1.91 in tax revenue for every \$1 it received in state appropriation. Additionally, Penn State generated \$647 million in state tax revenue including \$394 million from operations and payroll taxes and \$254 million in induced impacts resulting from additional Penn State alumni income, business taxes paid by Penn State alumni/business owners and income taxes paid by companies that benefited from Penn State's research.

This report goes beyond the traditional calculation of direct and indirect economic impact of wages and benefits to include the value of services provided to businesses, commercialization of research activities, increased earning power of Penn State alumni, and the impact of Pennsylvania businesses owned by Penn State graduates. With total direct, indirect, and induced annual economic impact equaling more than \$17 billion, they concluded that no other single entity in the Commonwealth did more to drive the state's economy; further, that Penn State generated more than two percent of the state's business volume, or more than \$1 out of every \$50 dollars in the state's total economy.

The study then compared the university's annual economic impact to other industries that receive financial support from state government. The university compared favorably with professional sports teams and the study went so far as to claim that Penn State generates more annual economic impact than the all of the state's airport hubs, professional sports teams, and arts and cultural organizations combined. They add that Penn State generated more than \$1 out of every \$20 in tourism within the state.

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<sup>3</sup> It should be noted that this is measuring HEI's economic impact, not the impact of the HEI's economic development programs or effect per se. ACE does seem to include measuring a HEI's impact on job creation, an element of that institution's impact on economic development.

The report states that Penn State employed 30,000 full and part-time employees in 2008, making it the largest generator of total employment among nongovernmental entities. Total employment, including direct and indirect was estimated at more than 67,000 persons.

The report corrected a common misperception that the university did not generate state tax revenue. Penn State's in-state spending and generation of economic impact from out-of-state sources had a significant impact on state tax revenue, with taxes created as a result of Penn State's operations, including payroll, institutional spending in the state's economy and generation of fresh taxable dollars equaled \$394 million in 2008.

Another uncommonly reported economic impact comes from state alumni, who donate more than \$149.0 million annually to charitable organizations throughout Pennsylvania. The consultant (Tripp Umbach) estimated that more than 17,000 Penn State alumni own businesses in Pennsylvania and that these businesses directly employ more than 475,000 residents. The average wage of employees at companies owned by Penn State graduates is \$9,800 higher than the average wage earner in Pennsylvania. This translates into more than \$4.1 billion in additional expansion of the state's economy and more than \$125 million in additional government revenue for the Commonwealth annually.

Penn State annually attracts more than \$631 million to Pennsylvania from sources outside of the Commonwealth to support research activities, generating 18,000 additional jobs throughout the Commonwealth, which generates more than \$1.9 billion in additional economic impact and more than \$61.2 million in additional revenue for the Commonwealth annually.

The report states that knowledge based research has been proven to create a multiplier of 3.22 within a state's economy, which is a dollar higher than the standard multiplier of 2.3 dollars for every one dollar spent within the economy by an institution. They further argue that given the role of research, it is logical to assume that Penn State will be generating and attracting new business enterprises for the Commonwealth. That through its research it not only contributes to business enterprises, but it also actively promotes business enterprise formation and expansion via University business incubators and small business advisory services. For example, during 2008, the University engaged in research projects with more than 750 companies of which 250 were Pennsylvania based companies – more than any other public university in the nation.

It appeared that the purpose of this report was to justify continued state investment in the university system. It certainly focused on how it helps the state. However, it also calculated some impacts from economic development investments; these included estimating the number of Penn State alumni that owned businesses and the average wage of employees at those companies. The report did not provide information about how many businesses had been nurtured in incubator(s) or the characteristics of incubator graduates' employees, which might also have been interesting. The report also claimed benefit for research conducted with, or commercialized by, state businesses, another appropriate economic development measure.

## **6.2 EIA of University of Alaska Research: An Economic Enterprise (March 2007)**

The University of Alaska (UA) report, Goldsmith (March 2007), focuses solely on the impact that university research has on the Alaskan economy. It compares UA against national benchmarks for a research multiplier and per capita spending on academic research. The research multiplier summarizes the productivity of internal (institutional) research funding in generating external research funding. The 2004 national multiplier was 5.5; UA's FY 2004 multiplier was 8.2. Nationally, Academic Research and Development per capita was \$135 in 2003 vs. \$215 for Alaska; similarly, nationally Academic Research and Development was \$269 per worker vs. \$422 per worker in Alaska. UA reports that over half of their 2006 research budget (\$92 million) was paid out in wages and benefits, employing 1,292 university employees. The next largest budget item was contracted services, followed by purchases of capital equipment, commodity purchases and travel in and out of state. The report calculates that this direct economic impact created 1,100 jobs and an additional \$76 million in business sales.

Characteristics of the research industry are also explored, which begins to get to some aspects of economic development. These included claims that research is highly labor intensive, that the average wage is higher than the economy-wide average, that they are quality jobs with benefits, provide year-round employment, create and support a diverse job mix, most employees are local residents, the employment has been stable, research investment is growing, it is environmentally benign, is non-competitive with other industries.

Finally, this report claims that UA Research provides a 4.7 return on investment for every dollar in state investment in research and further, that because it imports most of its research dollars, it is a basic industry. The authors then compare university research and state investment with other basic industries that also receive state investment and concludes that there is no comparison across industries.

## **6.3 Contrasting the EIA Reports For Penn State and UA**

The common themes between the Penn State Economic Impact Report and the University of Alaska Economic Impact Report are that they both talk about how they are leveraging their respective state's investment in the university and research, respectively. Both reports discuss expenditures on employment, the multiplier from local purchases, employee spending and visitors attracted to the campus. Both argue they are a basic industry, and compare themselves favorably to other basic industries receiving public funding in their state. The Penn State report explores a few aspects of the economic impact of their economic development programs, including research and measures the impact it has on job creation. While the UA report is focused solely on the economic impact of university research on the state, they say nothing about either the commercialization of this research or the economic impact of such commercialization, which would be the more direct economic development aspect of this activity.

In summary, these reports measure the respective university system's economic impact on their region. To reinforce this, consider that Penn State, using the ACE model, measures an element

of the economic impact of Penn State's economic development programs. However, these are clearly not studies of the economic impact of either university's economic development program.

## **7 Conclusions and Recommendations**

In this report we have discussed an overview of five well known approaches or models that are available and being used across the world in an attempt to measure and benchmark the contribution of HEIs to economic development. The models or approaches discussed are Carnegie Classification of Community Engagement, APLU's Self Assessment Tool, the PURE Project, BEDI and classical EIA (Economic Impact Analysis).

Based on our findings as reported above, our conclusions are as follows:

- Measurement of the contribution of HEIs to economic development is a relatively recent phenomenon. This shift has involved a change in culture at HEIs, necessitating short-term, medium-term and long-term approaches to ensure that such change becomes permanent.
- Most models we found were developed around and applied to a single HEI rather than used as a tool to make comparisons among HEIs. Thus, we did not find any that has been tested and empirically validated across numerous institutions.
- Two nationally recognized models that are in the initial phases of roll-out, both nationally and internationally are the APLU Self-Assessment Tool and the PURE Project model.
- Heretofore, EIAs have been found to be the most commonly used tool, but they are institution specific and cannot be used as the sole basis for comparing and ranking disparate institutions. Additionally, EIAs have focused primarily on measuring the contributions of the HEI to the regional economy and convey the same to different stakeholders. The primary focus has not been to measure the effectiveness of the HEI's economic development program.
- While no explicit ranking system exists yet, the most well known "implicit ranking" system is the elective classification of "Community Engagement" used by the Carnegie Foundation for Advancement of Teaching.

Given that the original task of this effort was to investigate the feasibility of developing a ranking system for HEIs that is based on their contribution to economic development, we make the following recommendations based on our study.

- It is premature to propose any of these models/approaches discussed as the sole foundation of developing a valid ranking system. It is advisable to await the empirical validation of the APLU Self-Assessment Tool and the PURE Project before embarking on the development of such a system.

- Any system developed should probably include methodologies borrowed from two or more of the models/approaches discussed in this report. However, that is not enough since, as noted in Huggins and Johnston (2009), significant differences can be found in the economic development impact of HEIs depending on the regional location and the type of institution. Therefore, in order for the ranking system to be meaningful, the methodology used needs to make adjustments for the institutional mission, social and economic landscape within which an institution operates.
- The UEDA Board of Directors should consider commissioning a survey to determine which benchmarking, assessment, and/or other approaches that UEDA member institutions are using, have used, and are considering using. The survey might serve as a foundation for UEDA training programs, consulting, best practice white papers, and other service and resource enhancement activities.

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